Appendix F

Site Stratigraphic Logs

709 and 721 Alexander

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-01
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.91						
	ASPHALT	11.71						
	SP-SAND, with gravel, trace silt, loose, fine to medium grained, well sorted, brown, dry to moist	11.06						0.0
		10.41						
2	SP-SAND, trace silt, loose, fine to medium grained, brown, with red grains and white grains, shell fragments, moist	9.91		1GP		4.0		
	SP-SAND, with to trace silt, fine grained, well sorted, brown, with red grains and white grains, shell fragments, moist							0.0
4	SP-SAND, trace silt, loose, fine to medium grained, well sorted, brown, some red grains and white grains, shell fragments, moist							
	- wet at 5.5ft BGS		BACKFILLED WITH BENTONITE CHIPS					0.0
6								
				2GP		3.8		
8								0.0
10								0.0
12				3GP		4.5		
14	- 2" sandy silt, brown at 14.0ft BGS							0.0
	ML-SANDY SILT, brown, wet	-3.09						
	CL-SILTY CLAY, medium plasticity, brown, moist	-3.59						
16								0.0
18				4GP		4.0		
	SP-SAND, trace silt, trace gravel, fine to medium grained, loose, brown, with red grains and white grains, wet	-6.84						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-01
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22				5GP		3.5		0.0
24	CL-CLAY, trace silt, trace fine grained sand, low plasticity, brown, moist, large shell fragments	-12.34						0.0
		-13.09						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-02
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	GROUND SURFACE	11.66						
	ASPHALT	11.26						
	GP-GRAVEL, coarse grained, with fine sand, brown, dry	11.06						0.0
2	SP-SAND, trace silt, loose, fine to coarse grained, poorly sorted, brown, with red grains and white grains, moist, shell fragments			1GP 1.5-3.5'		4.0		
4	- 0.5' fine gravel size shell fragments at 4.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					0.0
6	- wet at 6.0ft BGS							0.0
				6.5-7.5' 2GP		3.0		
8	- trace medium grained at 8.0ft BGS							0.0
10	SP-SAND, trace silt, trace fine subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet	1.96						0.0
12	- shell fragments up to 0.05' wide at 11.0ft BGS			3GP		4.5		
	- 0.1' silt, with very fine sand at 13.2ft BGS							
14	- 0.1' silt, with very fine sand at 13.6ft BGS							0.0
	- 0.1' silty clay at 14.6ft BGS							
16	SP-SAND, trace silt, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet	-3.14						0.0
	- 0.3' silty clay, medium plasticity, firm at 16.4ft BGS							
18	CL-SILTY CLAY, firm, low plasticity, gray, moist, wood fragments	-5.34		4GP		4.5		
	SP-SAND, trace silt, trace fine subangular gravel, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, shell fragments, wet, coarsening slightly	-6.94						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-02
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	with depth							0.0
22	CL-CLAY, trace silt, firm, low to medium plasticity, gray, moist	-10.54 -10.84		5GP		4.5		
	ML-SANDY SILT, trace clay, firm, fine grained sand, moist to wet, gray	-11.14						
24	SP-SAND, trace silt, loose, fine grained, trace medium grained, well sorted, dark gray, with red grains and white grains, fine gravel size shell fragments, wet	-12.04						0.0
	ML-CLAYEY SILT, with fine sand, loose, slight plasticity, gray, moist to wet	-13.34						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-03
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.87						
	ASPHALT	11.47						
	GP-GRAVEL (FILL), with fine to coarse grained sand, medium angular to subangular gravel, loose	11.27						
	SP-SAND (FILL), trace medium to coarse subrounded gravel, trace silt, fine grained, loose, brown, with red grains and white grains, moist	10.67						0.0
2				1.5-2.5'				
				1GP		3.1		
	SP-SAND, trace silt, fine grained, well sorted, loose, brown, with red grains and white grains, fine sand size shell fragments, moist							0.0
4								
	- trace fine subangular to subrounded gravel at 5.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					
6	- trace medium grained sand, fine to coarse gravel size shell fragments, wet at 6.0ft BGS							0.0
				6-7'				
				2GP		3.3		
8								
		2.87						0.0
	SP-SAND, trace silt, trace fine grained subangular gravel, loose, fine grained sand, trace medium grained sand, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet							
10								0.0
12		-0.13						
	SM-SILTY SAND, very fine grained sand, loose, well sorted, dark gray, trace red grains and white grains, wet	-0.38						
				3GP		4.0		
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet							0.0
14	- 0.1' clayey silt, trace fine sand, slight plasticity, wet at 14.2ft BGS							
		-3.13						
	SP-SAND, trace silt, trace fine subrounded gravel, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, fine to coarse grained sand size shell fragments, wet	-3.83						0.0
16								
	ML-SANDY SILT, alternating layers of very fine grained silty sand and sandy silt, firm to loose, dark gray, with red grains and white grains, fine grained shell fragments, sliver to 0.05' thick wood fragments, wet	-4.83						
				4GP		4.2		
18		-6.23						
	CL-SILTY CLAY, firm, low to medium plasticity, some small wood fragments, dark gray, moist							0.0
	SP-SAND, with to trace silt, loose, fine grained, trace medium grained, well sorted, dark gray,							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-03
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	very few red grains and white grains, trace shell fragments, wet							
		-9.13						
22	SP-SAND, trace silt, loose, fine to coarse grained, poorly sorted, trace subangular fine gravel, dark gray, with red grains and white grains, sand size shell fragments, wet							0.0
				5GP		4.0		
				23-24'				0.0
24		-12.23						
	CL-SILTY CLAY, firm, low plasticity, gray, moist - fine to medium gravel size shell fragments at 24.7ft BGS	-13.13						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-04
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.01						
	PLANT MATERIAL, grass, roots, fine grained sand	10.81						0.0
2	SP-SAND, trace silt, loose, fine grained, well sorted, brown, with red grains and white grains, moist, scattered 0.02' silt layer, strong petroleum odor, sand size shell fragments - 0.02' silt, with black/dark gray staining at 1.6ft BGS - 0.2' rust red staining at 1.8ft BGS			1.5-2.5' 1GP		3.8		2.2 0.0
4	- grayish, darker staining from 4.5 to 19.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					0.0
6								0.0
8				6.5-7.5' 2GP		4.0		0.0
10				9-10'				66
12				3GP		4.0		45 0.0
14								9.8 6.2
16								
18	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet - 0.5' SP-SAND, with silt, fine to very fine grained, loose, well sorted, gray, wet, with red grains and white grains, shell fragments at	-6.99		4GP		2.8		168

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-04
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	19.0ft BGS	-8.99						
	SM-SILTY SAND, with clay, trace fine subrounded gravel, fine grained, gray, with red grains and white grains, fine to medium grained sand size shell fragments, wet							0.6
22								1.0
	SP-SAND, trace silt, loose, fine grained, trace medium grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet	-11.39		5GP		4.0		0.0
		-12.39		23-24'				
24	ML-SANDY SILT, with clay, firm to soft, fine grained to very fine grained sand, slight plasticity, gray, with red grains and white grains, moist, fine to coarse sand size shell fragments							0.0
		-13.99						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-04B
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.01						
	PLANT MATERIAL, grass, roots, fine grained sand	10.81						
	SP-SAND, trace silt, loose, fine grained, well sorted, brown, with red grains and white grains, moist, scattered 0.02' silt layer, strong petroleum odor, sand size shell fragments							0.0
2	- 0.02' silt, with black/dark gray staining at 1.6ft BGS			1.5-2.5' 1GP		3.8		2.2
	- 0.2' rust red staining at 1.8ft BGS							0.0
4								0.0
	- grayish, darker staining from 4.5 to 19.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					
6								0.0
				6.5-7.5' 2GP		4.0		0.0
8								0.0
								66
				9-10'				
10								
								45
12								0.0
				3GP		4.0		
								9.8
14								6.2
16								
				4GP		2.8		168
18	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet	-6.99						
	- 0.5' SP-SAND, with silt, fine to very fine grained, loose, well sorted, gray, wet, with red grains and white grains, shell fragments at							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-04B
DATE COMPLETED: May 16, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	19.0ft BGS	-8.99						
	SM-SILTY SAND, with clay, trace fine subrounded gravel, fine grained, gray, with red grains and white grains, fine to medium grained sand size shell fragments, wet							0.6
22								1.0
	SP-SAND, trace silt, loose, fine grained, trace medium grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet	-11.39		5GP		4.0		0.0
		-12.39		23-24'				
24	ML-SANDY SILT, with clay, firm to soft, fine grained to very fine grained sand, slight plasticity, gray, with red grains and white grains, moist, fine to coarse sand size shell fragments							0.0
		-13.99						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.54						
	GP-SANDY GRAVEL, trace silt, loose, fine to coarse subrounded to subangular gravel, fine to coarse grained sand, brown, moist	9.74						0.0
2	SP-SAND, trace silt, trace fine subrounded gravel, fine grained, well sorted, trace medium grained, brown, with red grains and white grains, moist, sand size shell fragments, dark gray staining, petroleum odor - 0.05' silt, dark reddish brown staining at 1.3ft BGS - 0.05' silt, dark reddish brown staining at 1.4ft BGS - 0.05' silt, dark reddish brown staining at 1.5ft BGS - 0.05' silt, dark reddish brown staining at 3.8ft BGS - 0.05' silt, dark reddish brown staining at 4.1ft BGS - 0.03' shell fragments from 4.5 to 14.8ft BGS - wet at 6.0ft BGS							0.0
				1GP		3.8		415
4			BACKFILLED WITH BENTONITE CHIPS	4-5'				591
6								1004
								2216
				2GP 7-8.5'		3.6		
8								3809
								145.2
10								
				10-11'				883
12								505
				3GP		4.0		
								37
14								29
	SP-SAND, trace silt, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.26						
16	CL-SILTY CLAY, trace fine sand, firm, low plasticity, gray, moist, scattered wood pieces and shell fragments	-5.26						14
				4GP		4.6		2
18	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments up to 0.1', wet, wood fragments	-7.26						0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SANDY SILT, trace fine subangular gravel, loose, fine grained sand, gray, with red grains and white grains, wet, fine sand size to 0.1' shell fragments	-9.66						0.0
22	SW-SAND, trace silt, trace fine subangular gravel, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments, wet	-11.46		5GP		5.0		0.0
	CL-CLAY, with silt, trace fine sand, firm, low to medium plasticity, gray, moist, large amount of coarse sand size to 0.1' shell fragments	-12.66		23-24'				0.0
24	- 0.1' SP-SAND, trace silt, trace fine subangular gravel, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments, wet at 24.0ft BGS	-14.46						0.0
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-06
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.75						
	SP-SAND, trace silt, loose, fine to medium grained, brown, with red grains and white grains, moist	9.75						0.0
2	SP-SAND, trace silt, loose, very fine to fine grained, brown, with red grains and white grains, well sorted, sand size shell fragments, moist - dark gray staining, petroleum odor at 2.5ft BGS							0.0
				1GP		3.8		
				2.5-4'				1641
		6.95						
4	SP-SAND, trace silt, trace subangular to subrounded fine gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, moist, petroleum odor, shell fragments - fine grained, trace medium grained at 5.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					1586
6								1114
				6.5-7.5'				1646
				2GP		3.6		
8								160
	- 0.2' sandy silt, very fine grained at 9.0ft BGS - 0.1' silty clay at 9.5ft BGS							14
10								
				10-11'				2075
12								155
				3GP		4.2		
	- 0.02' clayey silt, wood fragments at 13.0ft BGS							0.0
14	- 0.1' clayey silt at 13.9ft BGS - 0.01 clayey silt, shell fragments 0.03' length at 14.1ft BGS							14
		-3.85						
	- 0.01' clayey silt at 14.2ft BGS	-4.25						
	ML-SANDY SILT, loose, very fine grained sand, gray, with red grains and white grains, wet	-4.75						
16								0.0
	SM-SILTY SAND, loose, fine grained, well sorted, with red grains and white grains, sand size shell fragments	-5.85						0.0
				4GP		3.4		
18	CL-SILTY CLAY, firm, low plasticity, light gray, moist to wet, 0.01' to 0.03' length wood fragments							0.0
	SM-SILTY SAND, loose, fine grained sand, well sorted, gray, with red grains and white grains, sand size shell fragments, 0.01' to 0.07' wide wood fragments, wet	-8.25						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-06
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SM/ML-SAND AND SILT, very loose, fine sand, gray, with red grains and white grains, sand size shell fragments, scattered 0.05' shell fragments, wood fragments, wet - 0.1x0.1' wood fragment at 21.8ft BGS							0.0 0.0
		-11.45						
24	SP-SAND, trace silt, trace gravel, fine grained, well sorted, gray, with red grains and white grains, fine to coarse grained sand size shell fragments, wet - 0.7' medium grained at 23.7ft BGS			5GP 23-24'		5.0		0.0 0.0
		-14.25						
26	END OF BOREHOLE @ 25.0ft BGS							
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-07
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.54						
	ML-SANDY SILT, trace angular fine to coarse gravel, brown, with red grains and white grains, dry to moist, grass and roots	10.14						0.0
2	SP-SAND, trace silt, trace fine subrounded gravel, loose, fine to medium grained, well sorted, gray, with red grains and white grains, moist							0.0
	- trace coarse grained at 1.2ft BGS			1GP		3.9		0.0
4		6.44						5755
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, moist, petroleum odor, staining		BACKFILLED WITH BENTONITE CHIPS	3.75-5'				
6	- wet at 6.0ft BGS							2895
	- coarse sand size shell fragments at 6.2ft BGS			6.25-7.5'				4600
				2GP		4.0		
8	- 0.4' silt at 8.2ft BGS							1162
	- 0.13' silt at 8.8ft BGS							736
	- 0.02' silt at 9.4ft BGS							
10								518
12	- 0.08 silt at 12.0ft BGS							29.7
	- 0.05 clayey silt at 12.7ft BGS			3GP		4.7		14
14	- 0.04' silt, with clay at 13.9ft BGS							16
	CL-SILTY CLAY, firm, low plasticity, light gray, very moist to wet, 0.05x0.04' wood fragments	-4.16 -4.56						
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet, fine gravel size shells			15-16'				
16								8.7
								6.5
				4GP		4.7		
18								0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-07
DATE COMPLETED: May 17, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SW-SAND, trace silt, trace fine subrounded to subangular gravel, compact, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments, gravel size shells scattered throughout, wet	-9.46						0.0
				5GP		3.7		0.0
24	- 0.02' silt at 23.6ft BGS - 0.03' clayey silt at 23.8ft BGS			23-24'				0.0
	END OF BOREHOLE @ 25.0ft BGS	-14.46						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-08
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.18						
	GP-SANDY GRAVEL, trace silt, loose, angular to subangular fine to coarse gravel, fine grained san,d grayish brown, dry	10.88						
	SP-SAND, with gravel, trace silt, loose, fine grained, well sorted, brown, moist	10.58						0.0
2	SP-SAND, trace silt, trace fine subangular gravel, medium grained, well sorted, brown, with red grains and white grains, moist, sand size to fine gravel size shell fragments			1GP		4.0		0.0
								0.0
		7.48						
4	SP-SAND, trace silt, trace fine subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, moist, sand size shell fragments, dark gray staining, petroleum odor		BACKFILLED WITH BENTONITE CHIPS	3.75-4.75'				415
6	- wet at 6.0ft BGS							1302
	- sheen on core sample from 7.0 to 13.0ft BGS			6.5-7.5'				2622
				2GP		3.1		
8								1840
								1460
10	- scattered shell fragments up to 0.08' in width at 10.0ft BGS							
								33.4
12	- 0.06' silt at 11.8ft BGS							23.8
	- 0.04 silt at 12.6ft BGS			3GP		4.0		
								10.4
14	- 0.03 silt at 14.1ft BGS - 0.02 silt at 14.2ft BGS							18.0
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size to medium gravel size shell fragments, wet	-3.82						
16				16-17'				0.0
								0.0
	CL-SILTY CLAY, firm, low plasticity, light gray, moist to wet, wood fragments scattered in concentrated layers	-6.32		4GP		5.0		
18								8.5
	SP-SAND, trace silt, compact, very fine to fine grained, well sorted, gray, with red grains and white grains, sand size shell fragments, wet	-7.72						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-08
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SP-SAND, trace silt, trace fine subangular gravel, fine grained to medium grained sand, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet - 0.08' silt layer with wood fragments at 21.1ft BGS	-8.82						0.0 0.0
				5GP		5.0		
	ML-CLAYEY SILT, slightly firm, slight plasticity, light gray, wet	-11.72		23-24'				0.0
24	SM/ML-SAND AND SILT, loose, fine grained sand, gray, with red grains and white grains, sand size shell fragments, scattered sliver size wood fragments, wet	-12.72						0.0
	END OF BOREHOLE @ 25.0ft BGS	-13.82						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (23-24')

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-09
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.92						
	SM-SILTY SAND, loose, fine grained, brown, dry, roots and plant material	10.42						
	SP-SAND, trace silt, trace fine subangular gravel, fine to medium grained, brown, with red grains and white grains, moist, occasional silt layer (~0.01' thick)							0.0
2								0.0
				1GP		4.1		
								0.0
		7.32						
4	SP-SAND, trace silt, trace fine subangular gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, moist, sand size shell fragments, some fine to medium gravel size shell fragments, dark gray staining, petroleum odor							1445
				3.75-5'				
			BACKFILLED WITH BENTONITE CHIPS					
6	- wet at 6.0ft BGS							1101
				6.5-7.5'				5205
				2GP		3.2		
8								3541
								851
10								
								215.8
12								80.7
				3GP		3.8		
	- 0.2' silt at 13.0ft BGS							33.4
	- fine grained sand at 13.3ft BGS							
14								29.5
	ML-SANDY SILT, loose, very fine grained sand, light gray, with red grains and white grains, wet	-4.08						
16		-5.08						6.6
	CL-SILTY CLAY, trace fine sand, firm, low plasticity, very moist to wet, wood fragments scattered in concentrated layers	-6.18						0.0
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet			4GP 17-18'		3.7		
18								0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-09
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet - 0.07x0.15' wood fragment at 20.9ft BGS - 0.13' fine grained silty sand at 21.9ft BGS	-9.08		5GP		4.7		0.0 0.0 0.0
24				23-24'				0.0
	END OF BOREHOLE @ 25.0ft BGS	-14.08						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-10
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.28						
	SM-SILTY SAND, with angular to subrounded fine to coarse gravel, loose, fine to coarse grained, poorly sorted, brown, dry, plant and root material	10.88						0.0
2	GP-SANDY GRAVEL, with silt, loose, fine to coarse angular to subrounded gravel, fine to coarse sand, poorly sorted, light gray, dry	9.88						0.0
	SW-SAND, trace silt, trace fine subangular gravel, loose, fine to coarse grained, poorly sorted, brown, with red grains and white grains and yellow grains and green grains, moist,			1GP		3.8		0.0
4	sand size shell fragments	7.48						0.0
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well sorted, gray to dark gray, with red grains and white grains, sand size to medium gravel size shell fragments, moist, slight staining, petroleum odor		BACKFILLED WITH BENTONITE CHIPS	4-5'				
6	- wet at 6.5ft BGS							0.0
								98.9
				2GP		3.1		
8				7.75-8.75'				529
								49.0
	- 0.25' very fine grained silty sand, with 2 sub layers of concentrated wood fragments at 9.4ft BGS							
10								
								0.0
	- 0.25' clayey silt at 11.5ft BGS							
12								12.3
	- 0.12 clayey silt at 12.4ft BGS			3GP		3.2		
	- 0.1x0.05' fragment of wood at 12.9ft BGS							12.3
14								21.8
		-3.72						
	SP-SAND, trace silt, compact, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet, fine sand size shell fragments	-4.72						0.0
16	ML-CLAYEY SILT, loose, slight plasticity, light gray, wet	-5.12		16-17'				
	- 0.04' wood fragment across core at 16.2ft BGS							0.0
				4GP		3.9		
18	CL-SILTY CLAY, firm, low plasticity, light gray, very moist to wet, wood fragments throughout	-6.82						0.0
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet							0.0
	- 0.01' well sorted, fine grained sand at 18.2ft							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-10
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	BGS	-8.72						
	SM/ML-SAND AND SILT, loose, fine grained sand, well sorted, gray, with red grains and white grains, sand size shell fragments, fine to medium gravel size shell fragments, wet							0.0
22								0.0
	SW-SAND, trace silt, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments, wet	-11.22		5GP		5.0		
		-11.72						0.0
				23-24'				
24	- 0.09' clayey silt at 22.6ft BGS							0.0
	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet	-13.72						
	END OF BOREHOLE @ 25.0ft BGS							
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-11
DATE COMPLETED: June 1, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.58						
	SM-SILTY SAND, with fine to medium subangular to subrounded gravel, loose, fine grained, brown, moist	10.98						0.0
	GM-SILTY GRAVEL, with medium to coarse sand, loose, fine to medium subangular to subrounded gravel, brown, moist	10.58						0.0
2	SP-SAND, trace silt, trace fine subrounded gravel, loose, fine grained, well sorted, brown, with red grains and white grains, moist, sand size shell fragments			1.5-3' 1GP		3.8		0.0
4								29
			BACKFILLED WITH BENTONITE CHIPS					
	- dark gray, wet, petroleum odor (gasoline-like), some staining at 5.5ft BGS			5.5-6.75'				62
	- sand to fine gravel size shell fragments at 7.0ft BGS			2GP		3.8		39
8								40
	- 0.15' very fine grained silty sand at 8.9ft BGS							6.2
	- 0.02' clayey silt at 9.5ft BGS							
10	- 0.1' silty very fine grained sand at 9.6ft BGS							2.5
12	- 0.08' silt at 12.3ft BGS							0.0
	- 0.07' silt, with clay at 12.7ft BGS			3GP		4.5		0.0
14								0.0
	- 0.08' clayey silt at 14.6ft BGS			14-15'				
16	SM-SILTY SAND, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, fine sand size shell fragments	-4.42						0.0
	- 0.02' silty clay at 16.2ft BGS	-4.92						0.0
	- 0.02' silty clay at 16.4ft BGS			4GP		4.0		
18	ML-CLAYEY SILT, trace very fine sand, loose, slight plasticity, interbedded layers of silty clay and sandy silt, light gray, very moist to wet, sand size shell fragments, wood fragments	-6.32						0.0
	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, gray, with red grains and							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-11
DATE COMPLETED: June 1, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	white grains, wet, sand to fine gravel size shell fragments, wood fragments	-8.42						
	SM/ML-SAND AND SILT, trace clay, very loose, fine grained sand, layers of 'with clay' with slight plasticity, gray, wet, wood fragments sand to medium gravel size shell fragments							0.0
22								0.0
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand to medium gravel size shell fragments	-10.72		5GP 22-24'		4.8		0.0
24	- 0.06' diameter clay nodule at 24.2ft BGS							0.0
	END OF BOREHOLE @ 25.0ft BGS	-13.42						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-12
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.14						
	ASPHALT AND AGGREGATE							
		9.64						
2	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, dry to moist			1RS				
4			BACKFILLED WITH CEMENT/ BENTONITE GROUT	-001				
6								0.0
8	- becoming moist at 8.5ft BGS			2RS		4.0		
				-002				0.0
10	- wet at 10.0ft BGS							
								0.0
12				3RS		3.5		
14				-003				0.0
16								0.0
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-5.86						
18		-6.56		4RS		3.5		
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, dry to moist - intact shell at 18.5ft BGS			-004				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-12
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22				5RS		4.0		0.0
24				-005				0.0
	END OF BOREHOLE @ 25.0ft BGS	-13.86						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-005)

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH12/MW18 (BH)
DATE COMPLETED: June 3, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.22						
0	TOPSOIL, silty sand, loose, fine grained, brown, moist, grass, roots and plant material	10.82						0.0
2	SP-SAND, trace silt, trace fine to medium subangular to subrounded gravel, loose, fine grained, well sorted, brown, with red grains and white grains, moist, sand size shell fragments							0.0
				1GP (2-3')		3.4		0.0
4								0.0
		6.22	BACKFILLED WITH BENTONITE CHIPS					
6	SP-SAND, trace silt, trace fine subrounded gravel, loose, fine grained, well sorted, brownish gray, with red grains and white grains, moist, sand to fine gravel size shell fragments - wet at 5.5ft BGS							0.0
								0.0
				2GP		3.5		
8				7.5-9'				0.0
								0.0
10								
		0.22						0.0
12	SP-SAND, trace silt, loose, very fine grained, well sorted, brownish gray, with red grains and white grains, wet, sand to fine gravel size shell fragments, wood fragments, minor intervals with silt - 0.05' layer clayey silt at 11.2ft BGS - 0.02' layer wood at 11.3ft BGS - 0.02' layer clayey silt at 12.7ft BGS							0.0
				3GP		3.1		0.0
14								0.0
		-4.08		15-16'				
16	CL-SILTY CLAY, loose, low plasticity, seams/layers of silt and trace clay, light gray, very moist, sand size shell fragments, wood fragments							0.0
		-6.08						0.0
				4GP		3.9		
18	SM-SILTY SAND, trace clay, loose, fine grained, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments, wood fragments							0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH12/MW18 (BH)
DATE COMPLETED: June 3, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments	-8.78						
	- 0.2' layer clayey silt at 21.0ft BGS	-9.78						0.0
22	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments							0.0
				5GP		3.4		
				22-24'				0.0
24								0.0
	- 0.7' shell fragments up to 0.1x0.07' in high concentration at 25.0ft BGS							
26	- 0.35' silty sand at 26.4ft BGS							
	ML-SANDY SILT, trace clay, very loose, non plastic, light gray, wet, sand to fine gravel size shell fragments, wood fragments	-15.88						
				6GP		4.0		0.0
28	- with clay, slight plasticity at 27.9ft BGS							
30	SM-SAND, with silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-18.78						
32	ML-SILT, with very fine grained sand, loose, light gray, wet, sand size shell fragments, wood fragments	-20.88						
				7GP		5.0		0.0
	- trace clay at 32.9ft BGS	-22.28						
34	CL-CLAY, with silt, trace very fine sand, firm, low plasticity, light gray, very moist, sand size shell fragments, wood fragments							
36								
		-26.28		8GP		4.8		0.0
38	SM-SILTY SAND, with clay, loose, very fine grained, light gray, wet, sand size shell fragments, wood fragments							
	- trace clay at 37.8ft BGS	-27.08						
	SP-SAND, trace silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH12/MW18 (BH)
DATE COMPLETED: June 3, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	SM-SILTY SAND, trace clay, loose, fine grained, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-29.58						
	SP-SAND, trace silt, loose, fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments - 0.2' poorly sorted fine to coarse grained sand at 43.2ft BGS - 0.4' silt, with very fine sand at 43.5ft BGS	-31.18		9GP		4.2		0.0
44								
46								
48				10GP		3.1		0.0
50	END OF BOREHOLE @ 50.0ft BGS	-38.78						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05/MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.53						
	SEE BH-5 FOR STRATIGRAPHIC DETAIL FROM 0-25FT BGS		BACKFILLED WITH BENTONITE CHIPS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05/MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								
24								
	CL-SILTY CLAY, trace very fine sand, soft, low plasticity, light gray, very moist, sand to medium gravel size shell fragments	-13.47						
26								
	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	-15.77		6GP		4.8		0.0
28								
	SM-SAND, with silt, loose, very fine grained, gray, with red grains and white grains, wet, sand size shell fragments	-17.87						
30		-18.77						
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, light gray, wet, sand to fine gravel size shell fragments, wood fragments							
32								
	SM-SILTY SAND, loose, fine grained, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments occasionally concentrated in layers	-20.87		7GP		4.8		0.0
34								
36	- with clay at 36.0ft BGS							
	- 1.5' cedar log layer, strong odor at 37.0ft BGS			8GP		3.6		108
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05/MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, loose, fine gravel, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments	-28.47						
42	- 0.01' silty clay at 41.9ft BGS			9GP		4.4		0.0
44								
46								
48	- 1.0' fine to coarse grained, poorly graded at 47.2ft BGS			10GP		4.1		0.0
50	- 0.02' layer silty clay at 50.4ft BGS							
52				11GP		3.0		0.0
54								
	NO INTACT SAMPLE, SP-SAND MATERIAL RECOVERED	-43.47						
56								
58				12GP		1.5		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-BH-05/MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, loose, fine gravel, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments	-48.47						
62				13GP		4.5		0.0
64	- 0.5' silty, very fine grained sand at 64.1ft BGS							
66				14GP		3.0		
								0.0
68	- REFUSAL at 68.0ft BGS	-56.47						
	END OF BOREHOLE @ 68.0ft BGS							
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06 (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	11.79					
	ASPHALT						
	SP-GRAVELLY SAND, trace silt, compact, medium grained sand, trace fine to coarse sand, fine to coarse angular to subrounded gravel, well sorted, brown, moist	11.29					
2	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, medium grained, trace coarse grained sand, well sorted, brown, with red grains and white grains, moist, sand size to fine gravel size shell fragments	9.89		1.5-2.5' 1GP		3.7	
4				3.5-4.5'			
		6.79	BACKFILLED WITH BENTONITE CHIPS				
6	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine to medium grained, well sorted, brown, with red grains and white grains, moist to wet, sand size shell fragments - wet at 6.5ft BGS						
8				2GP		3.4	
10				9.5-10.5'			
		0.79					
12	SP-SAND, trace silt, loose, fine grained, well sorted, gray/dark gray, with red grains and white grains, wet, sand size to medium gravel size shell fragments			3GP		4.8	
14	- 0.1' clayey silt at 14.0ft BGS						
				14.5-15.5'			
16		-4.61					
	SP-SAND, trace silt, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-5.61		4GP		5.0	
18	- 0.12' wood at 16.9ft BGS - 0.1' SM very fine sand with silt at 17.1ft BGS - 0.1' clay with silt at 17.2ft BGS						
	CL-SILTY CLAY, firm, low to medium plasticity, gray, moist, wood fragments 0.03x0.01'	-7.21					
	SM-SILTY SAND, trace fine subrounded						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06 (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, wood and shell fragments		19.5-20.5'			
		-9.71				
22	SP-SAND, trace silt, trace fine subangular gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-10.31	5GP		3.6	
		-10.91				
	SW-SAND, trace silt, trace fine subangular gravel, loose, fine to very coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments	-11.71				
24		-12.41				
	SP-SAND, trace silt, trace fine subangular gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-12.91	24.5-25.5'			
	SW-SAND, trace silt, trace fine subangular gravel, loose, fine to very coarse grained, poorly sorted, dark gray, with red grains and white grains, sand size shell fragments					
26		-15.21				
	SP-SAND, trace silt, trace fine subangular gravel, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-16.01	6GP		4.2	
28	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, gray, with red grains and white grains, wet, sand size to medium grained shell fragments, higher quantity than above					
	CL-SILTY CLAY, trace fine sand, firm, low to medium plasticity, light gray, very wet, up to medium gravel size shell fragments					
30	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments					
32			7GP		3.0	
		-21.41				
	SM/ML-SAND AND SILT, compact, very fine grained sand, varying amounts of sand and silt throughout, well sorted, gray, with red grains and white grains, wet, sand size shell fragments, with scattered medium gravel size shell fragments					
34	- 0.08' silty clay at 35.7ft BGS - 0.07' silty clay at 36.1ft BGS - becoming very fine grained sand at 36.3ft BGS - 0.25' silt, with clay at 37.0ft BGS					
36			8GP		3.7	
38						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06 (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42				9GP		3.8	
44	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, wet, sand size to medium gravel size shell fragments	-32.01					
		-33.21					
46	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments						
48				10GP		3.0	
50	END OF BOREHOLE @ 50.0ft BGS	-38.21					
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06-25
DATE COMPLETED: July 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.86 11.58						
0	SEE 709-MW06 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 15ft BGS)		BENTONITE CHIPS					
14	CL-SILTY SANDY CLAY, stiff, low plasticity, gray, moist, shell fragments	-3.14		1RS		3.5		180
18	SP-SAND, trace silt, fine grained, compact, gray, wet	-7.14						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06-25
DATE COMPLETED: July 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SP-SAND, medium grained, well sorted, loose, gray, with some red grains, wet, shell fragments	-8.14	SAND PACK	2RS		4.5		380
24								
	END OF BOREHOLE @ 25.0ft BGS	-13.14	SUMP					
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-8.44 to -13.44ft
20.30 to 25.30ft BGS
Length: 5ft
Material: PVC
Sand Pack:
-4.14 to -14.94ft
16.00 to 26.80ft BGS
Material: SAND

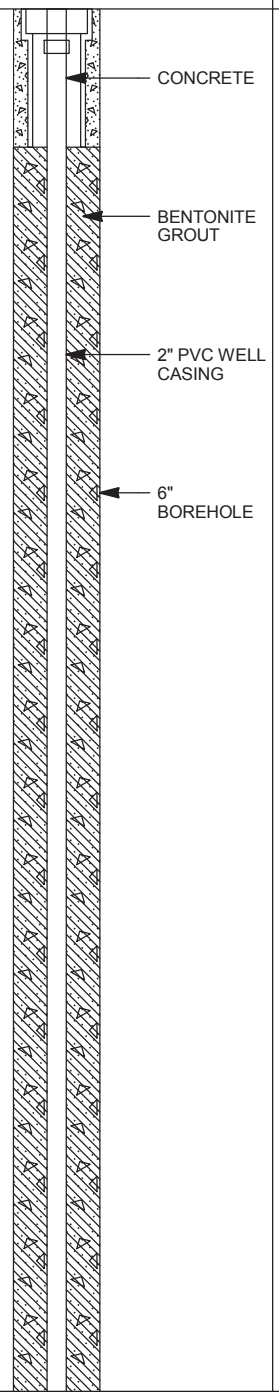
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06-50
DATE COMPLETED: June 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.79 11.43					
	NOT SAMPLED - SEE 709-MW06-50 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 50ft BGS)		CONCRETE BENTONITE GROUT 2" PVC WELL CASING 6" BOREHOLE				



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06-50
DATE COMPLETED: June 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW06-50
DATE COMPLETED: June 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42			BENTONITE PELLETS				
44			SAND PACK				
46			2" PVC WELL SCREEN				
48							
50	END OF BOREHOLE @ 50.0ft BGS	-38.21	SUMP				
52							
54							
56							
58							

WELL DETAILS
Screened interval:
-32.51 to -37.51ft
44.30 to 49.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.51 to -29.51ft
39.30 to 41.30ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.51 to -39.21ft
41.30 to 51.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW09-25
DATE COMPLETED: July 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.76 11.41					
	NOT SAMPLED - SEE 709-BH-04B FOR STRATIGRAPHIC INFORMATION (0 TO 25ft BGS)		CONCRETE BENTONITE GROUT 2" PVC WELL CASING 8" BOREHOLE BENTONITE PELLETS 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW09-25
DATE COMPLETED: July 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22			2" PVC WELL SCREEN				
24			SAND PACK				
			SUMP				
26	END OF BOREHOLE @ 25.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 17.0FT BGS	-13.24					
28							
30							
32							
34							
36							
38							

WELL DETAILS
Screened interval:
-7.64 to -12.64ft
19.40 to 24.40ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-1.44 to -5.44ft
13.20 to 17.20ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-5.44 to -14.24ft
17.20 to 26.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW11-25
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	10.52 10.28					
	NOT SAMPLED (0-20ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW11-25
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	ML-SANDY SILT, few clay, loose, fine sand, slightly plastic, gray, with red grains and white grains, wet, shell fragments	-9.48					
	SM-SILTY SAND, few clay, loose, fine to medium gray, with red grains and white grains, wet, shell fragments	-9.98	SAND PACK				
22							
24	ML-SANDY SILT, with gravel and clay, loose, fine sand, fine to medium angular to subangular gravel, gray, with red grains and white grains, wet, shell fragments up to 1/2" width	-13.48					
	- cobble at 24.5ft BGS	-14.48	SUMP				
26	END OF BOREHOLE @ 25.0ft BGS						
	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 17.0FT BGS						
28							
30							
32							
34							
36							
38							

WELL DETAILS
Screened interval:
-8.78 to -13.78ft
19.30 to 24.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-4.78 to -6.78ft
15.30 to 17.30ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-6.78 to -15.98ft
17.30 to 26.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	12.03					
	ASPHALT	11.53					
	SP-GRAVELLY SAND, trace silt, compact, medium grained, trace fine to coarse sand, fine to coarse angular to subrounded gravel, well sorted, brown, moist	11.03					
2	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine grained, well sorted, brown, with red grains and white grains, moist, sand size shell fragments			1GP			
4			BACKFILLED WITH BENTONITE CHIPS				
		6.53					
6	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, medium grained, well sorted, brownish gray, with red grains and white grains, moist, sand size to fine gravel size shell fragments - wet at 6.5ft BGS						
8	- dark gray staining, petroleum odor at 7.5ft BGS			2GP			
10							
12				3GP			
14	- 0.12' fine grained sandy silt at 14.0ft BGS - 0.07' silty clay nodule at 14.2ft BGS						
		-3.47					
16	SP-SAND, trace silt, trace fine to medium subangular to subrounded gravel, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.57					
	- 0.08' silty clay at 16.4ft BGS	-5.37		4GP			
18	ML-CLAYEY SILT, trace fine sand, compact, slight plasticity, gray, wet, wood fragments						
	CL-SILTY CLAY, firm, low plasticity, light gray, moist, wood fragments scattered in concentrated layers	-6.37					
	SM-SILTY SAND, loose, fine to medium						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	grained, well sorted, dark gray, with red grains and white grains, wet	-7.97					
	SP-SAND, trace silt, trace fine subrounded gravel, loose, medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-9.07					
22	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, wood fragments - 0.05x0.1' fragment of wood at 21.7ft BGS	-9.87		5GP			
24	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments - 0.2' SW poorly sorted, fine to coarse grained sand at 23.5ft BGS - 0.15' fine grained sand at 24.0ft BGS	-12.47					
26	CL-SILTY CLAY, firm, low plasticity, light gray, moist, high concentration of fine to medium gravel size shell fragments	-15.47		6GP			
28	SM-SILTY SAND, trace clay, compact, very fine grained sand, well sorted, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-16.97					
30	SP-SAND, trace silt, loose, very fine to fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-19.27					
32	ML-SILT, with clay, trace very fine grained sand, compact, slight plasticity, gray, with red grains and white grains, wet, sand size to fine gravel size shell fragments, wood fragments	-21.17		7GP			
34	SM-SILTY SAND, loose, very fine grained sand, well sorted, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments						
36	- 0.15' silty clay at 36.1ft BGS - medium gravel size shell fragments at 36.3ft BGS						
38				8GP			
	CL-SILTY CLAY, firm, low to medium plasticity, light gray, very moist	-26.67					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A (BH)
DATE COMPLETED: May 18, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42	SP-SAND, trace silt, trace fine to medium subrounded gravel, loose, fine to medium grained, well sorted, with minor intervals of poorly sorted fine to coarse grained sand, dark gray, with red grains and white grains, sand size to medium gravel size shell fragments	-27.97		9GP			
44							
46							
48				10GP			
50	END OF BOREHOLE @ 50.0ft BGS	-37.97					
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A-50
DATE COMPLETED: August 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.44 11.20					
	NOT SAMPLED (0 TO 40ft BGS)		CONCRETE BENTONITE GROUT 2" PVC WELL CASING 8" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A-50
DATE COMPLETED: August 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22			6" BOREHOLE				
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW15A-50
DATE COMPLETED: August 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-28.56	BENTONITE CHIPS; 2" PVC WELL SCREEN; SAND PACK	1RS		10.0	
44							
46							
48							
50	END OF BOREHOLE @ 50.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS	-38.56					
52							
54							
56							
58							

WELL DETAILS
Screened interval:
-34.56 to -39.56ft
46.00 to 51.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.26 to -29.76ft
38.70 to 41.20ft BGS
Material: BENTONITE
Sand Pack:
-29.76 to -39.56ft
41.20 to 51.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-25
DATE COMPLETED: July 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.21 10.96						
0	NOT SAMPLED (0-15ft BGS) SEE 709-BH-05 FOR STRATIGRAPHIC INFORMATION (0-15ft BGS)		CONCRETE					
2			BENTONITE GROUT					
4								
6								
8			8" BOREHOLE					
10								
12								
14								
15.79	SP-SAND, trace silt, fine grained, well sorted, dark gray, wet	-3.79	BENTONITE PELLETS					
16			6" BOREHOLE					
17				1RS		4.0		0.0
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-25
DATE COMPLETED: July 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- small shell fragments at 21.0ft BGS		SAND PACK					
	SP-SAND, with silt, fine grained, well sorted, loose, gray, wet, shell fragments	-10.79		2RS		5.0		0.0
24	SP-SAND, trace silt, fine grained, well sorted, loose, dark brown, moist, small shell fragments	-11.79	SUMP					
	END OF BOREHOLE @ 25.0ft BGS	-13.79						
26	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 15.0FT BGS		WELL DETAILS Screened interval: -7.79 to -12.79ft 19.00 to 24.00ft BGS Length: 5ft Material: PVC Seal: -2.79 to -4.79ft 14.00 to 16.00ft BGS Material: BENTONITE PELLETS Sand Pack: -4.79 to -14.29ft 16.00 to 25.50ft BGS Material: SAND					
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-50
DATE COMPLETED: July 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.08 10.66						
	NOT SAMPLED (0-45ft BGS) SEE 709-MW16 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 45ft BGS)		CONCRETE 8" BOREHOLE 2" PVC					

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

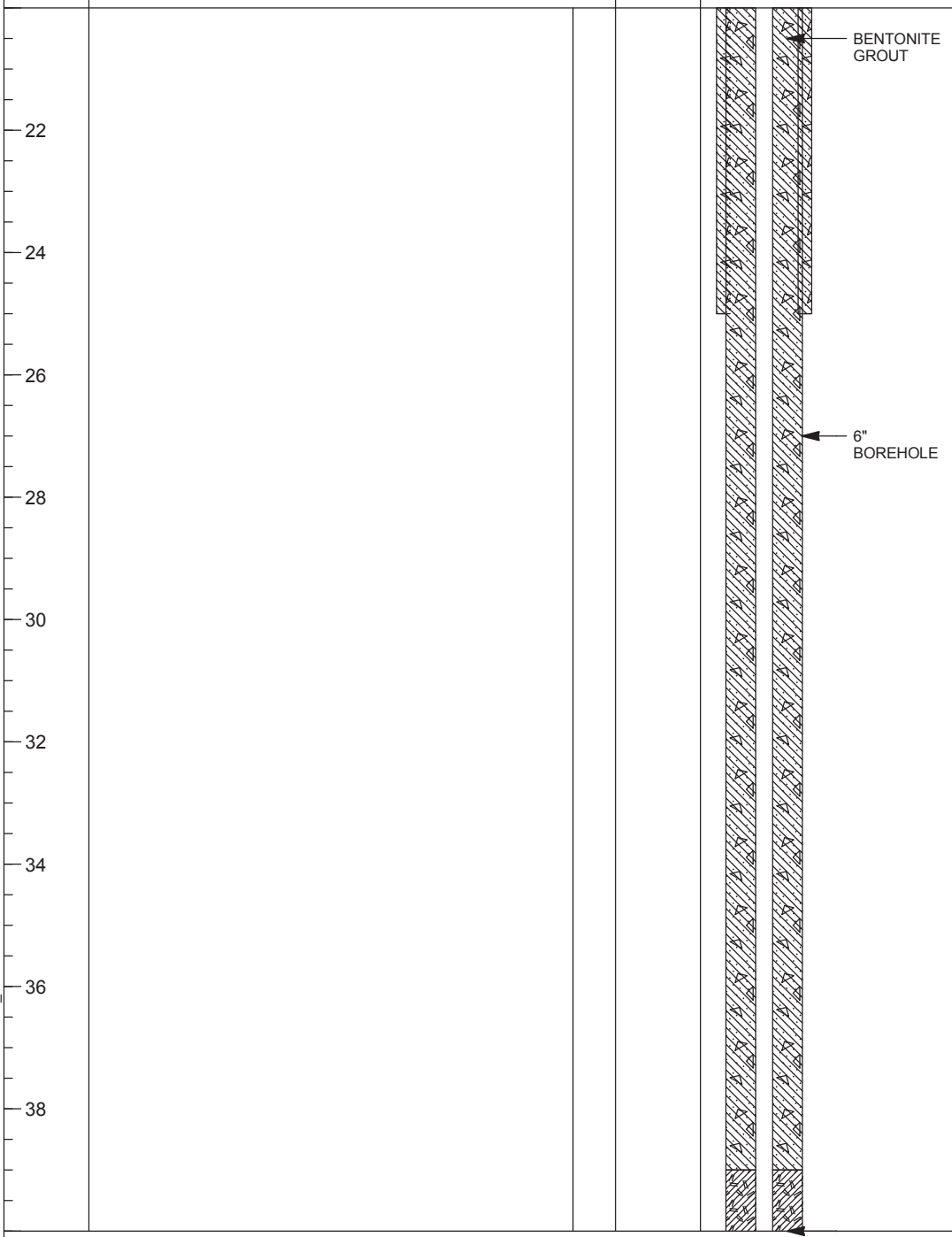
OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-50
DATE COMPLETED: July 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-50
DATE COMPLETED: July 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42			BENTONITE PELLETS					
44								
	SP-SAND, trace silt, fine grained, well sorted, loose, dark brown, wet, shell fragments	-33.92						
46			SAND PACK					
48				1RS		4.0		0.0
50	END OF BOREHOLE @ 50.0ft BGS	-38.92	SUMP					
	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 25.0FT BGS							
52								
54								
56								
58								

WELL DETAILS
Screened interval:
-32.92 to -37.92ft
44.00 to 49.00ft BGS
Length: 5ft
Material: PVC
Seal:
-27.92 to -29.92ft
39.00 to 41.00ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.92 to -39.42ft
41.00 to 50.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-75
DATE COMPLETED: July 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.06 10.78						
	NOT SAMPLED (0-70ft BGS) SEE 709-MW16 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 68ft BGS)		CONCRETE					
2								
4								
6								
8								
10								
12								
14								
16								
18								

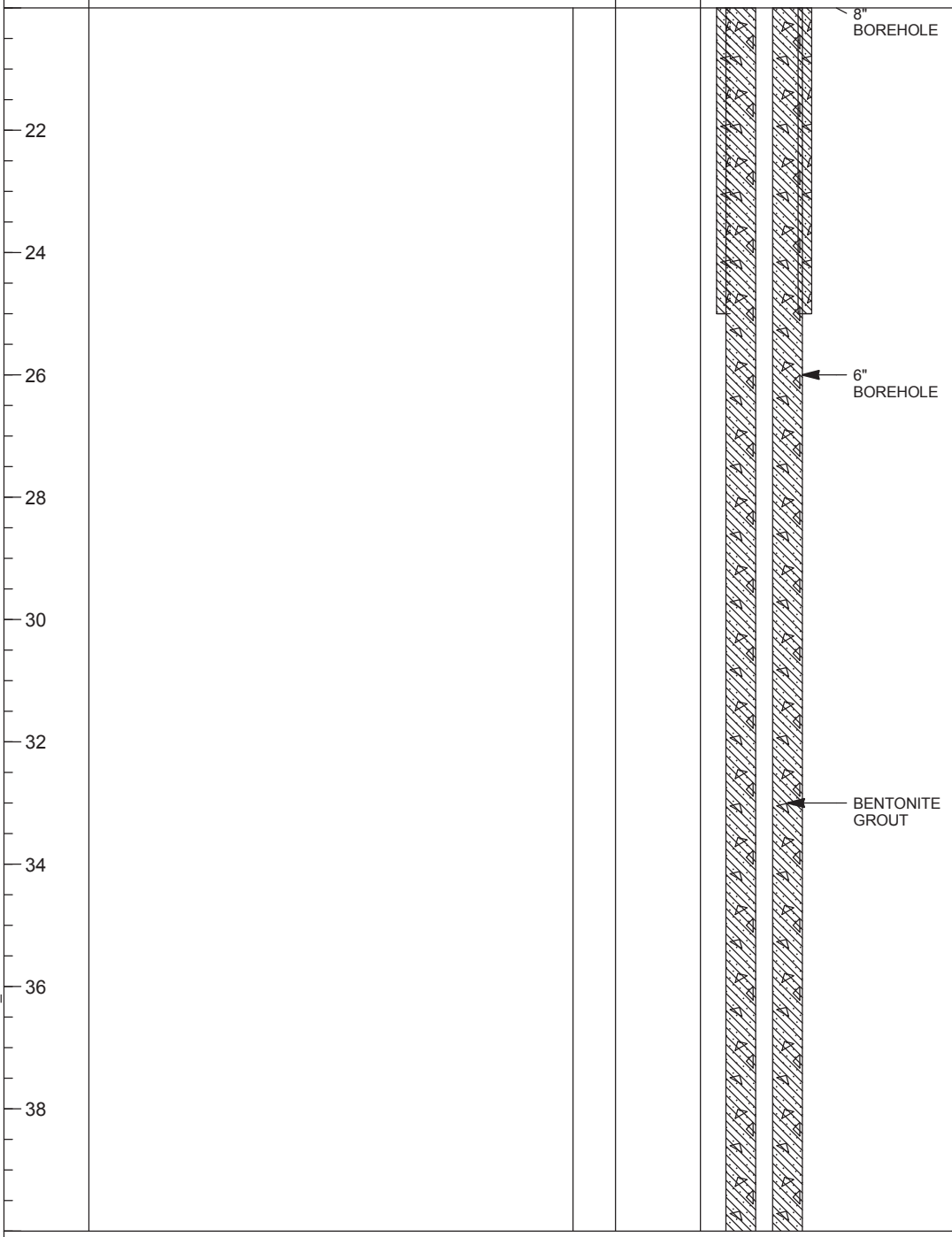
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-75
DATE COMPLETED: July 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-75
DATE COMPLETED: July 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-75
DATE COMPLETED: July 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64			BENTONITE PELLETS					
66								
68								
70	SP-SAND, trace silt, fine grained, well sorted, loose, dark brown, moist	-58.94	SAND PACK	1RS		4.0		0.0
72								
74			SUMP					
	END OF BOREHOLE @ 75.0ft BGS	-63.94						
76	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 25.0FT BGS							
78								

WELL DETAILS
Screened interval:
-57.94 to -62.94ft
69.00 to 74.00ft BGS
Length: 5ft
Material: PVC
Seal:
-52.94 to -54.94ft
64.00 to 66.00ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-54.94 to -64.44ft
66.00 to 75.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW16-75
DATE COMPLETED: July 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
82			Material: SAND					
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW18-25
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	11.42 11.40						
0	NOT SAMPLED (0-15ft BGS) SEE 709-BH12/709-MW18 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 15ft BGS)		BENTONITE CHIPS					
2								
4								
6								
8								
10								
12								
14								
15	SM-SILTY SAND, fine grained, loose, well sorted, gray, wet	-3.60		1RS		3.5		0.0
16								
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW18-25
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	SP-SAND, medium grained, well sorted, loose, gray, some red grains, wet, sand size shell fragments	-9.60	SAND PACK	2RS		4.5		0.0
24			SUMP					
	END OF BOREHOLE @ 25.0ft BGS	-13.60						
26								
28								
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-7.80 to -12.80ft
19.20 to 24.20ft BGS
Length: 5ft
Diameter: 2in
Material: PVC
Sand Pack:
-5.00 to -14.30ft
16.40 to 25.70ft BGS
Material: SAND

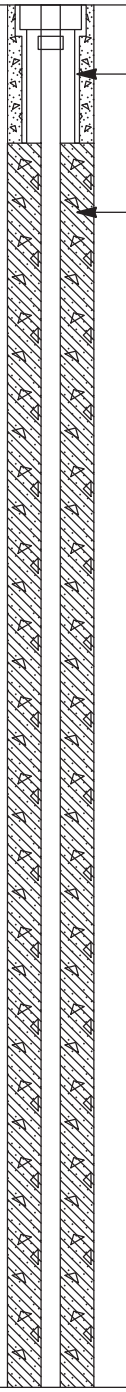
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW18-50
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.55 11.35						
	NOT SAMPLED (0-40ft BGS) SEE 709-BH12/709-MW18 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 40ft BGS)		CONCRETE BENTONITE GROUT					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW18-50
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW18-50
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: R. BIEBER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	SW-SAND, trace silt, fine to medium grained, loose, poorly sorted, gray, wet, shell fragments 0.4-0.79"	-28.45	BENTONITE PELLETS	1RS		4.0		0.0
44	SP-SAND, medium grained, loose, well graded, gray, wet, shell fragments 1/2x2"	-32.45						
46								
48			SAND PACK	2RS		4.5		0.0
50	END OF BOREHOLE @ 50.0ft BGS	-38.45	SUMP					
52								
54								
56								
58								

WELL DETAILS
Screened interval:
-32.65 to -37.65ft
44.20 to 49.20ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.45 to -29.45ft
39.00 to 41.00ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.45 to -37.65ft
41.00 to 49.20ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20 (BH)
DATE COMPLETED: June 2, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
	GROUND SURFACE	13.46						
	TOPSOIL, sand, with silt, grass, roots and plant material	13.26						0.0
	GM-SANDY GRAVEL, with silt, loose, fine to coarse subangular gravel, fine grained sand, brown, moist, sand to fine gravel size shell fragments	11.96						0.0
2	SP-SAND, trace silt, with fine to medium subrounded to subangular gravel, loose, fine grained, well sorted, grayish brown, moist			1GP 2-3'		3.1		0.0
	- 0.4' red brick like material at 2.7ft BGS	10.36						0.0
4	NO RECOVERY DUE TO RED BRICK LIKE MATERIAL							0.0
	SP-SAND, with gravel, trace silt, loose, fine rained, well sorted, dark grayish brown, with red grains and white grains, moist, sand size shell fragments	8.46	BACKFILLED WITH BENTONITE CHIPS					
6	- 0.3' heavily oxidized rust colored gravel/brick at 6.2ft BGS		▽					0.0
	- wet at 6.5ft BGS	6.46						0.0
	SP-SAND, trace silt, trace fine subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments			2GP		3.2		
8				7.5-9'				0.0
								0.0
10								
								0.0
12								0.0
				3GP		4.7		
								0.0
14	- 0.08' silt at 14.0ft BGS - 0.05' silt at 14.3ft BGS - 0.06' silt at 14.5ft BGS							0.0
	SP-SAND, trace silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments	-1.54		15-16'				
16	- 0.08' silt at 15.5ft BGS - 0.05' clayey silt at 15.7ft BGS - 0.05' clayey silt at 15.9ft BGS							0.0
	- 0.07' silty clay at 16.6ft BGS	-3.64						0.0
	- 0.12' clayey silt at 16.8ft BGS	-4.24		4GP		3.7		
18	CL-SILTY CLAY, firm, low plasticity, light gray, moist, wood fragments - 0.01' wood at 17.2ft BGS							0.0
	SM-SILTY SAND, trace clay, loose, fine to medium grained, gray, with red grains and							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20 (BH)
DATE COMPLETED: June 2, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	white grains, wet, sand to medium gravel size shell fragments, wood fragments							0.0
		-8.34						
22	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments							0.0
				5GP		4.1		
	- 0.2' clayey silt at 22.9ft BGS			22-24'				0.0
	- 0.5' fine to coarse grained SW-SAND at 23.1ft BGS							
24								0.0
26								
				6GP		4.0		0.0
28	- 0.15' silt clay at 27.9ft BGS							
	- 0.1' silt, with clay at 28.9ft BGS							
30								
32	- 0.15' silt, with clay at 32.3ft BGS			7GP		4.0		0.0
	- 0.3' clayey silt at 32.9ft BGS							
34	SM-SILTY SAND, loose, very fine grained, gray, with red grains and white grains, wet, sand size shell fragments	-20.54						
36								
				8GP		4.2		0.0
38								
	ML-CLAYEY SILT, loose, slight plasticity, light gray, wet, increasing clay with depth	-25.54						
		-26.34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20 (BH)
DATE COMPLETED: June 2, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	SP-SAND, trace silt, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-28.54		9GP		3.5		0.0
	ML-SANDY SILT, compact, very fine sand, gray, with red grains and white grains, wet, interbedded layers very fine grained silty sand - 0.02' silty clay at 42.5ft BGS	-29.54						
44	SM-SILTY SAND, loose, very fine grained, gray, with red grains and white grains, wet, sand size shell fragments							
46	ML-SANDY SILT, compact, very fine sand, gray, with red grains and white grains, wet, interbedded layers very fine grained silty sand	-32.64		10GP		3.6		0.0
48	CL-SILTY CLAY, soft, low plasticity, light gray, moist	-34.84						
50	ML-CLAYEY SILT, very loose, slight plasticity, light gray, wet, sand size shell fragments, wood fragments	-36.74						
52	ML-SANDY SILT, compact, very fine sand, gray, with red grains and white grains, wet, interbedded layers very fine grained silty sand, scattered layers of clayey silt	-38.14		11GP		4.6		0.0
54								
56	ML-SILT, with clay, with very fine sand, loose, slight to low plasticity, occasional layers of silty clay, light gray, wet, wood fragments, sand to fine gravel size shell fragments	-41.54		12GP		4.9		0.0
58								
	SP-SAND, trace silt, trace fine subrounded gravel, loose, fine grained, well sorted, dark gray, wet, sand to fine gravel size shell	-45.34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20 (BH)
DATE COMPLETED: June 2, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	fragments							
	- 0.15' silty sand, compact at 61.4ft BGS - 0.5' fine to coarse grained sand, poorly sorted at 61.6ft BGS							
62				13GP		3.5		0.0
64								
66								
68				14GP		3.8		0.0
70								
72				15GP		3.1		0.0
74	- 0.01' clayey silt at 74.5ft BGS	-61.24						
	ML-SILT, with very fine grained sand, compact, gray, wet, wood fragments	-61.54						
76	END OF BOREHOLE @ 75.0ft BGS							
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20-75
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	13.32 12.92					
	NOT SAMPLED (0 TO 65ft BGS)		CONCRETE BENTONITE GROUT 2" PVC WELL CASING 8" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20-75
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22			6" BOREHOLE				
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20-75
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20-75
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
62							
64							
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-51.68					
66							
68			BENTONITE CHIPS				
70				1RS		10.0	
72							
	- with silt at 73.5ft BGS						
74			2" PVC WELL SCREEN				
	- no silt at 74.6ft BGS						
	END OF BOREHOLE @ 75.0ft BGS	-61.68					
76	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS		SAND PACK				
78							

WELL DETAILS
Screened interval:
-59.06 to -64.06ft
72.38 to 77.38ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW20-75
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
82			Material: PVC Seal: -50.98 to -56.48ft 64.30 to 69.80ft BGS Material: BENTONITE CHIPS Sand Pack: -56.48 to -64.18ft 69.80 to 77.50ft BGS Material: SAND				
84							
86							
88							
90							
92							
94							
96							
98							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21 (BH)
DATE COMPLETED: June 1, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.74						
	GM-SANDY GRAVEL, with silt, loose, fine to coarse angular to subrounded gravel, fine grained sand, brown, moist	10.84						0.0
2	SP-SAND, trace silt, trace fine subangular gravel, loose, fine grained, well sorted, grayish brown, with red grains and white grains, moist, sand size shell fragments							0.0
				1GP		4.0		
				2.5-3.5'				0.0
4	- dark gray staining, petroleum odor from 4.0 to 12.0ft BGS							90
			BACKFILLED WITH BENTONITE CHIPS					
6	- wet, 4" slight sheen at 6.0ft BGS							69
	- positive LNAPL dye test at 7.0ft BGS							75
	- sand to fine gravel size shell fragments at 7.3ft BGS			2GP		3.7		
8								65
								103
	- 0.2' very fine grained sandy silt at 9.6ft BGS			9-10'				
10								
								3
	- 0.06' diameter clay nodule at 11.3ft BGS							
12	- no odor at 12.0ft BGS							0.0
				3GP		4.7		
								0.0
14								0.0
	SP-SAND, trace silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-2.76		14-15'				
16	- 0.05' wood fragments at 15.8ft BGS	-4.26						0.0
	ML-CLAYEY SILT, trace very fine sand, loose, slight plasticity, seams of silty clay, light gray, wet, sand size shell fragments, wood fragments	-5.36						0.0
				4GP		3.5		
18	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments							0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21 (BH)
DATE COMPLETED: June 1, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-8.76					
	SM/ML-SAND AND SILT, with clay, very loose, fine grained sand, mostly non plastic, few small lenses (<0.05') of higher clay concentration with slight plasticity, well sorted, light gray, with red grains and white grains, wet, sand to fine gravel size shell fragments						0.0
22		-10.56					0.0
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments		5GP 22-24'		4.7		0.0
24							0.0
26							
28	- 0.2' highly concentrated sand to medium gravel size shell fragments at 27.9ft BGS - 0.1' silty clay, low plasticity, stiff at 28.1ft BGS		6GP		3.6		0.0
		-17.96					
30	ML-SILT, with clay, trace very fine sand, compact, small areas of slight plasticity, light gray, with red grains and white grains, wet, sand to medium gravel size shell fragments, wood fragments						
32		-20.66					
	CL-SILTY CLAY, trace very fine sand, soft, low plasticity, light gray, moist	-20.96	7GP		4.8		0.0
	ML-CLAYEY SILT, trace very fine sand, loose, slight plasticity, light gray, wet, sand size shell fragments	-21.76					
34	CL-SILTY CLAY, trace very fine sand, soft, low plasticity, light gray, moist						
	SP-SAND, trace silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, fine sand size shell fragments	-23.26					
36							
38			8GP		4.5		0.0
	ML-SANDY SILT, trace clay, loose, very fine	-27.86					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (22-24')

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21 (BH)
DATE COMPLETED: June 1, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	grained sand, well sorted, gray, with red grains and white grains, sand size shell fragments			9GP		3.9		0.0
44	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments - 0.2' clayey silt at 45.0ft BGS - 0.08' clayey silt at 45.4ft BGS	-32.26						
46								
48	SW-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-35.66		10GP		3.4		0.0
50	END OF BOREHOLE @ 50.0ft BGS	-38.26						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-15
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.75 11.28					
0	NOT SAMPLED (0-5ft BGS) SEE 709-MW21 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 5ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS				
6	GP-SANDY COBBLES, trace silt, loose, fine to coarse sand, subangular to rounded cobbles, gray, with red grains and white grains and brown grains, wet, shell fragments, petroleum odor	6.75 5.25					
8	GP-SANDY COBBLES, with gravel, loose, fine to coarse sand, fine to coarse angular to rounded gravel, gray, with red grains and white grains, gray and brown cobble/gravel, wet, shell fragments, strong petroleum odor	4.75	SAND PACK				
	NO RECOVERY (7-10ft BGS)						
10	ML-SANDY SILT, few clay, loose, fine sand, slightly plastic, gray to black, with red grains and white grains, wet, shell fragments, strong petroleum odor, LNAPL present	1.75					
14	SM-SILTY SAND, trace fine gravel, loose, fine to coarse grained, gray, with red grains and white grains, wet, shell fragments, strong odor, LNAPL present	-2.25 -3.25					
16	END OF BOREHOLE @ 15.0ft BGS		SUMP				
18							

WELL DETAILS
Screened interval:
6.55 to -3.45ft
5.20 to 15.20ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 8/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-15
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22			Seal: 10.55 to 8.55ft 1.20 to 3.20ft BGS Material: BENTONITE PELLETS Sand Pack: 8.55 to -5.25ft 3.20 to 17.00ft BGS Material: SAND				
24							
26							
28							
30							
32							
34							
36							
38							

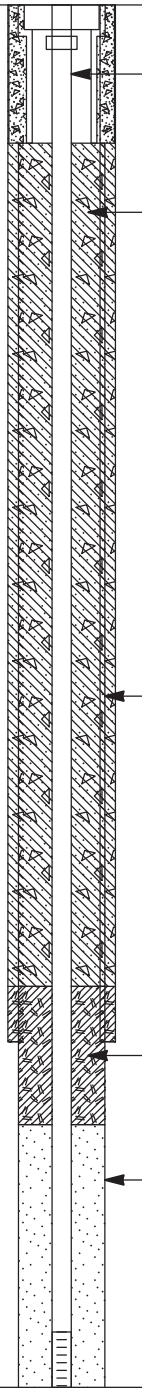
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-25
DATE COMPLETED: July 10, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.68 11.36					
	NOT SAMPLED (0-20ft BGS) SEE 709-MW21 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 20ft BGS)						



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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-709WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-25
DATE COMPLETED: July 10, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	SW-SAND, with silt, loose, fine to coarse grained, poorly sorted, gray, with red grains and white grains, wet, shell fragments, organic matter (wood)	-8.32	SAND PACK				
22	SM-SILTY SAND, loose, fine to coarse grained, poorly sorted, gray, with red grains and white grains, wet, shell fragments	-9.82					
24	SM/ML-SILT AND SAND, loose to compact, fine to coarse sand, gray, with red grains and white grains, wet, shell fragments	-11.82					
	SW-SAND, with silt and clay, loose, fine to coarse grained, poorly sorted, gray, with red grains and white grains, wet, shell fragments	-12.82					
26	END OF BOREHOLE @ 25.0ft BGS	-13.32	SUMP				
	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 15.0FT BGS						
28							
30							
32							
34							
36							
38							

WELL DETAILS
Screened interval:
-7.52 to -12.52ft
19.20 to 24.20ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-2.52 to -4.52ft
14.20 to 16.20ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-4.52 to -14.32ft
16.20 to 26.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-50
DATE COMPLETED: July 10, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.66 11.40					
	NOT SAMPLED (0-45ft BGS) SEE 709-MW21 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 45ft BGS)		CONCRETE BENTONITE GROUT 8" BOREHOLE 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-50
DATE COMPLETED: July 10, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-709
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 709 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 709-MW21-50
DATE COMPLETED: July 10, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42			BENTONITE PELLETS				
44							
	ML-CLAYEY SILT, with sand, few coarse gravel, loose, coarse grained, low plasticity, gray, with white grains and red grains, wet, shell fragments	-33.34					
46	SW-SAND, few silt and gravel, loose, fine to coarse sand, fine to medium grained gravel, loose, poorly sorted, gray, with white grains and red grains, wet, shell fragments	-33.84					
48			SAND PACK				
50	END OF BOREHOLE @ 50.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 15.0FT BGS	-38.34	SUMP				
52							
54							
56							
58							

WELL DETAILS
Screened interval:
-32.54 to -37.54ft
44.20 to 49.20ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.54 to -29.54ft
39.20 to 41.20ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.54 to -39.34ft
41.20 to 51.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-01
DATE COMPLETED: May 30, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	11.41
	ASPHALT	11.11
	SP-GRAVELLY SAND, trace silt, compact, fine to medium grained, trace coarse to very coarse grained, fine to coarse angular to subangular gravel, well graded, brown, moist	10.31
4	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, brown, with red grains and white grains, moist, sand to fine gravel size shell fragments	
8	- wet at 7.5ft BGS - gray, petroleum odor, staining at 8.3ft BGS	
12	- 0.3' very fine sand at 12.3ft BGS - 0.03' layer clayey silt at 12.7ft BGS - 0.03' layer clayey silt at 13.5ft BGS - 0.04' layer clayey silt at 13.8ft BGS - 0.06' layer clayey silt at 14.5ft BGS	
16	SM-SILTY SAND, loose, very fine to fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments, interbedded layers of silty clay throughout	-4.59 -5.59
18	CL-SILTY CLAY, firm, low to medium plasticity, gray, moist, wood fragments and scattered shell fragments	-6.79
20	SM-SILTY SAND, trace fine subrounded to subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, scattered clay nodules, sand size to fine gravel size shell fragments, wood and plant material fragments	-8.59
24	SW-SAND, trace silt, trace fine subangular gravel, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-11.89 -12.49 -13.59
26	CL-SILTY CLAY, trace fine sand, firm, low plasticity, gray, moist, pockets of sand, sand size to medium gravel size shell fragments	
28	SM-SAND, with silt, loose, fine grained, well sorted, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	
30	END OF BOREHOLE @ 25.0ft BGS	

BOREHOLE: BACKFILLED WITH BENTONITE CHIPS

SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
				0.0
				0.0
1GP		4.5		0.0
3.5-4.5'				0.0
				0.0
				27.6
2GP		3.9		57.7
				>9999
9.5-10.5'				>9999
				230
3GP		4.0		162
				31.7
				0.0
				0.0
4GP		4.0		8.6
19-20'				16.7
				0.0
				0.0
5GP		3.8		0.0
23-24'				0.0
				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-02
DATE COMPLETED: May 23, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.31						
	ASPHALT	11.01						
	SP-GRAVELLY SAND, trace silt, trace clay, compact, fine to coarse angular to subrounded gravel, fine to medium grained, trace very fine grained, trace coarse grained, well graded, brown, moist	10.51						0.0
2				1GP		4.0		0.0
				3-4'				0.0
4	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments							0.0
			BACKFILLED WITH BENTONITE CHIPS					
6	- wet, strong petroleum odor and staining at 6.0ft BGS							52.1
	- fine grained sand at 6.5ft BGS							1447
8				2GP		3.5		3658
	- 0.3' clayey silt with fine sand at 9.1ft BGS							>9999
				9-10'				
10								320
12								263
	- 01.5' silty clay at 12.6ft BGS			3GP		4.0		31.7
	- 0.08' silty clay at 13.6ft BGS							
14	- wood fragment at 13.9ft BGS	-2.69						12.6
	SM-SILTY SAND, trace clay, loose, very fine to fine grained, well sorted, gray, red with grains and white grains, wet, sand to fine gravel size shell fragments	-3.69						
16								4.1
	CI-SILTY CLAY, trace fine sand, soft, low plasticity, gray, very moist to moist, scattered shell fragments, pockets of silty sand	-6.49		16.5-17.5' 4GP		5.0		0.0
18								0.0
	SM-SILTY SAND, trace clay, trace fine subangular gravel, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-8.69						0.0
20	- 0.1' silty clay at 19.6ft BGS							0.0
	- 0.2' silty clay at 19.8ft BGS							
22	SP-SAND, trace silt, loose, medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-11.49		5GP		5.0		0.0
				23-24'				0.0
24	- 0.3' of SW-SAND, poorly sorted, fine to coarse grained at 22.0ft BGS							0.0
	SM/ML-SAND AND SILT, trace clay, loose, very fine to fine sand, slight plasticity, well sorted, gray, wet	-13.69						
26	- concentrated sand to coarse gravel size shell fragments from 24.1 to 25.0ft BGS							
	END OF BOREHOLE @ 25.0ft BGS							
28								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH03/MW11 (BH)
DATE COMPLETED: May 31, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.44						
0	ASPHALT	11.14		0.5-1.5'				9.9
	SP-GRAVELLY SAND, trace silt, trace clay, compact, fine grained, trace to with very fine to coarse grained, well graded, brown, moist	10.54						
2	TAR-LIKE MATERIAL, very tough/plastic, very dark brown, petroleum-like odor	10.34		1GP		3.9		0.0
4	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments		BACKFILLED WITH BENTONITE CHIPS					0.0
	- dark gray, staining, petroleum odor at 4.7ft BGS							9.9
6	- wet at 6.5ft BGS							826
	- positive LNAPL dye test at 7.0ft BGS							869
8	- sheen on core from 7.5 to 9.5ft BGS			2GP 7.5-8.5'		4.0		987
	- very fine to fine grained sand at 8.8ft BGS	1.74						5.9
10	ML-CLAYEY SILT, trace very fine sand, loose, slight plasticity, gray, wet	1.44						
12	END OF BOREHOLE @ 10.0ft BGS							
	NOTE: BOREHOLE TERMINATED DUE TO LNAPL PRESENCE							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-04
DATE COMPLETED: May 22, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.97						
	ASPHALT	10.67						
	SP-GRAVELLY SAND, trace silt, compact, medium grained, fine to coarse angular to subrounded gravel, well graded, brown, moist	10.17						0.0
2								0.0
	SP-SAND, trace silt, trace fine subrounded gravel, loose, fine grained, trace coarse sand, well graded, brown, with red grains and white grains, moist, sand size shell fragments			1GP		4.2		0.0
4				3.5-4.5'				0.0
	- 0.51 layer of cement or very well cemented medium sand at 2.0ft BGS	5.97	BACKFILLED WITH BENTONITE CHIPS					
6	ML-SILT, with medium sand, trace clay, loose, gray, moist to wet, sand size shell fragments, wood fragments, petroleum odor	4.47						2586
								2132
	SP-SAND, trace silt, trace fine subrounded gravel, fine grained, well sorted, dark gray, with red grains and white grains, wet, contains sand size shell fragments, petroleum odor and staining			2GP		4.0		
8				7.5-8.5'				5346
								76.3
10								
								222
12				3GP		3.3		52
								40
14								12.5
	CL-SILTY CLAY, trace fine sand, soft, low plasticity, gray, very moist, sand size shell fragments, wood fragments	-4.33						
16				16-17'				0.0
	SM-SILTY SAND, trace clay, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-6.23						0.0
18				4GP		4.7		0.0
	- 0.1 layer of silty clay at 19.0ft BGS	-8.23						0.0
20	CL-SILTY CLAY, soft, low plasticity, gray, moist, minor layers of silty sand	-9.03						
	SP-SAND, trace silt, loose, medium grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments							0.0
22								0.0
				5GP		3.8		
	ML-CLAYEY SILT, trace sand, loose, slight plasticity, light gray, wet, shell fragments from sand size to medium gravel size, wood fragments	-12.03						0.0
24				23-24'				0.0
	- 0.3' concentrated interval of shells at 24.7ft BGS	-14.03						
26	END OF BOREHOLE @ 25.0ft BGS							
28								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-05
DATE COMPLETED: May 31, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.35						
	ASPHALT	11.05						
	SP-GRAVELLY SAND, trace silt, trace clay, compact, fine grained, trace very fine to coarse grained, fine to coarse angular to subrounded gravel, well graded, brown, moist	10.35						0.0
2				1GP 2.5-3.5'		4.0		
4	SP-SAND, trace silt, trace fine subrounded gravel, fine grained, loose, well graded, brown to dark gray, with red grains and white grains, sand size shell fragments, moist							0.0
6	- dark gray staining, strong petroleum odor at 4.0ft BGS - wet at 6.5ft BGS		BACKFILLED WITH BENTONITE CHIPS	5-6'				0.0
8	- free product in liner, bubbly, brown from 6.5 to 7.5ft BGS - sheen on sand, positive LNAPL dye test at 7.5ft BGS			2GP		3.9		2756
10	END OF BOREHOLE @ 10.0ft BGS	1.35						5100
12	NOTE: BOREHOLE TERMINATED DUE TO LNAPL PRESENCE							1711
14								1500
16								274
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-07
DATE COMPLETED: May 30, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	10.80
	ASPHALT	10.50
	SP-GRAVELLY SAND (FILL), trace silt, compact, fine grained, trace medium to coarse grained, fine to coarse angular to subangular gravel, well graded, brown, moist	10.20
2		
4	SP-SAND, trace silt, trace fine subangular gravel, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments	
6	- fine grained sand from 0.6 to 3.5ft BGS	
	- strong petroleum odor, staining and sheen from 5.0 to 11.0ft BGS	
8	- dark gray, wet at 6.0ft BGS	
	- 0.2' layer silt with very fine sand at 6.3ft BGS	
	- 0.08' layer product at 6.5ft BGS	
10	- 0.06' layer clayey silt at 8.7ft BGS	
	- 0.1' layer silty clay at 9.6ft BGS	
12		
	- 0.1' layer wood fragments at 13.0ft BGS	
14	- 0.05' layer silt at 13.8ft BGS	
		-4.70
16	ML-SILT, trace to with clay, trace to with very fine sand, loose, no to slight plasticity, gray, some red grains and white grains, sand size shell fragments	-5.40
		-6.40
18	- 0.15' layer silty clay at 15.8ft BGS	
	CL-SILTY CLAY, soft, low plasticity, gray, moist, wood fragments, sand size shell fragments	-8.00
20		-9.20
	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	
22		
	CL-CLAY, with silt, firm, low to medium plasticity, gray, moist, sand to fine gravel size shell fragments	-12.60
24		
	SW-SAND, trace silt, loose, fine to medium grained, trace coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, sand size shell fragments	-14.20
26		
	ML-SANDY SILT, trace clay, compact, very fine grained sand, non plastic, gray, wet, sand to fine gravel size shell fragments	
28		
	END OF BOREHOLE @ 25.0ft BGS	
30		
32		
34		

BOREHOLE: BACKFILLED WITH BENTONITE CHIPS

SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
				0.0
				0.0
1GP		4.1		
3-4'				0.0
				0.0
5-6'				>9999
				1179
2GP		4.0		
				29.6
				8.3
				10.5
				6.2
3GP		4.2		
				0.0
				0.0
				0.0
16-17'				0.0
4GP		4.3		
				0.0
				0.0
				0.0
				0.0
5GP		3.1		
23-24'				0.0
				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-08
DATE COMPLETED: May 31, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.30						
	ASPHALT	11.00						
2	SP-GRAVELLY SAND, trace silt, trace clay, compact, fine grained, trace very fine to coarse grained, fine to coarse angular to subangular gravel, well graded, brown, moist	10.10						0.0
				1GP 2.5-3.5'		3.7		0.0
4	SP-SAND, trace silt, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments							96.7
				4-5'				1279
6	- dark gray, staining, petroleum odor at 2.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					281
	- wet, free product on liner, strong sheen on core, positive LNAPL dye test at 6.0ft BGS							
8				2GP		4.0		207
								17
10	END OF BOREHOLE @ 10.0ft BGS	1.30						15
12	NOTE: BOREHOLE TERMINATED DUE TO LNAPL PRESENCE							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH09/MW12 (BH)
DATE COMPLETED: June 9, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.08						
0	ASPHALT AND CONCRETE DEBRIS							
2	SP-SAND, trace silt, trace gravel, fine to medium sand, fine gravel, well sorted, dark gray, moist, shell fragments, petroleum odor	9.38		1GP		4.5		467.3
4			BACKFILLED WITH BENTONITE CHIPS					
6	- 0.2' SP-GRAVELLY SAND lens at 5.8ft BGS							
8	- wet at 8.0ft BGS			2GP		5.0		989.0
10	- wet at 10.0ft BGS							
12				3GP		5.0		1325.0
14								
	- DISCONTINUED SAMPLING at 15.0ft BGS	-3.92						
16	END OF BOREHOLE @ 15.0ft BGS							
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-10
DATE COMPLETED: May 31, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.20						
0	ASPHALT	10.90						
	SP-GRAVELLY SAND, trace silt, trace clay, compact, fine grained, trace very fine to coarse grained, fine to coarse angular to subrounded gravel, well graded, brown, moist	10.40						15
2				1GP		3.5		56
	- dark gray at 1.1ft BGS			3-4'				73
4	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine grained, well graded, dark brownish gray, with red grains and white grains, moist, sand size shell fragments, petroleum odor, staining		BACKFILLED WITH BENTONITE CHIPS					53
6	- 0.05' silt layer at 4.7ft BGS			6-7'				29
	- wet at 6.0ft BGS			2GP		4.0		93
8	- positive LNAPL dye test at 7.0ft BGS							80
10	END OF BOREHOLE @ 10.0ft BGS	1.20						9.2
12	NOTE: BOREHOLE TERMINATED DUE TO LNAPL PRESENCE							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-11
DATE COMPLETED: May 21, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	PID (ppm)
	GROUND SURFACE	11.04						
	ASPHALT	10.74						
	SP-GRAVELLY SAND, trace silt, compact, medium grained, trace fine to very coarse grained, well graded, brown, moist	10.34						0.0
2								0.0
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments			1GP		4.0		0.0
				3-4'				
4	- 0.8' very fine grained sand at 4.2ft BGS							0.0
			BACKFILLED WITH BENTONITE CHIPS					
6	- wet at 6.0ft BGS							0.0
	- gray at 6.5ft BGS							0.0
				2GP		3.9		
8				7-8'				0.0
	- 0.15' very fine grained silty sand at 9.2ft BGS							0.0
10	- shell fragments including medium gravel size fragments at 10.0ft BGS							
								0.0
12				3GP		3.7		0.0
								0.0
14								0.0
	- 0.2' very fine silty sand at 14.5ft BGS	-3.76						
	SM-SAND, with silt, loose, very fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.36						
16		-5.16		16-17'				0.0
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, wood fragments scattered in concentrated layers	-6.26						0.0
18				4GP		4.1		0.0
	CL-SILTY CLAY, loose to firm, low plasticity, gray, very moist, scattered sand size shell fragments, wood fragments scattered in concentrated layers	-8.16						0.0
20	- trace fine sand at 17.1ft BGS	-8.96						
	SM-SILTY SAND, trace clay, trace fine subangular gravel, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments, wood fragments							0.0
22								0.0
				5GP		4.5		0.0
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, fine sand size to medium gravel size shell fragments, wood fragments			23-24'				0.0
24								
	SP-SAND, trace silt, loose, medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments							
26	- 0.02' clayey silt at 22.3ft BGS							
	- 0.2' concentrated medium gravel size shell fragments at 24.1ft BGS			6GP		4.1		
28								
	- fine gravel size shell fragments at 25.0ft BGS	-17.86						
	CL-SILTY CLAY, trace fine sand, soft, low	-18.36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-11
DATE COMPLETED: May 21, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	plasticity, gray, very moist, fine gravel size shell fragments	-18.96						
32	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments			7GP		4.1		
34	CL-SILTY CLAY, trace fine sand, soft, low plasticity, gray, very moist to wet, sand size shell fragments, increase in silt content with depth, wood fragments	-22.46						
36	SM-SILTY SAND, trace clay, loose, very fine grained, well graded, gray, wet, sand size shell fragments	-23.96						
38	SM/ML-SAND AND SILT, loose, fine grained sand, gray, with red grains and white grains, well graded, wet, sand size to fine gravel size shell fragments			8GP		4.2		
40	SP-SAND, trace silt, loose, fine to medium grained, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments	-28.96						
42				9GP		3.4		
44								
46								
48				10GP		2.8		
50	END OF BOREHOLE @ 50.0ft BGS	-38.96						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-11/ MW13 (BH)
DATE COMPLETED: May 21, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.04						
	ASPHALT	10.74						
	SP-GRAVELLY SAND, trace silt, compact, medium grained, trace fine to very coarse grained, well graded, brown, moist	10.34						0.0
2								0.0
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments			1GP		4.0		0.0
				3-4'				
4	- 0.8' very fine grained sand at 4.2ft BGS							0.0
			BACKFILLED WITH BENTONITE CHIPS					
6	- wet at 6.0ft BGS							0.0
	- gray at 6.5ft BGS							0.0
				2GP		3.9		
8				7-8'				0.0
	- 0.15' very fine grained silty sand at 9.2ft BGS							0.0
10	- shell fragments including medium gravel size fragments at 10.0ft BGS							
								0.0
12				3GP		3.7		0.0
								0.0
14								0.0
	- 0.2' very fine silty sand at 14.5ft BGS	-3.76						
	SM-SAND, with silt, loose, very fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.36						
16		-5.16		16-17'				0.0
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, wood fragments scattered in concentrated layers	-6.26						0.0
18				4GP		4.1		0.0
	CL-SILTY CLAY, loose to firm, low plasticity, gray, very moist, scattered sand size shell fragments, wood fragments scattered in concentrated layers	-8.16						0.0
20	- trace fine sand at 17.1ft BGS	-8.96						
	SM-SILTY SAND, trace clay, trace fine subangular gravel, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments, wood fragments							0.0
22				5GP		4.5		0.0
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, fine sand size to medium gravel size shell fragments, wood fragments			23-24'				0.0
24								
	SP-SAND, trace silt, loose, medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments							
26	- 0.02' clayey silt at 22.3ft BGS							
	- 0.2' concentrated medium gravel size shell fragments at 24.1ft BGS			6GP		4.1		
28	- fine gravel size shell fragments at 25.0ft BGS	-17.86						
	CL-SILTY CLAY, trace fine sand, soft, low	-18.36						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-11/ MW13 (BH)
DATE COMPLETED: May 21, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	plasticity, gray, very moist, fine gravel size shell fragments	-18.96						
32	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments			7GP		4.1		
34	CL-SILTY CLAY, trace fine sand, soft, low plasticity, gray, very moist to wet, sand size shell fragments, increase in silt content with depth, wood fragments	-22.46						
36	SM-SILTY SAND, trace clay, loose, very fine grained, well graded, gray, wet, sand size shell fragments	-23.96						
38	SM/ML-SAND AND SILT, loose, fine grained sand, gray, with red grains and white grains, well graded, wet, sand size to fine gravel size shell fragments			8GP		4.2		
40	SP-SAND, trace silt, loose, fine to medium grained, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments	-28.96						
42				9GP		3.4		
44								
46								
48				10GP		2.8		
50	END OF BOREHOLE @ 50.0ft BGS	-38.96						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-12
DATE COMPLETED: May 23, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	PID (ppm)
	GROUND SURFACE	11.45						
	ASPHALT	11.15						
	SP-GRAVELLY SAND, trace silt, trace clay, compact, medium grained, trace fine grained, trace coarse grained, fine to coarse angular to subrounded gravel, well graded, brown, moist	10.45						0.0
2				1GP		4.1		592
								160
4	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well graded, dark gray, with red grains and white grains, moist, sand size shell fragments, petroleum odor, staining			3.75-4.75'				1792
	- hair size roots from 2.0 to 3.0ft BGS		BACKFILLED WITH BENTONITE CHIPS	5-6'				
6	- sheen at 6.0ft BGS							9360
								1462
8				2GP		3.9		7550
								1170
10								
								306
12								25.2
				3GP		4.1		8.3
14								6.2
	CL-SILTY CLAY, soft, low plasticity, gray, very moist to wet, scattered wood fragments and shell fragments	-3.55						
16				16-17'				0.0
	- 0.08' very fine silty sand at 15.2ft BGS	-5.45						0.0
	- 0.25' very fine silty sand at 15.5ft BGS			4GP		4.0		
18	SM-SILTY SAND, loose, fine grained, well graded, gray, with red grains and white grains, wet, wood fragments, sand to fine gravel size shell fragments							0.0
								0.0
20	- with clay, very loose at 20.1ft BGS							
								0.0
22	CL-SILTY CLAY, soft to firm, low to medium plasticity, gray, moist, wood fragments, occasionally concentrated in layers	-10.45						0.0
		-11.75		5GP		5.0		0.0
24	SP-SAND, trace silt, loose, fine to medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments			23-24'				0.0
		-13.55						
26	END OF BOREHOLE @ 25.0ft BGS							
28								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-13
DATE COMPLETED: May 21, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.31						
	ASPHALT	11.01						
	SP-GRAVELLY SAND, trace to with silt, loose, medium grained, trace coarse sand, well graded, brown, moist	10.51						0.0
2								507
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, gray to dark gray, with red grains and white grains, moist, sand size shell fragments, petroleum odor, staining			1GP		4.0		384
4								1512
			BACKFILLED WITH BENTONITE CHIPS	4-5'				
6	- wet at 6.0ft BGS							919
				6-7.5'				>9999
				2GP		4.1		
8								4450
								>9999
10								
								76.0
12	- red gravel size shell fragments at 12.0ft BGS							178
	- sheen at 13.0ft BGS			3GP		3.0		71.9
14								103.1
	- 0.1' clayey silt at 14.6ft BGS							
	- 0.1' clayey silt at 14.9ft BGS	-3.69						
16	SP-SAND, trace silt, loose, very fine to fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.59						0.0
		-5.54		16-17'				0.0
		-6.29		4GP		4.5		
18	ML-CLAYEY SILT, trace fine sand, loose, gray, wet, sand size shell fragments, wood fragments							0.0
	- 0.1' concentrated wood layer at 16.7ft BGS							0.0
20	CL-SILTY CLAY, firm, low plasticity, gray, very moist, wood fragments	-8.69						
		-9.09						0.0
	SM-SILTY SAND, loose, fine to medium grained, well graded, gray, with red grains and white grains, sand size to medium gravel size shell fragments							
22								0.0
		-11.29		5GP		5.0		
	- intact 0.05x0.03' shell at 19.4ft BGS							0.0
24	SP-SAND, trace silt, loose, very fine to fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments			23-24'				0.0
		-13.69						
26	ML-CLAYEY SILT, with fine sand, loose to compact, slight plasticity, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments							
28	SP-SAND, trace silt, loose, fine to medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments							
	END OF BOREHOLE @ 25.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-14
DATE COMPLETED: May 20, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.63						
	ASPHALT	10.43						
	SP-GRAVELLY SAND, trace silt, loose, medium grained sand, trace coarse sand, well graded, brown to tannish brown, moist	9.63						0.0
2								0.0
	SW-SAND, trace silt, trace fine subrounded gravel, loose, fine to very coarse grained, poorly graded, brown, moist	7.63		1GP 2-3'		4.5		0.0
4								0.0
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments		BACKFILLED WITH BENTONITE CHIPS					
6	- wet at 6.5ft BGS							0.0
								0.0
	- 0.3' very fine to fine grained sand at 7.5ft BGS			2GP 7-8'		3.4		0.0
8	- 0.05' clayey silt at 8.4ft BGS							0.0
	- 0.15' clayey silt at 8.7ft BGS							
	- 0.3' very fine sand at 8.9ft BGS							
10	- medium gravel size shell fragments from 9.7 to 15.0ft BGS							0.0
								0.0
12				3GP		3.5		0.0
								0.0
14								0.0
16	ML-CLAYEY SILT, trace fine sand, loose to compact, slight plasticity, gray, wet, shell fragments and wood fragments	-5.37		16-17'				0.0
								0.0
18	SM-SILTY SAND, loose, fine to medium grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-7.37		4GP		4.0		0.0
		-8.87						0.0
20	CL-SILTY CLAY, trace fine sand, compact, low plasticity, gray, very moist to wet, sand size to medium grained size shell fragments, wood fragments	-10.17						0.0
22								0.0
	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size to fine gravel size shell fragments			5GP		3.4		0.0
24				23-24'				0.0
	END OF BOREHOLE @ 25.0ft BGS	-14.37						
26								
28								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-15/MW14 (BH)
DATE COMPLETED: May 22, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.43						
	ASPHALT	11.13						
	SP-GRAVELLY SAND, trace silt, compact, medium grained, trace coarse grained sand, fine to coarse subangular gravel, well graded, tannish brown, moist	10.43						12.5
2	SW-SAND, trace silt, with to trace fine subrounded to subangular gravel, loose, fine to coarse grained, well graded, gray, with red grains and white grains, moist, sand size shell fragments, petroleum odor, dark gray staining	8.93		1GP		5.0		14.6 0.0
4	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine grained, well graded, dark gray, with red grains and white grains, moist, sand size shell fragments, petroleum odor, staining		BACKFILLED WITH BENTONITE CHIPS	3.75-4.75'				34.1
6	- wet at 6.5ft BGS			5-6'				5230
	- 0.15' layer of clayey silt at 7.4ft BGS - red gravel size shell fragments at 7.6ft BGS			2GP		4.5		3580
8								3612
	- 0.2' layer of very fine grained silty sand at 9.0ft BGS							62.1
10								171
12	- 0.15' layer of very fine grained silty sand at 12.9ft BGS			3GP		5.0		6.7 4.8
14								28.2
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet - cobble at 15.2ft BGS	-3.37						
16	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-4.87						9.2 4.8
18	SM-SILTY SAND, trace clay, loose, fine grained, well graded, gray, wet, sand size shell fragments, wood fragments	-5.97		4GP 17.5-18'		5.0		0.0 0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-15/MW14 (BH)
DATE COMPLETED: May 22, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-9.07						
	ML-SILT, with sand, with clay, loose, fine grained sand, slight plasticity, gray, wet, wood fragments, sand size shell fragments							0.0
		-10.37						
22	SP-SAND, trace silt, fine to medium grained, well graded, dark gray, wet, sand size to fine gravel size shell fragments							0.0
				5GP		4.0		
				23-24'				0.0
24								0.0
	- shell fragments up to 0.1x0.8" in size at 25.5ft BGS							
26								
		-15.77						
	SP-SAND, trace to with silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments							
28								
		-17.57						
	SM-SILTY SAND, trace clay, loose, occasional pocket of slight plasticity, well graded, gray, with red grains and white grains, wet, contains sand size shell fragments							
30								
32								
34								
36								
		-25.37						
	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-26.17						
38	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, gray, wet, sand to medium gravel size shell fragments, wood fragments							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-15/MW14 (BH)
DATE COMPLETED: May 22, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	SP-SAND, trace silt, loose, very fine to fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-28.57						
44								
46	SW-SAND, trace silt, trace fine subangular to subrounded gravel, fine to coarse grained, poorly graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-33.57						
48								
50	- 0.15' layer of dense silt at 49.6ft BGS END OF BOREHOLE @ 50.0ft BGS	-38.57						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH16/MW15 (BH)
DATE COMPLETED: May 20, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.42						
	ASPHALT	11.12						
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine grained, well graded, brownish gray, with red grains and white grains, moist, sand size shell fragments			0.25-1.25'				51.6
2				1GP		4.0		35.6
								6.6
4								8.2
	- dark gray, petroleum staining, very strong odor, sheen at 5.0ft BGS - wet at 5.5ft BGS		BACKFILLED WITH BENTONITE CHIPS					
6	- free product present at 6.0ft BGS							8860
				6.25-7.25'				>10,000
				2GP		3.9		
8								3340
								149
	- 0.3' very fine grained silty sand at 9.5ft BGS							
10								
								2010
12								75.1
				3GP		4.2		
	- 0.08' layer of silt at 13.0ft BGS							61.1
14								65.8
		-3.08						
	SM-SILTY SAND, very fine grained, loose, gray, with red grains and white grains, wet, sand size shell fragments	-3.58						
16	CL-SILTY CLAY, firm, low plasticity, light gray, moist, sand size shell fragments	-4.38						13.3
	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	-5.78						15.5
				4GP		5.0		
	ML-CLAYEY SILT, trace very fine sand, loose, slight plasticity, light gray, with some red grains and white grains, wet, sand size shell fragments, wood fragments	-6.28 -6.68		17.5-18.5'				20.0
18								
	CL-SILTY CLAY, firm, low plasticity, light gray, very moist, sand size shell fragments, wood fragments	-7.48						15.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH16/MW15 (BH)
DATE COMPLETED: May 20, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-8.58						13.3
22	SM-SILTY SAND, trace fine subrounded gravel, loose, fine grained, gray, with red grains and white grains, sand size shell fragments, wood fragments							0.0
	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-11.38		5GP		5.0		0.0
24	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, light gray, with red grains and white grains, wet, sand size shell fragments, wood fragments			23-24'				0.0
	CL-SILTY CLAY, trace very fine sand, firm, low plasticity, light gray, very moist, sand to gravel size shell fragments, wood fragments	-13.58						
26								0.0
								0.0
	ML-SANDY SILT, loose, very fine grained sand, gray, with red grains and white grains, wet, sand size shell fragments	-16.18		6GP		4.0		
28		-16.68						0.0
	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, light gray, with red grains and white grains, wet, sand size shell fragments, wood fragments							0.0
30	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments	-18.58						
								0.0
32								0.0
				7GP		3.4		
								0.0
34								0.0
36	- 0.3' layer of sandy silt at 36.0ft BGS							0.0
	- 0.4' layer of sandy silt at 37.2ft BGS							0.0
				8GP		3.4		
38								0.0
								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH16/MW15 (BH)
DATE COMPLETED: May 20, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	- 0.2' layer of silty sand at 40.5ft BGS			9GP		4.6		0.0
								0.0
44								0.0
	- 0.4' layer of clayey silt with sand, shell fragments up to 0.12x0.08' at 44.7ft BGS							0.0
46								0.0
	- 0.08' layer of clayey silt at 46.6ft BGS			10GP		4.4		0.0
48								0.0
								0.0
50	END OF BOREHOLE @ 50.0ft BGS	-38.58						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-17
DATE COMPLETED: October 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.74						
	ASPHALT AND AGGREGATE			1HA				1190
		9.24						
2	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, dry to moist			-001				
4			BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6								4600
8	- moist at 8.5ft BGS			2RS				
				-002				6400
10	- wet at 10.0ft BGS							
12				3RS				3660
			8" BOREHOLE					
14				-003				510
16								
	SM-SILTY SAND, very fine grained, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wood fragments, wet	-5.76	6" BOREHOLE					1250
18	- increase in sand content at 17.5ft BGS			4RS				
				-004				890
20	ML-SILT, trace very fine sand, soft, non plastic, slow dilatancy, medium to dark gray, wet	-9.36						
								332
22	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-11.06		5RS				
24	- shell lag deposit grading to silt lens at 24.9ft BGS							1100
				-005				
26	- partial and intact shell fragments throughout from 25.5 to 28.2ft BGS							591
28				6RS				
								522
30	- wood fragments at 29.8ft BGS	-19.26		-006				
	END OF BOREHOLE @ 30.0ft BGS							
32	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 15.0FT BGS							
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-BH-18
DATE COMPLETED: June 9, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE	11.13					
	ASPHALT DEBRIS	10.13					
2	SP-GRAVELLY SAND, loose, fine to medium sand, fine gravel, well sorted, gray, moist	9.43		1GP		4.5	
4	SP-SAND, loose, fine to medium grained, well sorted, dark gray, moist, shell fragments		BACKFILLED WITH BENTONITE CHIPS				
6	- wet at 6.3ft BGS - 0.3' SP-GRAVELLY SAND lens at 6.4ft BGS			2GP		5.0	
8							
10							
12	- 0.2' ML lens at 12.7ft BGS			3GP		5.0	
14							
16	SM-SILTY SAND, loose, dark gray, wet - 0.4' ML lens at 16.3ft BGS	-3.87		4GP		5.0	
18							
20	ML-SILT, with sand, loose, low plasticity, gray, wet	-8.87					
22	SP-SAND, trace silt, trace gravel, fine to medium sand, fine gravel, well sorted, dark gray, wet	-10.07		5GP		5.0	
24							
26	END OF BOREHOLE @ 25.0ft BGS	-13.87					
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-GP5
DATE COMPLETED: June 23, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND, medium grained, minor silt						
2			SS1				
4							
6			SS2				
8							
10			SS3				
12	SM-SILTY SAND, fine grained	-0.40					
14			SS4				66
	- transitioning to silt @ 15 ft BGS	-3.40					
16	ML-SILT	-4.90	SS4				
	CL/ML-SILTY CLAY	-5.40					
18	MLS-SANDY SILT, minor clay content - silt layer from 18.5 to 19.5 ft BGS						
20			SS5				480
	SP-SAND, medium grained, minor silt	-8.40					
	Not Sampled	-9.40					
22							
24							
	SM-SILTY SAND, medium grained, more dry than sand above, hard, decomposition and sulfur odors	-13.40					
26			SS6				
28							
30	- -wet between 30.0 and 31.5 ft BGS		SS7				
32							
	END OF BOREHOLE @ 33.0ft BGS	-21.40					
34	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05 (BH)
DATE COMPLETED: June 4, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.55						
0	ASPHALT	11.25						0.0
	GM-SILTY GRAVEL, with fine sand, compact, fine to coarse angular to subrounded gravel, brown, moist	10.55						0.0
2				1GP		4.2		0.0
	SP-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine to medium grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments							0.0
4								0.0
	- fine grained, dark gray, wet, petroleum odor, slight staining, slight sheen to 11' at 6.0ft BGS		BACKFILLED WITH BENTONITE CHIPS					57
6				2GP		3.9		392
8								313
10								18
	- 0.1' layer silt at 11.3ft BGS							16
12				3GP		4.4		9
	- 0.15' layer silt at 13.0ft BGS							3
14	- 1' fine to fine gravel size shell fragments at 14.0ft BGS							
		-3.45						
16	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	-3.85						3
	CL-SILTY CLAY, firm, low plasticity, light gray, moist, wood fragments concentrated into layers, layers of very fine grained sandy silt, sand size shell fragments							8
18		-6.25		4GP		4.6		6
	- 0.08' layer sandy silt at 15.5ft BGS							0.0
20	- 0.2' layer sandy silt at 15.7ft BGS	-8.45						0.0
	- 0.05' layer sandy silt at 16.0ft BGS	-8.85						
	- 0.2' layer sandy silt at 16.1ft BGS	-9.15						
22		-9.45						0.0
	SM-SILTY SAND, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to medium gravel size shell fragments, wood fragments	-10.35		5GP		4.7		0.0
24		-11.25						0.0
	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments							
26								
	CL-SILTY CLAY, firm, low plasticity, light gray, moist, wood fragments concentrated into layers, layers of very fine grained sandy silt, sand size shell fragments	-14.95						
28		-15.45						
	SM-SILTY SAND, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand to medium gravel size shell fragments, wood fragments	-15.95		6GP		4.9		0.0
30		-16.85						
	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-18.45						
32		-19.15		7GP		3.1		0.0
	SW-SAND, trace silt, loose, fine to coarse grained, poorly graded, dark gray, with red grains and white grains, wet, sand size shell							
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05 (BH)
DATE COMPLETED: June 4, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	fragments							
	ML-CLAYEY SILT, loose, slight plasticity, light gray, wet, sand to medium gravel size shell fragments, wood fragments							
38	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-26.75		8GP		4.7		0.0
40	ML-SANDY SILT, compact, very fine sand, gray, with red grains and white grains, wet, sand size shell grains, wood fragments							
42	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments			9GP		4.9		0.0
44	ML-SILT, trace very fine sand, trace clay, loose, high dilatancy, light gray, wet, sand size shell fragments							
46	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand to fine gravel size shell fragments			10GP		4.2		0.0
48	ML-SILT, trace very fine sand, trace clay, loose, high dilatancy, light gray, wet, sand size shell fragments - 0.35' silty clay at 37.6ft BGS							
50	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments - 0.2' layer medium grained sand at 42.0ft BGS - 0.02' layer silt at 42.9ft BGS - 0.5' layer SW-SAND, poorly graded, fine to coarse grained at 43.0ft BGS - 0.2' layer very fine grained silty sand at 46.5ft BGS - 0.2' layer silty clay at 47.5ft BGS - 0.8' very fine to fine grained sand at 47.6ft BGS - 0.02' layer silty clay at 49.2ft BGS - 0.04' layer fine to coarse SW-SAND at 51.4ft BGS - 0.12' layer clayey silt at 55.7ft BGS - solvent-like odor at 56.0ft BGS - 0.05' layer wood at 57.0ft BGS - wood fragments at 59.0ft BGS			11GP		4.7		0.0
52								
54								
56				12GP		3.9		0.0
58								
60								
62				13GP		4.1		0.0
64	- very fine grained sand at 65.0ft BGS							
66								
68	- 0.08' layer wood at 68.5ft BGS			14GP		3.8		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05 (BH)
DATE COMPLETED: June 4, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
72	- 0.25' layer silt at 70.0ft BGS - 0.2' layer silt at 70.3ft BGS			15GP		2.0		0.0
74		-63.45						
	END OF BOREHOLE @ 75.0ft BGS							
76								
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05-75
DATE COMPLETED: July 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.41 11.13					
	NOT SAMPLED (0-70ft BGS) SEE 721-MW5 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 70ft BGS)		CONCRETE 8" BOREHOLE 6" BOREHOLE BENTONITE GROUT				

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05-75
DATE COMPLETED: July 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64			BENTONITE PELLETS				
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW05-75
DATE COMPLETED: July 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
72	SP-SAND, trace silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments	-58.59	SAND PACK	1RS		5.0	
	ML-SANDY SILT, trace clay, fine sand, loose to compact, slight plasticity, gray, wet	-60.59					
74	- with sand and clay at 72.5ft BGS	-61.59					
	SM-SAND, with silt, fine to medium grained, loose, gray, with red grains and white grains, wet, shell fragments	-63.59					
76	END OF BOREHOLE @ 75.0ft BGS		SUMP				
	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS						
78			WELL DETAILS Screened interval: -57.69 to -62.69ft 69.10 to 74.10ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Seal: -52.69 to -54.69ft 64.10 to 66.10ft BGS Material: BENTONITE PELLETS Sand Pack: -54.69 to -64.59ft 66.10 to 76.00ft BGS Material: SAND				
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW10-15
DATE COMPLETED: June 25, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.63 10.10					
0	0-16.5' BGS - See Log from 721-MW10-50 for Stratigraphy		CONCRETE CEMENT/ BENTONITE GROUT RISER BENTONITE 8" Ø BOREHOLE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16	END OF BOREHOLE @ 16.5ft BGS	-5.87					

WELL DETAILS
Screened interval:
0.63 to -4.37ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW10-25
DATE COMPLETED: June 25, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.70 10.47					
0	0-26.5' BGS - See Log from 721-MW10-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-15.80					

WELL DETAILS
Screened interval:
-9.30 to -14.30ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW10-50
DATE COMPLETED: June 24, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE TOP OF RISER	10.66 10.06						
0	FILL, fine to medium sand, some gravel and silt, brown to dark brown, dry		CONCRETE	SS1		1.1	22	2.1
2				SS2		1.0	26	6
4			2"Ø PVC Riser	SS3		0.1	5	8.6
6	SM-fine to medium SAND, some silt, trace gravel, dark brown, moist	4.66		SS4		1.5	5	858
8	- dark gray brown with odor from 6.9 to 7.5 ft BGS	2.66	CEMENT/ BENTONITE GROUT	SS5		1.5	3	7200
10	SP-fine to medium SAND, little silt, dark gray to brown, moist, hydrocarbon odor, sheen on sand			SS6		1.7	10	891
12	- same with some silt and strong hydrocarbon odor from 11.7 to 11.8 ft BGS		8" Ø BOREHOLE	SS7		2.0	4	370
14	- ML-SILT lense, wood fragment 13.6 to 13.7 ft BGS			SS8		2.0	2	775
16	CL-CLAY, some silt, trace wood fragments, medium brown to gray, low plasticity, soft, wet	-4.24		SS9		2.0	4	640
18	SM-fine to medium SAND, some silt, dark gray to brown, moist, hydrocarbon odor	-5.34		SS10		2.0	14	280
20	CL-CLAY, some silt, brown to gray, low plasticity, moist	-7.14 -7.34 -7.84		SS11		2.0	18	155
22	SM-fine to medium SAND, some silt, dark gray to brown, moist, hydrocarbon odor	-8.44		SS12		2.0	14	116
24	CL-SILTY CLAY, gray/brown, soft, moist	-9.64		SS13		2.0	8	160
26	SM-fine to medium SAND, some silt, dark gray to brown, moist, hydrocarbon odor	-10.24		SS14		2.0	5	61
28	CL-CLAY, some silt, brown to gray, low plasticity, moist			SS15		1.1	25	10.3
30	SM-fine to medium SAND, some silt, dark gray to brown, moist, hydrocarbon odor			SS16		1.1	24	8.1
32	- silt seam (ML), some medium sand, gray/brown, shell fragments, wet 22.3 to 23.0 ft BGS			SS17		2.0	15	5.2
34	- silt seam (ML), some fine sand, brown to gray, wet 24.2 to 24.6 ft BGS			SS18		2.0	8	8
	- silt seam (ML), some fine sand and shell fragments, brown to gray 25.6 to 26.0 ft BGS							
	- SP/ML-SAND/SILT, moist 26.3 to 26.9 ft BGS							
	ML-SILT, some fine sand, gray, dense, moist	-22.44						
	SM-SAND, some silt, fine grained, dark brown,	-23.34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW10-50
DATE COMPLETED: June 24, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	moist - silt seam (ML), some clay, medium gray to brown, wet 35.6 to 35.7 ft BGS - wood fragment		2"Ø PVC Riser	SS19		1.4	9	6.8
38	- silt seam (ML) 37.2 to 37.25 ft BGS	-27.44	CEMENT/ BENTONITE GROUT	SS20		1.0	11	6.3
	ML-SILT, little fine sand, medium gray to brown, moist		BENTONITE					
40	- same with some clay		8" Ø BOREHOLE	SS21		2.0	3	7.1
42		-31.34						
	CL-CLAY, medium gray to brown, soft, medium plasticity, moist	-32.24	SAND PACK	SS22		2.0	1	5.6
44	ML-SILT, little fine sand, medium gray to brown, moist	-33.64		SS23		1.5	22	7
	SP-fine to medium SAND, trace silt and gravel, dark gray to brown, wet							
46	- silt seam (ML), medium brown, moist 46.0 to 46. 1 ft BGS			SS24		0.4	25	6
48		-37.34	2"Ø PVC SCREEN					
	SM-fine to medium SAND, some silt, trace gravel, dark gray to brown, moist			SS25		1.7	21	6
50	-ML-SILT seam, some clay medium gray to brown, moist from 48.0 to 48.2 ft BGS	-39.34						
	Not Sampled		2"Ø PVC SUMP					
52	END OF BOREHOLE @ 51.5ft BGS	-40.84						
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-34.34 to -39.34ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75 (BH)
DATE COMPLETED: June 5, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.78						
	ASPHALT	10.48	BACKFILLED WITH BENTONITE CHIPS					0.0
	GM-SILTY GRAVEL, with fine to coarse sand, compact, fine to coarse subangular to subrounded gravel, brown, moist	10.18						
2		9.08						0.0
	SP-SAND, with fine to medium subangular to subrounded gravel, trace silt, loose, fine grained, well graded, brown, with red grains and white grains, moist	8.68		1GP		3.9		0.0
4	- 0.12x0.1' cobble/coarse gravel at 1.4ft BGS							0.0
	CL-SILTY CLAY, with fine to medium subrounded to subangular gravel, trace fine sand, firm, low plasticity, bluish gray, with brown mottling, tan with brown mottling in lower 0.2' moist	5.08						243
6								301
	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, brown, with red grains and white grains, moist, sand size shell fragments, thin layers of fine to coarse SW-SAND			2GP		3.5		484
8								512
10								482
	- 0.04' layer very fine grained silty sand, with bands of oxidation at 2.9ft BGS							119
12				3GP		4.5		52.4
	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments, petroleum odor and staining	-4.22						17.5
14		-4.52						0.0
	- 0.3' slight sheen at 6.3ft BGS							0.0
16	- 0.07' layer clayey silt at 12.5ft BGS	-5.72						
	- 0.09' layer very fine grained silty sand at 14.0ft BGS			4GP		4.8		0.0
18								0.0
	SM-SILTY SAND, trace clay, loose, very fine grained, gray, with red grains and white grains, wet, sand size shell fragments	-8.42						0.0
20								0.0
	CL-SILTY CLAY, soft, low plasticity, light gray, very moist, sand size shell fragments							0.0
22								0.0
	SM-SILTY SAND, trace fine subrounded gravel, trace clay, loose, fine grained, gray to light gray with depth, wet, sand to fine gravel size shell fragments, wood fragments	-11.32		5GP		3.5		0.0
24								0.0
	SP-SAND, trace silt, loose, fine grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-14.22						
26	- 0.3' layer fine to coarse grained, poorly graded at 21.9ft BGS							
	SM-SILTY SAND, loose, fine grained, light gray, with red grains and white grains, wet, sand to medium grained shell fragments, wood fragments			6GP		4.2		0.0
28								
	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	-19.82						
30	- 0.1' layer of sandy silt, 0.02' layer of wood at 26.6ft BGS							
	- 0.1' layer sandy silt at 30.8ft BGS			7GP		4.5		0.0
32								
	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white	-23.32						
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75 (BH)
DATE COMPLETED: June 5, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	grains, wet, sand size shell fragments, wood fragments - 0.15' layer sandy silt at 31.1ft BGS - 0.04' layer sandy silt at 31.6ft BGS - 0.05' layer silt at 31.7ft BGS - 0.18' layer silt, with very fine sand at 32.8ft BGS - 0.05' layer sandy silt at 33.6ft BGS	-24.22 -25.22 -26.12 -26.92		8GP		3.2		0.0
40	CL-SILTY CLAY, soft, low plasticity, light gray, moist							
42	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-32.52		9GP		4.7		0.0
44	ML-SILT, trace very fine sand, compact, light gray, wet, sand size shell fragments, wood fragments, lenses of very fine grained sand, with red grains and white grains	-34.22						
46	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-35.52		10GP		3.6		0.0
48	ML-SILT, trace very fine sand, compact, light gray, wet, sand size shell fragments, wood fragments, with red grains and white grains - 0.3' layer silty clay, low plasticity at 40.9ft BGS - sand to medium gravel size shell fragments at 42.6ft BGS							
52	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-44.22		11GP		3.4		0.0
54	SW-SAND, trace silt, trace fine subangular to subrounded gravel, loose, fine to coarse grained, poorly graded, dark gray, with red grains and white grains, wet, sand size shell fragments - 0.2' layer silty clay at 46.4ft BGS	-44.82						
56	SP-SAND, trace silt, trace fine subrounded to subangular gravel, loose, fine to medium grained, well graded, dark gray, with red grains and white grains, wet, sand size shell fragments	-49.22		12GP		4.8		0.0
58	ML-SILT, trace very fine sand, compact, light gray, wet, sand size shell fragments, wood fragments, with red grains and white grains							
60	SP-SAND, trace silt, loose, very fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	-53.82		13GP		4.8		0.0
62	SM/ML-SAND AND SILT, trace clay, loose, very fine grained sand, gray, with red grains and white grains, wet, sand size shell fragments - 0.15' layer silty clay at 62.7ft BGS							
64				14GP		3.8		0.0
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75 (BH)
DATE COMPLETED: June 5, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
72	ML-SILTY CLAY, with silt, trace very fine sand, compact, no to slight plasticity, gray to light gray, wet	-59.72						
74	CL-CLAYEY SILT, soft, low plasticity, light gray, moist - 0.4' clayey silt, very loose at 71.8ft BGS			15GP		4.8		0.0
76	END OF BOREHOLE @ 75.0ft BGS	-64.22						
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75
DATE COMPLETED: July 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	10.69 10.34					
0	NOT SAMPLED (0-70ft BGS) SEE 721-MW10-75 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 70ft BGS)		CONCRETE				
2							
4							
6							
8							
10							
12			8" BOREHOLE				
14							
16							
18							
20							
22							
24			6" BOREHOLE				
26							
28							
30							
32			BENTONITE GROUT				
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75
DATE COMPLETED: July 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64			BENTONITE PELLETS				
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW10-75
DATE COMPLETED: July 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
72	CL-SILTY CLAY, trace fine sand, soft, low plasticity, gray, wet	-59.31	SAND PACK	1RS		5.0	
74			SUMP				
76	END OF BOREHOLE @ 75.0ft BGS	-64.31					
78	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS						
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

WELL DETAILS
Screened interval:
-57.61 to -62.61ft
68.30 to 73.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-52.61 to -54.61ft
63.30 to 65.30ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-54.61 to -64.31ft
65.30 to 75.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-15
DATE COMPLETED: July 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.38 10.89					
0	NOT SAMPLED (0-5ft BGS) SEE 721-BH-03/MW11 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 5ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS	1RS			
6	GW-GRAVEL, with cobbles, trace sand, loose to very loose, fine to coarse round to angular gravel, multicolored, wet, LNAPL observed	6.38 4.88	SAND PACK				
8	SM-SILTY SAND, trace gravel, loose, fine to medium sand, fine gravel, gray, wet, LNAPL observed			2RS		5.0	
10	SM-SILTY SAND, trace clay, loose, fine to medium gray, with red and white grains, wet, LNAPL observed, shell fragments	1.88 1.38					
12	NO RECOVERY (10-15ft BGS)			3RS		5.0	
14							
15	END OF BOREHOLE @ 15.0ft BGS	-3.62	SUMP				
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
6.48 to -3.52ft
4.90 to 14.90ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
10.48 to 8.48ft
0.90 to 2.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:
8.48 to -5.37ft
2.90 to 16.75ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-25
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.37 11.12					
0	NOT SAMPLED (0-20ft BGS) SEE 721-BH-03/MW11 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 10ft BGS)		CONCRETE				
20	SM/SC-CLAY/SAND MIX, with silt and gravel, loose, fine to medium sand, coarse rounded to subangular gravel, low plasticity, wet, slight petroleum odor	-8.63	BENTONITE GROUT 8" BOREHOLE BENTONITE PELLETS 6" BOREHOLE SAND PACK	1RS		5.0	
22	- trace gravel, fine to medium angular to subangular gravel, slight petroleum odor at 22.0ft BGS	-12.13					
24	ML-SANDY SILT, with clay, loose, fine sand, gray, wet, slight petroleum odor	-12.38					
26	SM-SAND, with silt, loose, fine to medium sand, gray, with red grains and white grains, trace shell fragments, slight petroleum odor	-13.63					
28	END OF BOREHOLE @ 25.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 17.0FT BGS		SUMP				

WELL DETAILS
Screened interval:
-7.53 to -12.53ft
18.90 to 23.90ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-3.53 to -5.53ft
14.90 to 16.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-5.53 to -14.13ft
16.90 to 25.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-25
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36			Material: SAND				
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-50
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.36 11.08					
0	NOT SAMPLED (0-45ft BGS) SEE 721-BH-03/MW-11 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 10ft BGS)		CONCRETE				
2							
4							
6							
8							
10							
12			8" BOREHOLE				
14							
16							
18							
20			BENTONITE GROUT				
22							
24							
26			6" BOREHOLE				
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-50
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46	SM-SAND, with silt, trace clay, loose, fine to medium grained, with red grains and white grains and brown grains, wet, clay in clumps	-33.64	BENTONITE PELLETS				
		-34.64	SAND PACK				
48	NO RECOVERY (46-50ft BGS)			1RS		1.0	
50	END OF BOREHOLE @ 50.0ft BGS	-38.64	SUMP				
52	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS						
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.54 to -37.54ft
43.90 to 48.90ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.54 to -29.54ft
38.90 to 40.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.54 to -39.14ft
40.90 to 50.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-75
DATE COMPLETED: July 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF CASING	11.36 11.09						
	NOT SAMPLED (0 TO 10ft BGS) SEE 721-BH-03/MW11 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 10ft BGS)		CONCRETE					
10	SP-SAND, trace silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments, petroleum odor	1.36	8" BOREHOLE					4.18
	SM-SAND, trace silt and clay, loose, fine to medium grained, low plasticity, gray, with red grains and white grains, wet, shell fragments, petroleum odor	0.36						
12	SM-SILTY SAND, trace clay, loose, fine to medium grained, slight plasticity, gray, with red grains and white grains, wet, shell fragments, petroleum odor	-1.14		1RS-001		5.0		0.45
	SM-SILTY SAND, with gravel, loose, fine to medium sand, fine gravel, gray, with red grains and white grains, wet, shell fragments, petroleum odor	-2.14						
14	CL-SILTY CLAY, trace sand, loose, medium plasticity, gray, wet, appears organic in nature, wood fragments present, petroleum odor - with fine sand at 16.3ft BGS	-2.64						137
16	ML-SANDY CLAYEY SILT, loose, low plasticity, gray, wet - trace fine gravel at 17.5ft BGS	-5.64		2RS		5.0		3.4
18	- silty clay at 18.8ft BGS							0.0
	SP-SAND, trace gravel and silt, loose, fine to coarse sand, fine gravel, gray, with red grains and white grains, wet, shell fragments	-7.64						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-75
DATE COMPLETED: July 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CL-SILTY CLAY, with sand, loose, fine grained, low plasticity, gray, with white grains, wet, lots of fine gravel size shell fragments and other organic matter - very loose at 21.5ft BGS	-8.64						9.55
22	SP-SAND, trace silt, loose, fine to medium grained, gray, with white grains and red grains, wet, shell fragments	-10.64	6" BOREHOLE	3RS		5.0		0.0 23
24								0.0
	- volatile odor at 25.0ft BGS			-002				
26								80
				4RS		5.0		
28								46
	SP-SAND, with silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments, volatile odor	-17.14						
30	ML-SANDY SILT, trace clay, compact, fine sand, gray, wet, some shell fragments, slight odor	-18.89						
	ML-SILT, with clay, trace sand, compact, slight plasticity, gray, wet, slight odor	-20.14						
32	ML-CLAYEY SILT, compact, low plasticity, gray, wet, slight odor	-21.14	BENTONITE GROUT	5RS		5.0		153
34	- trace fine sand at 34.0ft BGS							138
	- dense at 35.0ft BGS							
	ML-CLAYEY SILT, with sand, compact, slighty plastic, gray, wet, slight odor	-24.14						
36								185
				6RS		5.0		
38								68
	SP-SAND, trace clay and silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments	-27.14						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-75
DATE COMPLETED: July 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42				7RS		5.0		31.92
	SC-CLAYEY SAND, loose, fine to medium grained, low plasticity, gray, with red grains and white grains, wet, shell fragments, clay nodules	-31.64						
		-32.14						
44	SW-SAND, loose, fine to coarse grained, gray, with red grains and white grains and brown grains, wet, shell fragments							163
46								45
48				8RS		5.0		86
	SM-SAND, with silt and clay, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments	-37.64						
50	SW-SAND, trace silt, loose, fine to coarse grained, gray, with red grains and white grains and brown grains, wet, shell fragments - neutral pH (7.5) at 51.0ft BGS	-38.64						111
52				9RS		5.0		2411
54	SM-SILTY SAND, loose, fine to medium grained, slight plasticity, gray, with red grains and white grains, wet, shell fragments	-42.64						8600
56								10200
58				10RS		5.0		8500

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-75
DATE COMPLETED: July 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 60.0ft BGS - with silt at 60.5ft BGS							12000
62				11RS		5.0		2800
64	- negative DNAPL dye test at 64.0ft BGS		BENTONITE PELLETS	-003				8900
66								6700
68				12RS		5.0		5800
70	SP-SAND, trace silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments - neutral pH (7.5) at 71.0ft BGS	-58.64	2" PVC WELL SCREEN					3100
72	SM-SAND, with silt, loose, fine to medium grained, gray, with red grains and white grains, wet, shell fragments - negative DNAPL dye test at 72.0ft BGS	-60.14		13RS		5.0		17000
74	- silty sand at 74.0ft BGS - with silt at 74.5ft BGS							8500
	END OF BOREHOLE @ 75.0ft BGS	-63.64	SUMP	-004				6900
76	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0ft BGS							
78								

WELL DETAILS
Screened interval:
-57.54 to -62.54ft
68.90 to 73.90ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-52.54 to -54.54ft
63.90 to 65.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW11-75
DATE COMPLETED: July 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
			-54.54 to -64.14ft 65.90 to 75.50ft BGS Material: SAND					
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW12-15
DATE COMPLETED: July 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.07 10.77						
0	ASPHALT	10.57	BENTONITE CHIPS					
	NOT SAMPLED (0.5-5ft BGS)			1RS		0.0		
2								
4								
	SP-SAND, trace silt, fine grained, well graded, loose, dark brown to black, moist, shell fragments, strong odor	6.07						
6								
8			SAND PACK	2RS		2.0		1385
10	- wet at 10.0ft BGS							
	- increase in shell fragments at 11.0ft BGS							
12				3RS		5.0		352
	- rootlets, strong odor at 13.0ft BGS							
14								
	END OF BOREHOLE @ 15.0ft BGS	-3.93	SUMP					
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
6.47 to -3.53ft
4.60 to 14.60ft BGS
Length: 10ft
Material: PVC
Sand Pack:
8.07 to -5.03ft
3.00 to 16.10ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW12-25
DATE COMPLETED: July 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE 11.02 TOP OF RISER 10.69							
0	ASPHALT	10.52	CONCRETE					
	NOT SAMPLED (0-18.6ft BGS) SEE 721-MW12-15 FOR STRATIGRAPHIC INFORMATION (0 TO 15ft BGS)		BENTONITE GROUT					
			8" BOREHOLE					
			BENTONITE CHIPS					
	SP-SAND, trace silt, fine grained, well graded, loose, dark gray, wet, trace shell fragments	-7.58	6" BOREHOLE					1.9
	- rootlets, wood debris, moist at 22.0ft BGS		SAND PACK	1RS		5.0		
	NOT SAMPLED	-12.58	SUMP					
	END OF BOREHOLE @ 25.1ft BGS	-14.08						
	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 17.0FT BGS							

WELL DETAILS
Screened interval:
-7.58 to -12.58ft
18.60 to 23.60ft BGS
Length: 5ft
Material: PVC
Sand Pack:
-5.58 to -14.08ft
16.60 to 25.10ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW12-50
DATE COMPLETED: July 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.02 10.77						
	ASPHALT	10.52	BENTONITE GROUT CONCRETE					
	ASPHALT DEBRIS	10.02						
2	SP-SAND, trace silt, fine grained, well graded,, loose, dark gray to black, moist, strong petroleum odor - rootlets at 2.5ft BGS - small cobble at 3.0ft BGS - shell fragments at 5.0ft BGS			1RS		5.0		636
4								
6				2RS		1.0		9999
8								
10	- trace coarse angular gravel, very strong petroleum odor at 10.0ft BGS							
12			8" BOREHOLE	3RS		4.0		603
	- increase in shell fragments at 13.0ft BGS							
14								
16	SM-SILTY SAND, trace clay, fine grained, well graded, loose, gray, wet, shell fragments	-4.98 -5.58						
18	ML-CLAYEY SILT, trace fine sand, medium plasticity, soft, gray, wet	-5.98		4RS		3.0		28
20	SP-SAND, trace silt, fine grained, well graded, dark gray, moist, shell fragments	-8.98						
22	SP-SAND, trace silt, fine to medium grained, loose, dark gray, some red grains, wet, shell fragments			5RS		5.0		10.2
24			6" BOREHOLE					
26	SP-SAND, trace silt, fine grained, well graded, loose, dark gray, some red grains, wet, shell fragments	-13.98		6RS		4.0		7.2
28								
30	CL-SILTY CLAY, trace fine sand, low plasticity, soft, gray, wet	-17.98		7RS		4.0		8.1
32								
34	SP-SAND, trace silt, fine grained, well graded,	-22.98						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

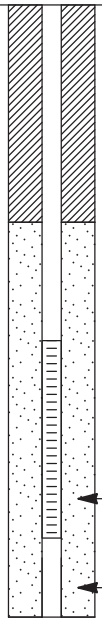
OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW12-50
DATE COMPLETED: July 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	loose, dark gray, some red grains, wet, sand size shell fragments	-23.98						
38	SP-SAND, trace silt, fine grained, well graded, loose, dark gray, wet			8RS		3.0		12.7
40	SM-SILTY SAND, fine rained, compact, dark gray, wet, shell fragments	-27.98 / -28.98						
42	SP-SAND, trace silt, fine grained, loose, dark gray, wet, sand size shell fragments			9RS		4.0		11.8
44								
46	SP-SAND, fine to medium grained, well graded, loose, dark gray, some red grains, wet	-33.98						
48			SAND PACK	10RS		5.0		15.7
50	END OF BOREHOLE @ 50.0ft BGS	-38.98	SUMP					
52	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS							
54								
56								
58								
60								
62								
64								
66								
68								



WELL DETAILS
Screened interval:
-32.48 to -37.48ft
43.50 to 48.50ft BGS
Length: 5ft
Material: PVC
Sand Pack:
-29.48 to -39.48ft
40.50 to 50.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW13-15
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.06 10.67					
0	NOT SAMPLED (0-5ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS				
6	SM-SILTY SAND, few clay, trace gravel, fine grained, well graded, loose, gray, with red grains and white grains, moist, shell fragments	6.06 5.56	SAND PACK				
8	SP-SAND, few silt, trace gravel, fine to medium grained, come coarse grained, fine angular to subangular gravel, loose, well graded, gray, with red grains and white grains, moist, shell fragments	2.56		1RS			
10	- grading to finer grained sand at 8.0ft BGS	1.06					
	NO RECOVERY (8-10ft BGS)						
12	SP-SAND, with silt, trace gravel, very fine to medium grained, come coarse grained, fine angular to subangular gravel, loose, well graded, gray, with red grains and white grains, moist, shell fragments			2RS			
14	- 0.25' silty sand seam at 12.5ft BGS						
15	END OF BOREHOLE @ 15.0ft BGS	-3.94	SUMP				

WELL DETAILS
Screened interval:
6.46 to -3.54ft
4.60 to 14.60ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
10.46 to 8.46ft
0.60 to 2.60ft BGS
Material: BENTONITE PELLETS
Sand Pack:
8.46 to -5.44ft
2.60 to 16.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/5/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW13-25
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	10.99 10.56					
0	NOT SAMPLED (0-20ft BGS) SEE 721-MW13-15 FOR STRATIGRAPHIC INFORMATION (5 TO 15ft BGS)		CONCRETE				
20	SP-SAND, trace silt and gravel, fine to medium grained, loose, well graded, gray, with red grains and white grains, shell fragments	-9.01	BENTONITE GROUT BENTONITE PELLETS SAND PACK	1RS			
24	- silt sand seam at 24.8ft BGS	-13.51					
	SC-CLAYEY SAND, trace silt and gravel, fine to coarse grained, loose, well graded, gray, with red grains and white grains, larger shell fragments up to 1/2" across	-14.01	SUMP				
28	END OF BOREHOLE @ 25.0ft BGS						

WELL DETAILS
Screened interval:
-7.61 to -12.61ft
18.60 to 23.60ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-2.61 to -4.61ft
13.60 to 15.60ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-4.61 to -14.51ft
15.60 to 25.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW13-25
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36			Material: SAND				
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW13-50
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	10.94 10.40					
0	NOT SAMPLED (0-45ft BGS) SEE 721-MW13-25 FOR STRATIGRAPHIC INFORMATION (0 TO 25ft BGS)		CONCRETE				
20			BENTONITE GROUT				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

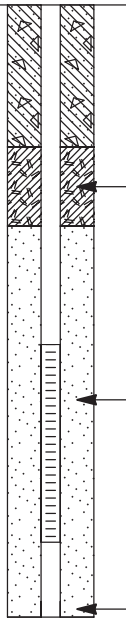
OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 8/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW13-50
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46	SP-SAND, trace silt, fine to medium grained, loose, with red grains and white grains, moist, small shell fragments	-34.06					
48	- 1/4' silty sand, with clay and silt (found in clumps) at 48.0ft BGS			1RS			
50	END OF BOREHOLE @ 50.0ft BGS	-39.06					
52							
54							
56							
58							
60							
62							
64							
66							
68							



WELL DETAILS
Screened interval:
-32.66 to -37.66ft
43.60 to 48.60ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.66 to -29.66ft
38.60 to 40.60ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.66 to -39.56ft
40.60 to 50.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW14-15
DATE COMPLETED: June 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.34 10.83					
0	NOT SAMPLED (0-5ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS				
6	SP-SAND, with silt, trace fine grained angular gravel, medium grained, well graded, loose, dark gray, with intermixed grains of varying colors, shell fragments and organic matter	6.34	SAND PACK	1RS			
10	- small amounts of strong petroleum odor at 10.0ft BGS			2RS			
15	END OF BOREHOLE @ 15.0ft BGS	-3.66	SUMP				

WELL DETAILS
Screened interval:
6.64 to -3.36ft
4.70 to 14.70ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
10.64 to 8.64ft
0.70 to 2.70ft BGS
Material: BENTONITE PELLETS
Sand Pack:
8.64 to -5.16ft
2.70 to 16.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW14-25
DATE COMPLETED: June 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.33 10.97					
0	NOT SAMPLED (0-20ft BGS) SEE 721-MW14-15 FOR STRATIGRAPHIC INFORMATION (5 TO 15ft BGS)		CONCRETE				
2							
4							
6							
8			BENTONITE GROUT				
10							
12			8" BOREHOLE				
14							
16			BENTONITE PELLETS				
18							
20	SP-SAND, with silt, trace clay, fine to medium grained, well graded, loose, gray, wet, shell fragments	-8.67	6" BOREHOLE SAND PACK				
22	SM-SILTY SAND, with clay (in clumps), fine to medium grained, well graded, loose, dark gray, wet, shell fragments	-9.97 -11.17		1RS			
24	SP-SAND, with silt, trace clay, fine to medium grained, well graded, loose, gray, wet, shell fragments, some organic matter	-12.37					
26	SP-SAND, with silt and clay (in clumps), fine to medium grained, well graded, loose, dark gray, wet, lots of shell fragments	-13.67					
28	END OF BOREHOLE @ 25.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 16.5FT BGS		SUMP				
30							
32							
34							

WELL DETAILS
Screened interval:
-7.37 to -12.37ft
18.70 to 23.70ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-3.37 to -5.37ft
14.70 to 16.70ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-5.37 to -14.17ft
16.70 to 25.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW14-25
DATE COMPLETED: June 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36			Material: SAND				
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW14-50
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.30 10.95					
0	NOT SAMPLED (0-45ft BGS) SEE 721-MW14-25 FOR STRATIGRAPHIC INFORMATION (0 TO 25ft BGS)		CONCRETE				
2							
4							
6							
8							
10							
12			8" BOREHOLE				
14							
16							
18							
20			BENTONITE GROUT				
22							
24			6" BOREHOLE				
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW14-50
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36							
38							
40							
42							
44							
46	SP-SAND, with silt and clay (found in clumps), fine grained, loose, well graded, dark gray, with red grains and white grains and black grains, wet	-33.70	BENTONITE PELLETS	1RS			
48	NO RECOVERY (46-50ft BGS)	-34.70	SAND PACK				
50	END OF BOREHOLE @ 50.0ft BGS	-38.70	SUMP				
52	NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 20.0FT BGS						
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.40 to -37.40ft
43.70 to 48.70ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-27.40 to -29.40ft
38.70 to 40.70ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-29.40 to -39.70ft
40.70 to 51.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-15
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.20 10.78					
0	NOT SAMPLED (0-5ft BGS)		CONCRETE BENTONITE GROUT BENTONITE PELLETS				
6	SW-GRAVELLY SAND, trace silt, medium grained to granular sand, fine to coarse angular to rounded gravel, trace cobble, poorly graded, loose, gray, with red grains and white grains intermixed, wet, shell fragments, strong petroleum odor, LNAPL	6.20 4.20		1RS		3.0	
8		3.20					
10	SP-SAND, trace silt and gravel, fine to medium grained sand, fine to medium angular to subangular gravel, well graded, loose, gray, with red grains and white grains, wet, shell fragments, strong petroleum odor, LNAPL	1.20	SAND PACK				
12	NO RECOVERY (8-10ft BGS)			2RS		5.0	
14	SP-SAND, trace silt and gravel, fine to medium grained sand, fine angular to subangular gravel, well graded, loose, gray, with red grains and white grains, wet, shell fragments	-1.80					
16	SP-SAND, with clay and silt (in clumps), fine to medium grained,, low to non plastic, well graded, dark gray, with white grains and red grains, wet, strong petroleum odor, shell fragments	-3.80	SUMP				
18	END OF BOREHOLE @ 15.0ft BGS						

WELL DETAILS
Screened interval:
6.30 to -3.70ft
4.90 to 14.90ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
10.30 to 8.30ft
0.90 to 2.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:
8.30 to -5.80ft
2.90 to 17.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 9/17/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-25
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.23 10.96					
0	NOT SAMPLED (0-20ft BGS) SEE 721-MW15-15 FOR STRATIGRAPHIC INFORMATION (5 TO 15ft BGS)		CONCRETE				
20	SP-SILTY SAND, trace gravel, loose, fine to medium grained, well sorted, gray, with red grains and white grains, wet, shell fragments and organics, slight petroleum odor	-8.77	BENTONITE GROUT 8" BOREHOLE BENTONITE PELLETS 6" BOREHOLE	1RS			
22	ML-CLAYEY SILT, with sand, loose, fine to medium sand, non plastic, gray, with red grains and white grains, wet, shell fragments, slight odor	-10.77 -11.27	SAND PACK				
24	SP-SAND, with silt, trace angular to subangular gravel, fine to medium sand, well sorted, gray, with red grains and white grains, wet, shell fragments, slight petroleum odor	-13.77	SUMP				
26	END OF BOREHOLE @ 25.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 16.9FT BGS						

WELL DETAILS
Screened interval:
-7.67 to -12.67ft
18.90 to 23.90ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-3.67 to -5.67ft
14.90 to 16.90ft BGS
Material: BENTONITE PELLETS
Sand Pack:
-5.67 to -14.27ft
16.90 to 25.50ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-25
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
36			Material: SAND				
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-50
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF CASING GROUND SURFACE TOP OF RISER	11.31 11.30 10.92					
	NOT SAMPLED - SEE 721-MW15 (BH) FOR STRATIGRAPHIC INFORMATION (0 TO 50ft BGS)		CONCRETE 8" BOREHOLE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 072465-721WIN.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-50
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE

16
18
20
22
24
26
28

BENTONITE GROUT

6" BOREHOLE

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-50
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
32							
34							
36							
38							
40			BENTONITE PELLETS				
42							
44			SAND PACK				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW15-50
DATE COMPLETED: June 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
46							
48							
50	END OF BOREHOLE @ 50.0ft BGS NOTE: ISOLATION CASING USED DURING ADVANCEMENT TO 25.0FT BGS	-38.70	SUMP WELL DETAILS Screened interval: -32.60 to -37.60ft 43.90 to 48.90ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Seal: -27.60 to -29.60ft 38.90 to 40.90ft BGS Material: BENTONITE PELLETS Sand Pack: -29.60 to -39.20ft 40.90 to 50.50ft BGS Material: SAND				
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SEE BH-5 FOR STRATIGRAPHIC DETAIL FROM 0-25FT BGS		BACKFILLED WITH BENTONITE CHIPS					
25	CL-SILTY CLAY, trace very fine sand, soft, low plasticity, light gray, very moist, sand to medium gravel size shell fragments	25.00						
27	SP-SAND, trace silt, loose, fine grained, well graded, gray, with red grains and white grains, wet, sand size shell fragments	27.30		6GP		4.8		0.0
29	SM-SAND, with silt, loose, very fine grained, gray, with red grains and white grains, wet, sand size shell fragments	29.40 30.30						
31	ML-CLAYEY SILT, trace fine sand, loose, slight plasticity, light gray, wet, sand to fine gravel size shell fragments, wood fragments	32.40		7GP		4.8		0.0
33	SM-SILTY SAND, loose, fine grained, gray, with red grains and white grains, wet, sand size shell fragments, wood fragments occasionally							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 072465-721
CLIENT: OCCIDENTIAL CHEMICAL CORPORATION
LOCATION: 721 ALEXANDER AVENUE SITE

HOLE DESIGNATION: 721-MW16 (BH)
DATE COMPLETED: June 6, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
36	concentrated in layers - with clay at 36.0ft BGS - 1.5' cedar log layer, strong odor at 37.0ft BGS			8GP		3.6		108
38								
40	SP-SAND, trace silt, loose, fine gravel, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments - 0.01' silty clay at 41.9ft BGS	40.00		9GP		4.4		0.0
42								
44								
46								
48	- 1.0' fine to coarse grained, poorly graded at 47.2ft BGS			10GP		4.1		0.0
50	- 0.02' layer silty clay at 50.4ft BGS							
52				11GP		3.0		0.0
54								
56	NO INTACT SAMPLE, SP-SAND MATERIAL RECOVERED	55.00		12GP		1.5		0.0
58								
60	SP-SAND, trace silt, loose, fine gravel, well graded, gray to dark gray, with red grains and white grains, wet, sand size shell fragments	60.00		13GP		4.5		0.0
62								
64	- 0.5' silty, very fine grained sand at 64.1ft BGS							
66				14GP		3.0		
68	- REFUSAL at 68.0ft BGS END OF BOREHOLE @ 68.0ft BGS	68.00						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW5-15
DATE COMPLETED: June 28, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.48 10.94					
0	0-16.5' BGS - See Log from 721-MW5-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT BENTONITE SAND PACK 8" Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16	END OF BOREHOLE @ 16.5ft BGS	-5.02					

WELL DETAILS
Screened interval:
1.48 to -3.52ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW5-25
DATE COMPLETED: June 28, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.47 10.82					
0	OVERBURDEN (not sampled) (see Overburden stratigraphy for well 721-MW5-50)		CONCRETE				
2							
4			2"Ø PVC RISER				
6							
8			CEMENT/ BENTONITE GROUT				
10							
12			8"Ø BOREHOLE				
14							
16			BENTONITE				
18							
20			SAND PACK				
22							
24			2"Ø PVC SCREEN				
26			2"Ø PVC SUMP				
	END OF BOREHOLE @ 26.5ft BGS	-15.03					
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-8.53 to -13.53ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW5-50
DATE COMPLETED: June 28, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.39						
	TOP OF RISER	11.02						
0	FILL, sand, fine grained, subangular GRAVEL, brown and gray, dry	11.09	CONCRETE	SS1		1.5	30	0
2	SP-fine to medium SAND, dark brown, dry			SS2 *h		1.9	32	0
4		7.29	2"Ø PVC RISER					
	GP/SP-fine to medium SAND and subangular to subrounded GRAVEL, trace silt, dark brown and gray, dry	6.49		SS3 *		1.4	14	0
6	SP-fine to medium SAND, dark brown, dry	5.39	▽	SS4 *		1.6	7	63.1
	SP-SAND, fine grained, black with some red grains, wet, chemical odor (NATIVE)							
8			CEMENT/ BENTONITE GROUT	SS5		1.7	7	286
10				SS6		2.0	8	23.1
12	- silt lense (ML), dark gray, wet 11.5 to 11.7 ft BGS - silt lense (ML), dark gray, wet 12.5 to 12.55 ft BGS		8"Ø BOREHOLE	SS7		2.0	9	4
14	- shell fragments 13.8 to 14.0 ft BGS - some silt @ 14.4 ft BGS			SS8		1.5	7	6.7
16	- silt lense (ML), little clay, soft, dark gray, wet 16.0 to 16.9 ft BGS			SS9 *		2.0	7	0
18	- silt lense (ML), dark gray, wet 17.9 to 18.0 ft BGS			SS10		2.0	2	0
20								
	ML-SILT, trace fine sand and clay, dark gray, soft, wet	-9.21		SS11		1.7	6	0
22	- sand lense (SP), fine to medium grained, black, dry 21.3 to 21.4 ft BGS	-10.51 -10.81		SS12		2.0	23	1.9
	SP-fine to medium SAND, black, wet							
24	ML-SILT, trace clay, dark gray, wet			SS13 *		2.0	3	0
	SM-SAND, some silt and shell fragments, fine grained, dark gray, wet	-13.71						
26				SS14		2.0	12	0
		-16.31						
28	SP-SAND, fine grained, black with some red grains, wet	-16.61		SS15		2.0	21	0
	SM-SAND, some silt and shell fragments, fine grained, dark gray, wet	-18.01						
30	SP-SAND, fine grained, black with some red grains, wet	-18.61		SS16		2.0	4	0
	SM-SAND, some silt and shell fragments, fine grained, dark gray, wet	-19.61						
32	ML-SILT, trace fine sand and clay, dark gray, soft, wet			SS17		2.0	9	0
		-22.01						
34	SP-SAND, little to some silt, fine grained, black with some red grains, wet							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

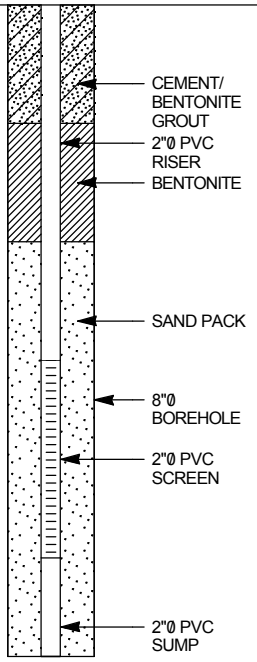
OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW5-50
DATE COMPLETED: June 28, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	- some shell fragments from 34.0 to 34.5 ft BGS	
38		
40		
42	- silt seam (ML), dark gray, wet 41.3 to 41.4 ft BGS	
	SM-SAND, some silt and shell fragments, fine grained, dark gray, wet	-30.81
44	SP-fine to medium SAND, black with some red grains, wet	-31.91
	SM-SAND, some silt and shell fragments, fine grained, dark gray, wet	-32.61
46	SP-medium SAND, black with some red grains, wet	-33.61
	- with trace subangular gravel and shell fragments from 46.0 to 48.0 ft BGS	
48	- silt seam (ML), little clay, dark gray to buff, wet 48.5 to 48.55 ft BGS	
50	- silt seam (ML), little clay, dark gray to buff, wet 49.1 to 49.15 ft BGS	-38.61
	END OF BOREHOLE @ 50.0ft BGS	
52	* - Sample collected by Port of Tacoma for chemical analysis.	
54	*h - Sample collected by Port of Tacoma and held for analysis.	
56		
58		
60		
62		
64		
66		
68		



WELL DETAILS
Screened interval:
-32.61 to -37.61ft NGVD
44.00 to 49.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS18		2.0	5	0
SS19		2.0	11	0
SS20		2.0	27	0
SS21		2.0	35	0
SS22		2.0	33	0
SS23		2.0	31	0
SS24		0.3	22	0
SS25 *h		1.4	20	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW6-15
DATE COMPLETED: July 1, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.30 10.87					
0	0-16.5' BGS - See Log from 721-MW6-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT BENTONITE SAND PACK 8"Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16	END OF BOREHOLE @ 16.5ft BGS	-5.20					

WELL DETAILS
Screened interval:
1.30 to -3.70ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW6-25
DATE COMPLETED: July 1, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.27 10.38					
0	0-26.5' BGS - See Log from 721-MW6-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-15.23					

WELL DETAILS
Screened interval:
-8.73 to -13.73ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW6-50
DATE COMPLETED: July 1, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron/J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE TOP OF RISER	11.18 10.59						
0	FILL, fine to medium sand, some gravel, dark brown, dry		CONCRETE	SS1		1.9	25	67
2	- same with some silt and little gravel - strong odor from 0.8 to 2.0 ft BGS			SS2		1.7	28	220
4			2"Ø PVC RISER	SS3		1.5	12	72
6	SP-SAND, trace silt, fine grained, black, moist	5.18		SS4		1.7	6	1016
8	- silt seam, trace clay, dark gray, moist 6.5 to 6.7 ft BGS - wet ▽		CEMENT/ BENTONITE GROUT	SS5		1.4	6	1880
10				SS6		0.7	6	89.4
12			8"Ø BOREHOLE					
14	- same with some silt and shell fragments 13.0 to 13.5 ft BGS - minor silt and shell fragments from 14.0 to 15.9 ft BGS			SS7		2.0	4	20.2
16	- silt seam, little fine sand, dark brown, wet 15.9 to 16.0 ft BGS	-5.32		SS8		1.7	4	34.7
	ML-SILT, some clay, dark gray, soft, wet	-6.32		SS9		2.0	4	9.3
18	SM-SAND, some silt, fine grained, black, wet			SS10		2.0	1	8.8
20	- silt seam, little fine sand, dark gray, wet 19.6 to 20.0 ft BGS - silt seam, little fine sand, dark gray, wet, @ 20.7 to 20.8 ft BGS			SS11		1.7	17	50.5
22	- silt seam, little fine sand, dark gray, wet 22.3 to 22.5 ft BGS			SS12		1.9	7	0
24	- silt seam, little fine sand, dark gray, wet 23.7 to 23.9 ft BGS	-13.02		SS13		2.0	1	0
	ML-SILT, little clay and fine sand, trace shell fragments, dark gray, firm, wet	-14.82						
26	SP-fine to medium SAND, black with some red grains, wet	-15.32		SS14		2.0	5	5.5
28	ML-SILT, some fine sand and shell fragments, dark gray, soft, wet	-16.52		SS15		2.0	7	.7
	SP-fine to medium SAND, trace shell fragments, black, wet							
30	- same with some silt and shell fragments from 28.4 to 29.2 ft BGS	-19.32		SS16		2.0	7	1.2
	- silt seam, little clay, firm, dark gray, wet 29.7 to 30.0 ft BGS							
32	ML-SILT, trace clay, dark gray, firm, moist	-20.82		SS17		1.2	6	17
	SM-SAND, some silt and shell fragments, fine grained, dark gray, firm, moist							
34	- silt seam, trace clay, dark gray, soft, wet 34.0 to 34.3 ft BGS			SS18		1.7	11	7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW6-50
DATE COMPLETED: July 1, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron/J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- shells present from 35.0 to 36.0 ft BGS							
38	- sand grades to medium grained @ 37.7 ft BGS - silt seam, some clay, gray, soft, wet 37.9 to 38.0 ft BGS		BENTONITE	SS19		2.0	8	7
40	- silt seam, gray, wet 38.9 to 39.1 ft BGS - sand becomes dark brown @ 39.1 ft BGS		2"Ø PVC RISER	SS20		2.0	24	25
42			SAND PACK	SS21		1.5	17	7
44			8"Ø BOREHOLE	SS22		1.5	19	9
46				SS23		0.9	21	0
48	- silt seam, gray, wet 47.8 to 47.9 ft BGS		2"Ø PVC SCREEN	SS24		1.1	16	0
50	Not Sampled	-38.82		SS25		0.1	15	0
52	END OF BOREHOLE @ 51.5ft BGS	-40.32	2"Ø PVC SUMP					
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-33.82 to -38.82ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW7-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.19 10.72						
0	FILL, fine to medium sand, some silt, trace gravel, brown, dry		CONCRETE	SS1		1.5	24	90
2			CEMENT/ BENTONITE GROUT					
4	- same with some gravel and silt		2"Ø PVC RISER	SS2		1.6	35	50
6	- becoming moist		BENTONITE	SS3		1.1	15	17
8	SP-fine to medium SAND, trace silt, dark brown, wet, strong hydrocarbon odor	3.19	SAND PACK	SS4		1.4	10	22
10	- silt seam (ML) 10.5 to 10.6 ft BGS		8"Ø BOREHOLE	SS5		1.5	9	600
12			2"Ø PVC SCREEN	SS6		2.0	6	10
14	- silt seam (ML) 14.9 to 15.1 ft BGS	-3.91		SS7		1.9	9	4
16	ML-SILT, some clay, little sand, gray, medium plasticity, wet	-4.81	2"Ø PVC SUMP	SS8		2.0	27	10
	Not Sampled	-5.31						
18	END OF BOREHOLE @ 16.5ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
1.19 to -3.81ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW8-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.02 10.50						
0	FILL, sand and gravel, trace silt, brown, dry		CONCRETE	SS1		1.9	25	350
2	- same with shell fragments		2"Ø PVC RISER	SS2		2.0	31	77
4	- becoming moist		CEMENT/ BENTONITE GROUT	SS3		1.5	9	25
6			BENTONITE	SS4		1.5	6	250
8	SP-fine to medium SAND, trace silt, dark gray to black, moist (NATIVE)	3.52	SAND PACK	SS5		2.0	6	1514
10	- becoming wet - silt seam (ML) 10.8 to 10.9 ft BGS		8"Ø BOREHOLE	SS6		1.5	5	1900
12			2"Ø PVC SCREEN	SS7		2.0	9	1200
14	- silt seam (ML), dark brown, moist 13.0 to 13.1 ft BGS			SS8		2.0	28	38
16	ML-SILT, trace clay and shell fragments, gray, moist	-3.98	2"Ø PVC SUMP					
	Not Sampled	-4.98						
	END OF BOREHOLE @ 16.5ft BGS	-5.48						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
1.02 to -3.98ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW9-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.37 10.77					
0	0-16.5' BGS - See Log from 721-MW9-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT BENTONITE SAND PACK 8"Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16.5	END OF BOREHOLE @ 16.5ft BGS	-5.13					

WELL DETAILS
Screened interval:
1.37 to -3.63ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW9-25
DATE COMPLETED: June 29, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.40 10.49					
0	0-26.5' BGS - See Log from 721-MW9-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-15.10					

WELL DETAILS
Screened interval:
-8.60 to -13.60ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

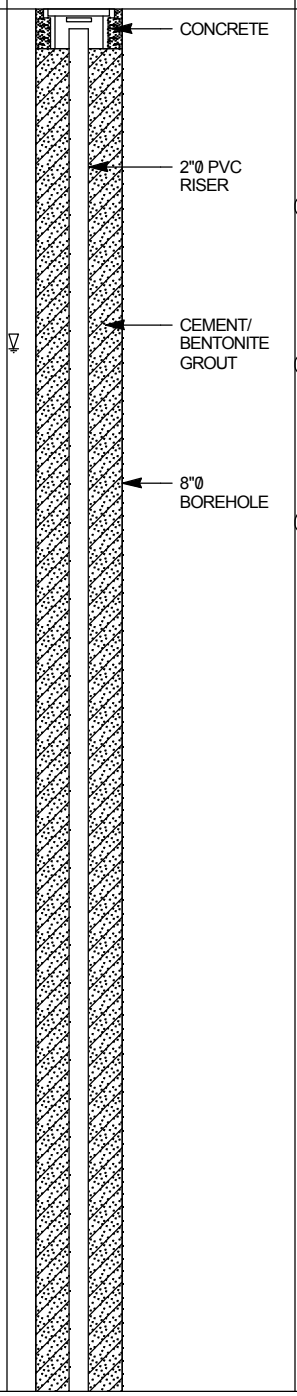
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW9-50
DATE COMPLETED: June 29, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams/C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.40
	TOP OF RISER	10.94
0	FILL, medium to coarse sand and angular to rounded GRAVEL, little silt, brown, dry	10.60
2	SP-fine to medium SAND, little gravel, dark brown, dry	8.70
4	SP-fine to medium SAND, trace silt, dark brown, dry - slag fragment @ 4.0 to 4.1 ft BGS	7.40
6	SM-fine to medium SAND, some silt and subrounded gravel, brown, dry	5.40
8	SP-SAND, trace silt, fine grained, black with some red grains, moist (NATIVE) - wet, chemical odor	
10		
12		
14	- silt seam (ML) 13.1 to 13.15 ft BGS - silt seam (ML) 13.6 to 13.65 ft BGS	
16	- silt seam (ML) 15.95 to 16.0 ft BGS - silt seam (ML) 16.2 to 16.3 ft BGS	-4.90
18	SM-SAND and SILT, trace clay, fine grained, dark gray, wet	-5.60 -6.10
20	CL-CLAY, some silt, dark gray, soft, low plasticity, wet	-6.60 -7.30
22	SP-fine to medium SAND, trace silt, black with some red grains, wet CL-CLAY, some silt, dark gray, soft, medium plasticity, wet SP-fine to medium SAND, little silt, trace shell fragments, black with some red grains, wet - with some silt 20.0 to 20.5 ft BGS	
24	- becoming medium to coarse grained, trace silt - silt seam (ML), some clay, soft, dark gray, wet 23.2 to 23.4 ft BGS	-12.90
26	SM-fine to medium SAND, some silt and shell fragments, dark gray, wet	
28	SP-fine to medium SAND, black with some red grains, wet - silt seam (ML), dark gray, wet 28.5 to 28.6 ft BGS	-16.00
30	- silt seam (ML), dark gray, wet 29.3 to 29.4 ft BGS	
32	- silt seam (ML), dark gray, soft, some clay, wet 30.0 to 30.3 ft BGS - silt seam (ML), dark gray, little fine sand, wet 31.4 to 31.45 ft BGS	
34	- with some silt from 34.3 to 36.0 ft BGS	



SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS1		1.7	28	0
SS2		1.5	36	0
SS3*		0.9	9	0
SS4		0.9	9	0
SS5*		1.5	4	773
SS6		1.6	8	1721
SS7*		1.9	8	823
SS8		2.0	5	842
SS9		1.9	7	0
SS10		2.0	8	0
SS11		1.4	15	0
SS12		2.0	8	1.5
SS13		2.0	2	0
SS14		1.8	9	0
SS15		1.7	25	0
SS16		1.7	21	0
SS17		1.4	25	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (*)

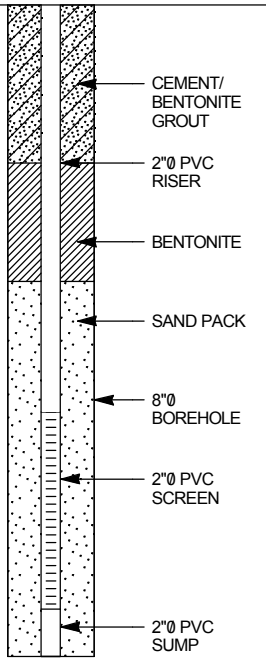
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 721-MW9-50
DATE COMPLETED: June 29, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams/C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36		
	ML-SILT, some fine sand, dark gray, wet	-25.50
38		
	ML-SILT, some clay, dark gray, wet, firm	-27.80
40		
	SP-SAND, little silt, fine grained, black, wet	-29.60
	ML-SILT, some fine sand, black, wet	-30.00
42		
	SP-SAND, fine grained, black, wet	-31.30
	- little to some silt @ 43.9 ft BGS	
44		
46		
	ML-SILT, trace clay, dark gray, wet	-36.00
48	SM-SAND, some silt, fine grained, dark gray, wet	-36.60
	ML-SILT, little clay, dark gray, moist	-37.80
	SP-SAND, trace silt, fine grained, black, wet	-38.40
50	Not Sampled	-38.60
	END OF BOREHOLE @ 51.5ft BGS	-40.10
52		
	* - Sample collected by Port of Tacoma for chemical analysis.	
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL

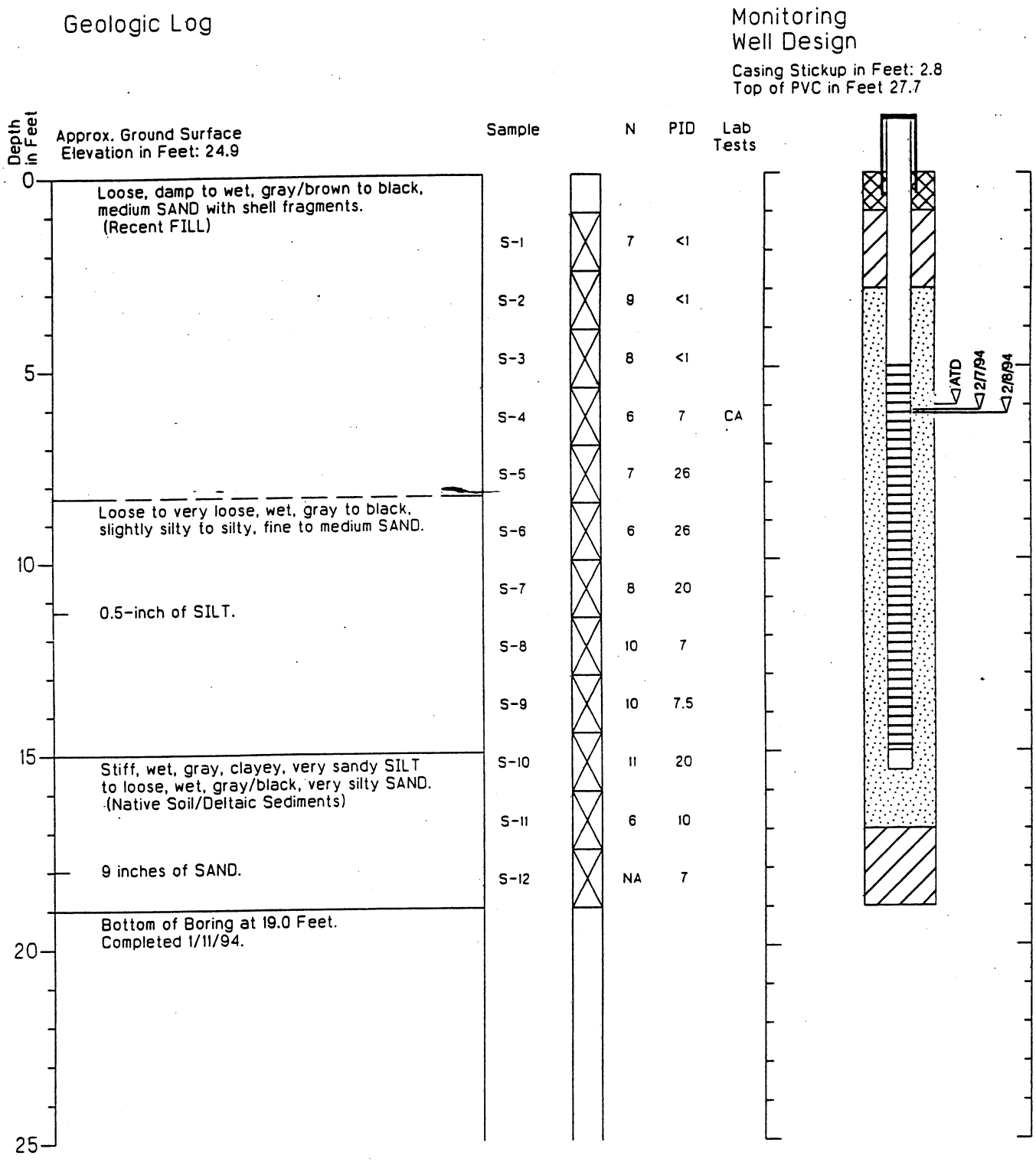


WELL DETAILS
Screened interval:
-33.90 to -38.90ft NGVD
45.30 to 50.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS18		1.8	23	0
SS19		2.0	11	0
SS20		1.9	4	0
SS21		1.7	10	0
SS22		1.8	21	0
SS23		1.8	15	0
SS24		2.0	8	0
SS25		1.8	4	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

Boring Log and Construction Data for Monitoring Well MW-1



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Reference Elevation Datum - Port of Tacoma (mean lower low water)
   High Tide - 2/7/94
   Low Tide - 2/8/94

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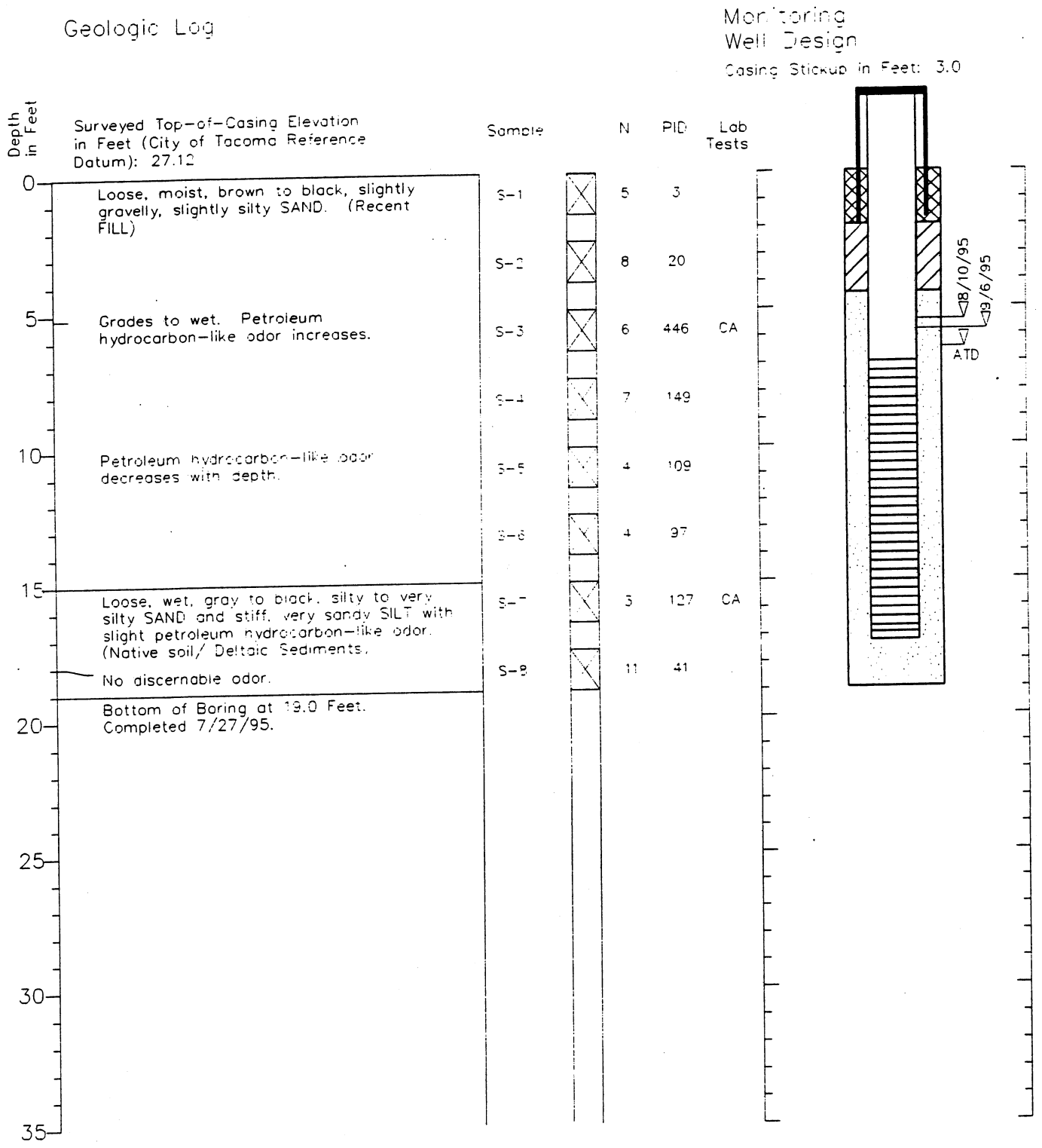
J-3712-04 1/94

Figure A-2

Boring Log and Construction Data for Monitoring Well MW-10



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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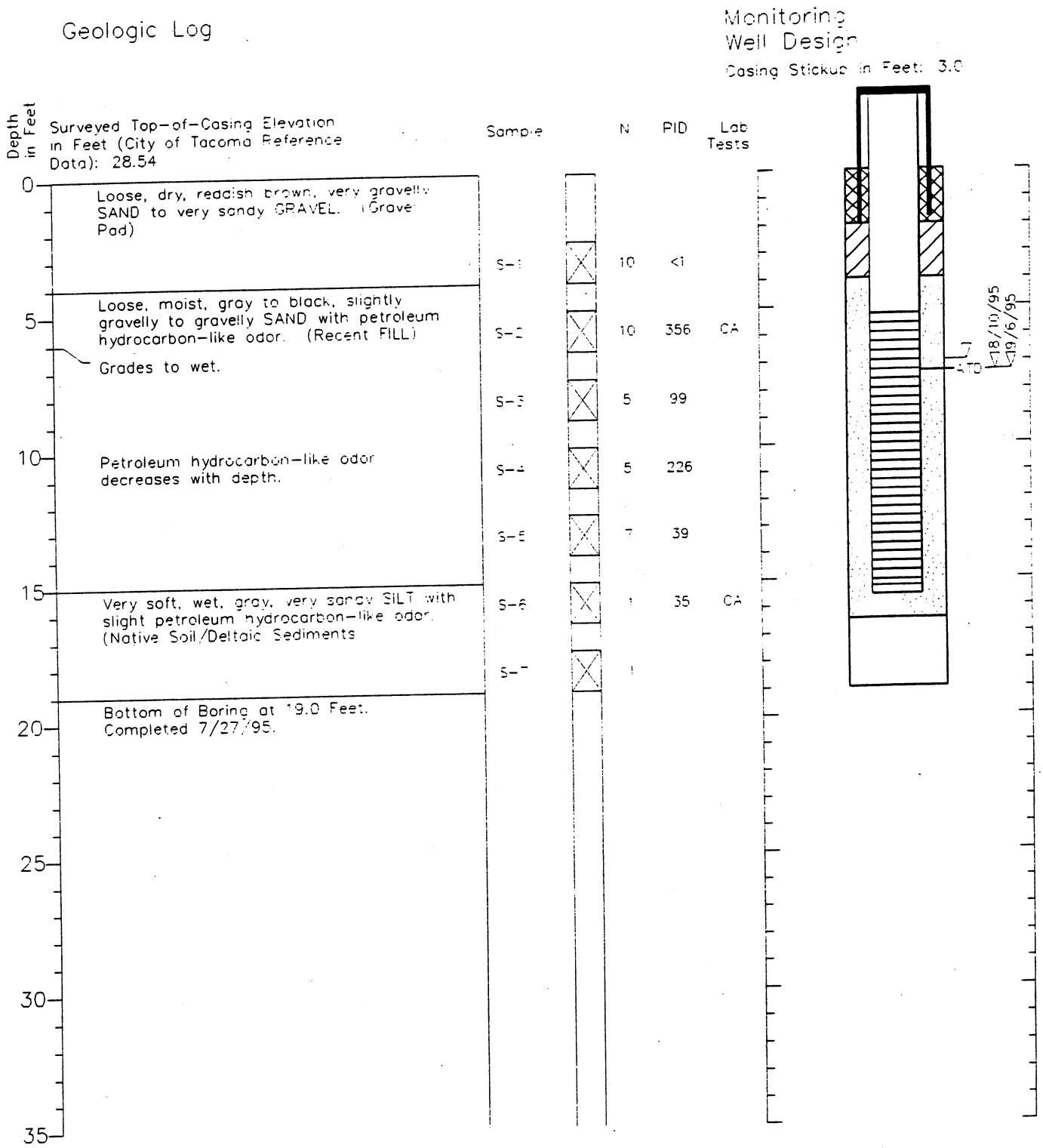
Figure A-3

Boring Log and Construction Data for Monitoring Well MW-11



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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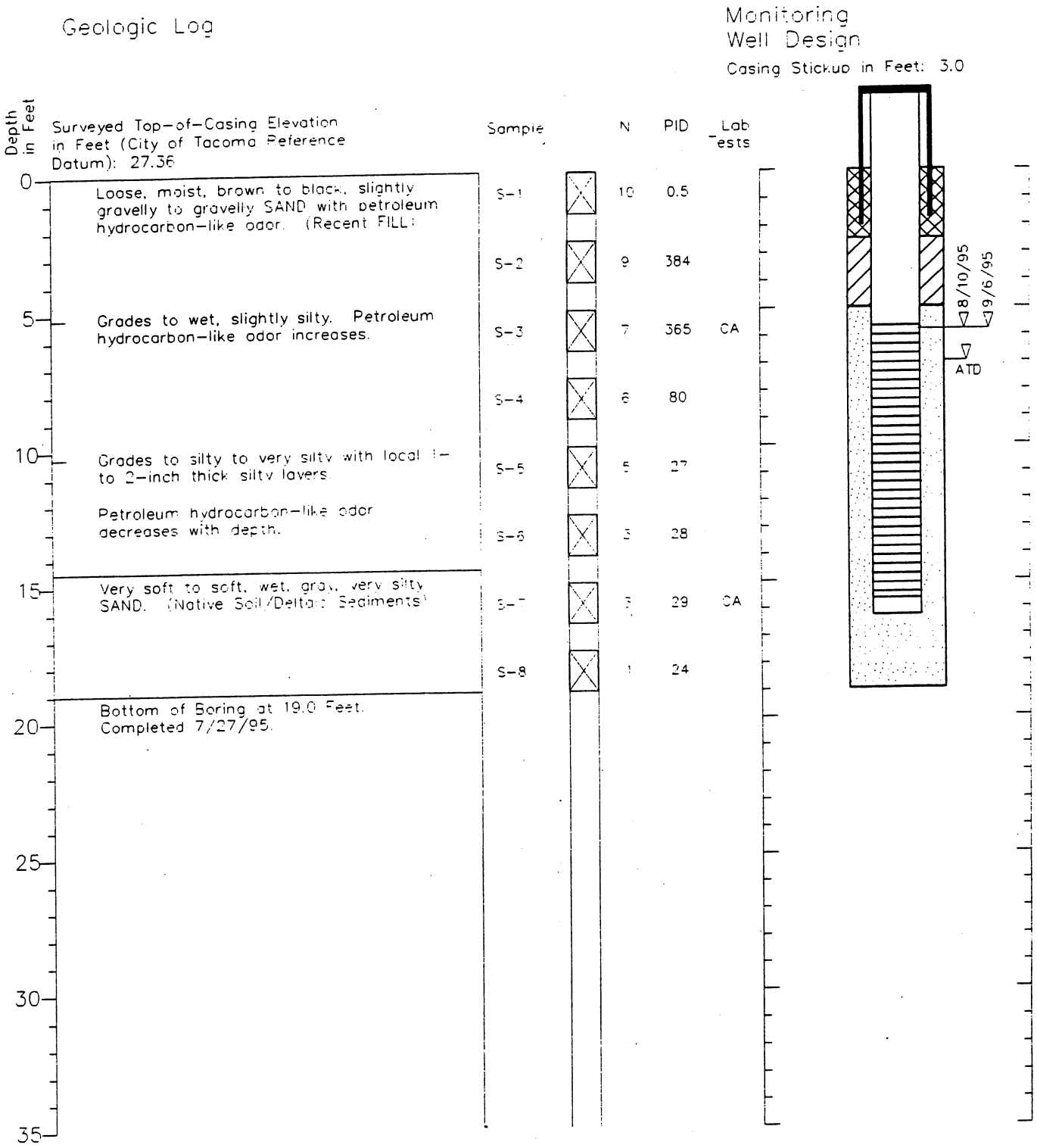
Figure A-4

Boring Log and Construction Data for Monitoring Well MW-12



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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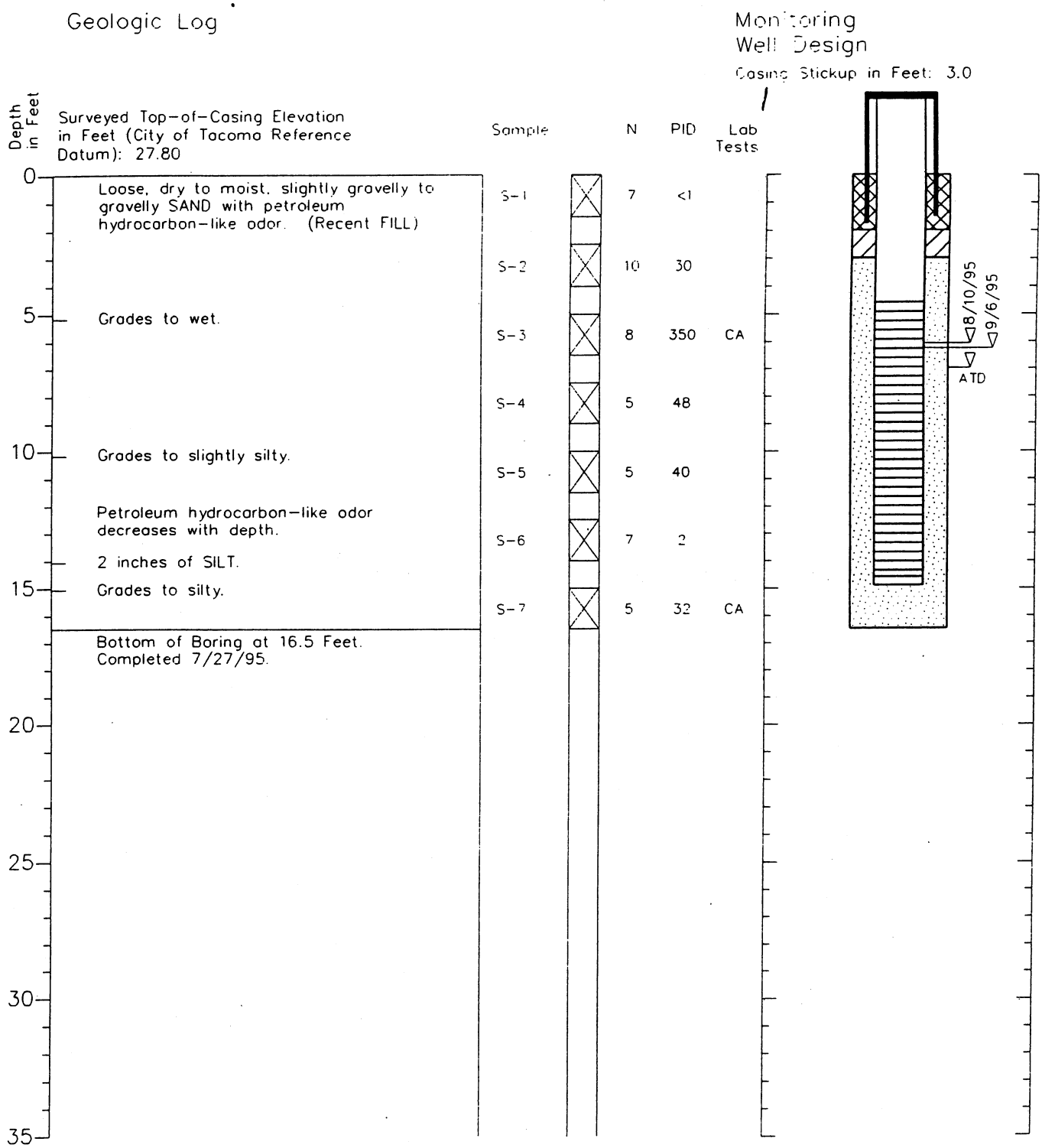
Figure A-5

Boring Log and Construction Data for Monitoring Well MW-13



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time

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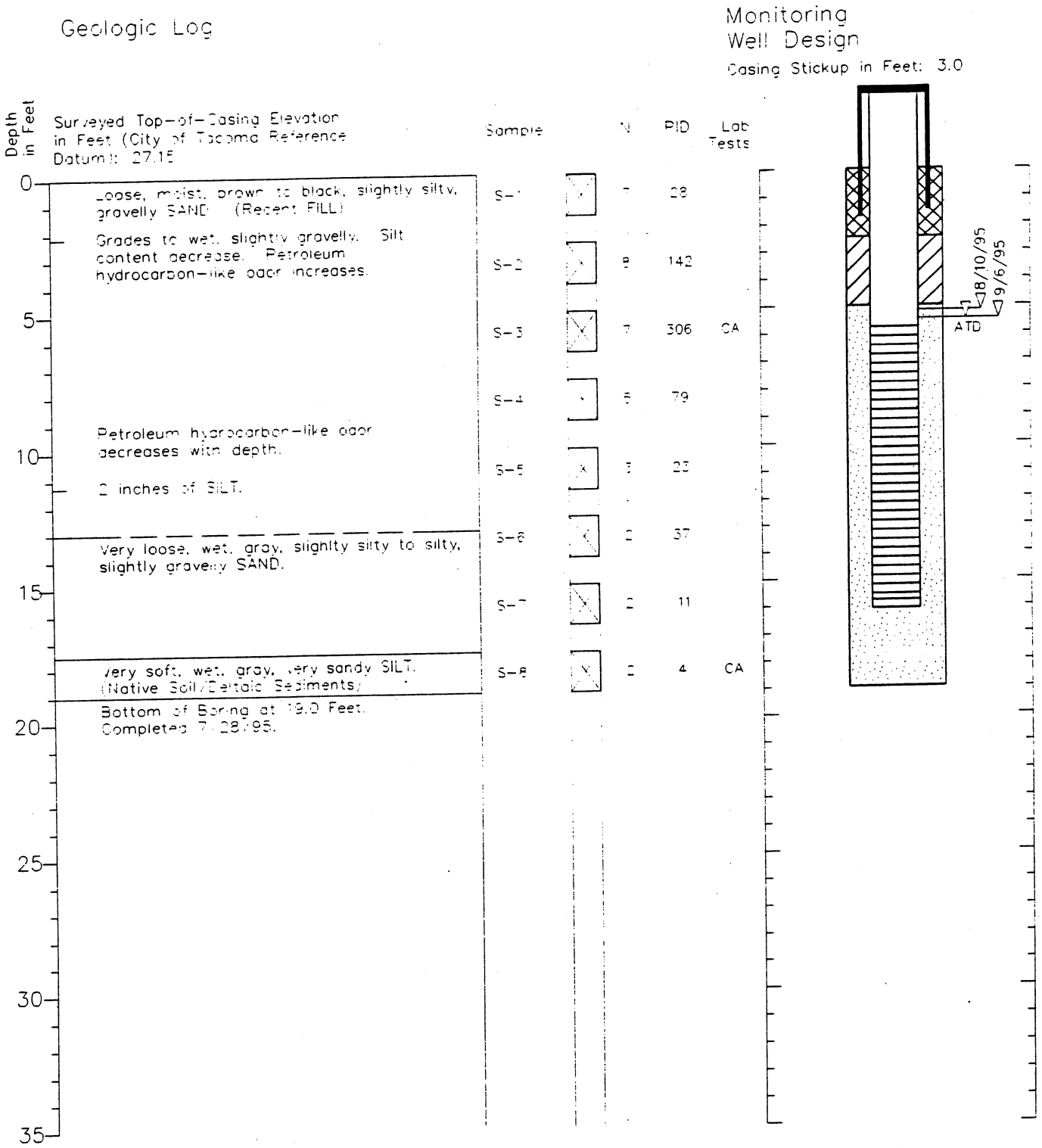
Figure A-6

Boring Log and Construction Data for Monitoring Well MW-14



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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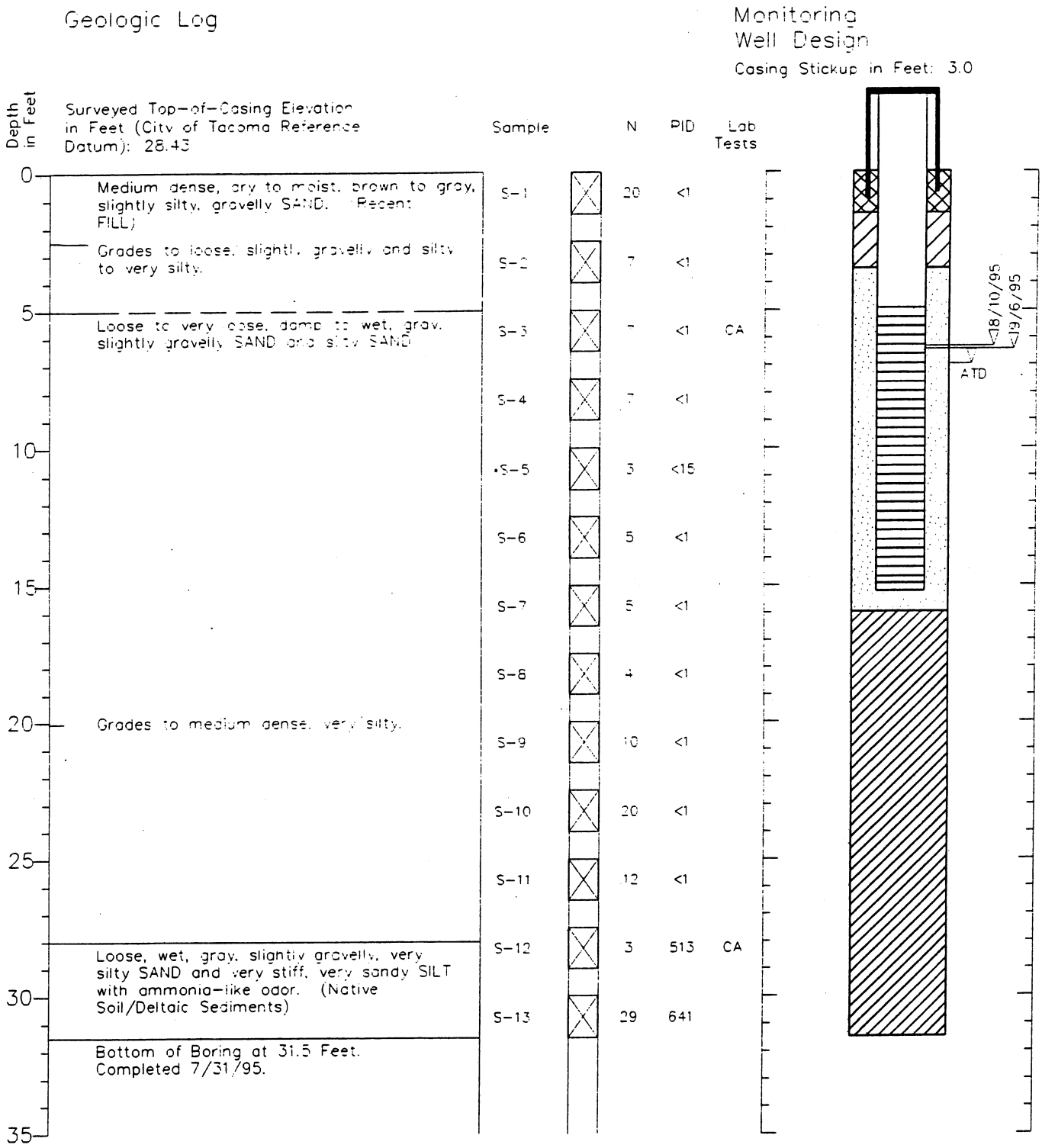
J-3712-10 7/95

Figure A-7

Boring Log and Construction Data for Monitoring Well MW-15



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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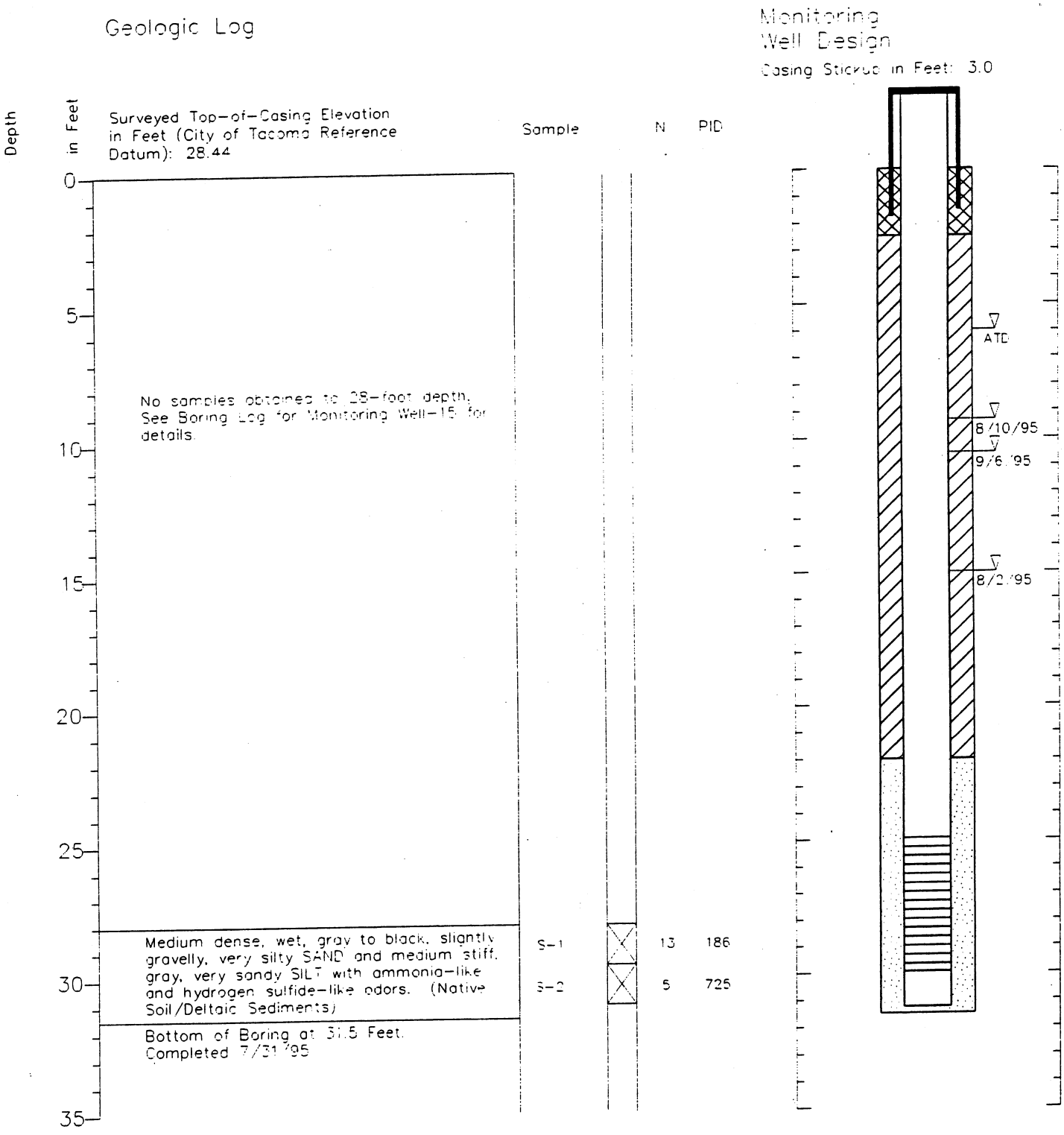
Figure A-8

Boring Log and Construction Data for Monitoring Well MW-15A



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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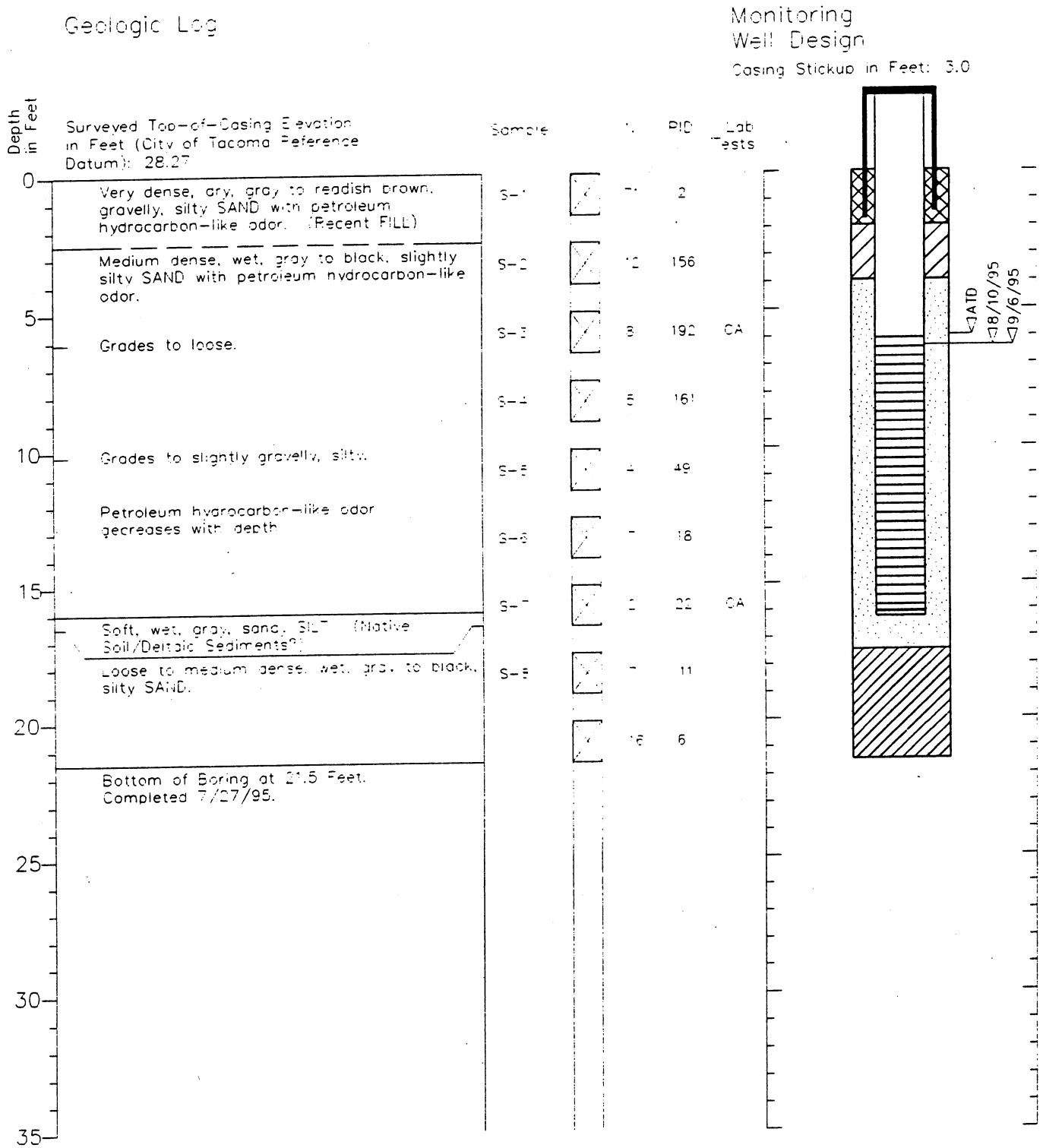
Figure A-9

Boring Log and Construction Data for Monitoring Well MW-16



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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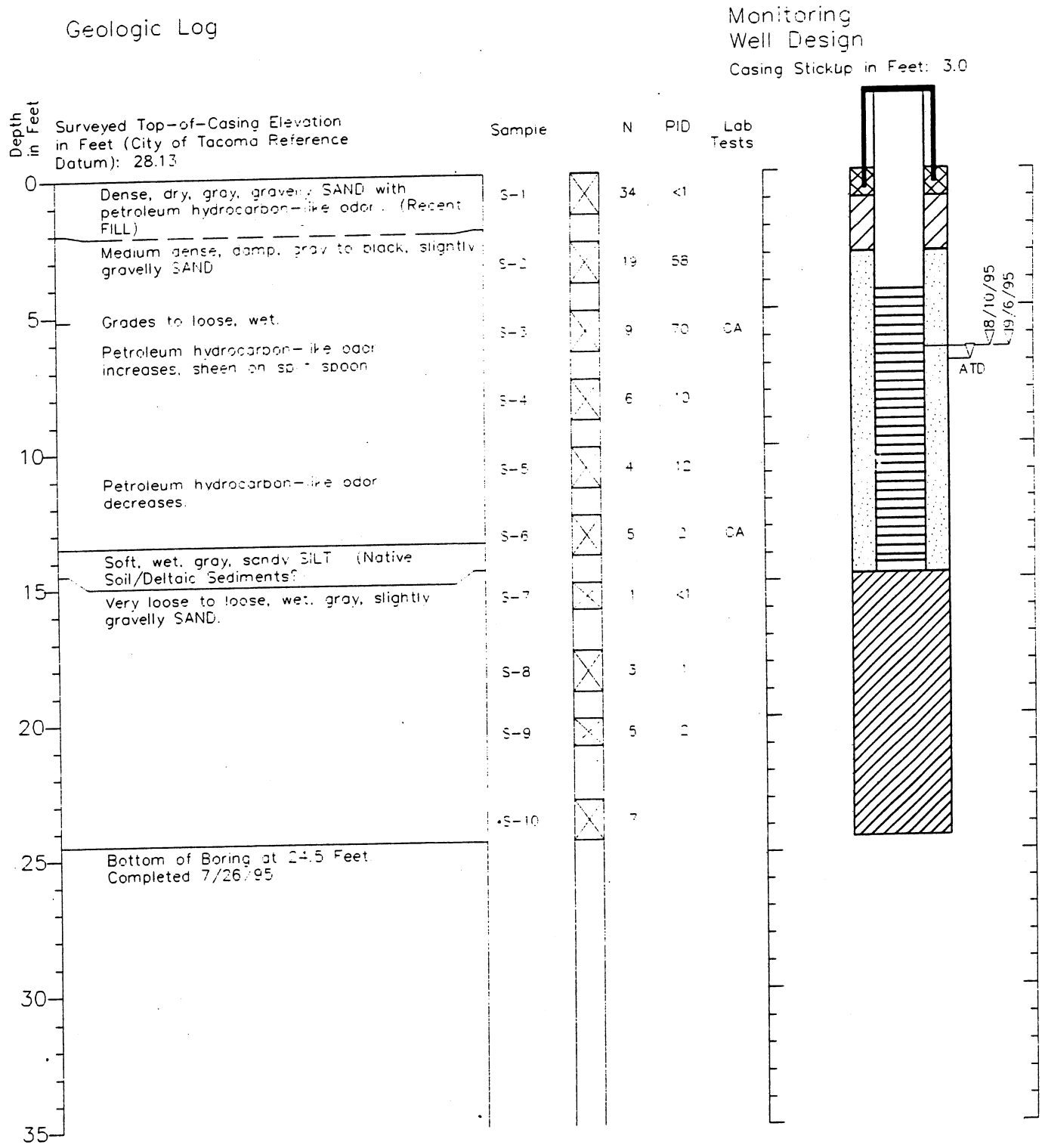
Figure A-10

Boring Log and Construction Data for Monitoring Well MW-17



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time

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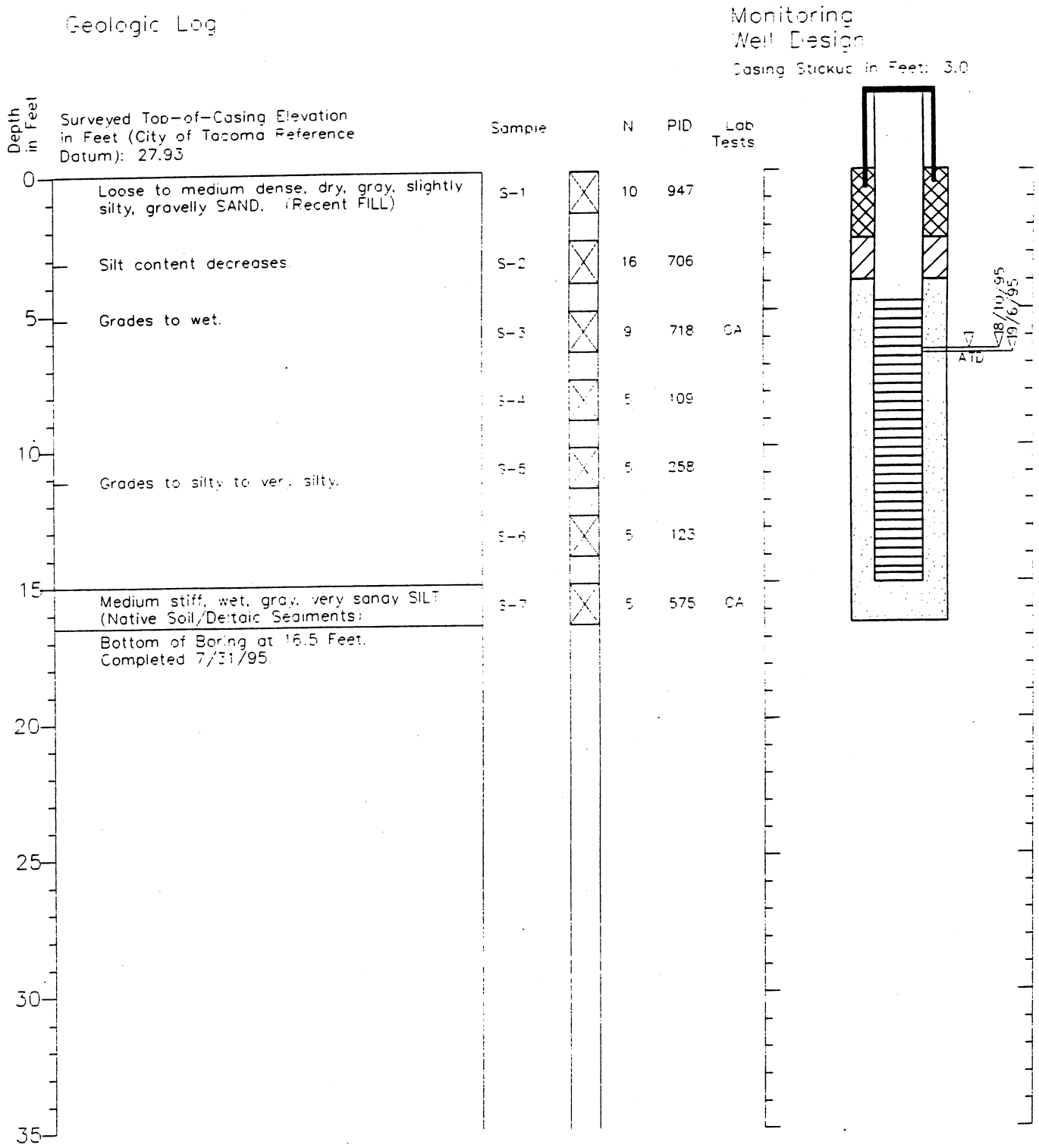
J-3712-09 7/95

Figure A-11

Boring Log and Construction Data for Monitoring Well MW-18



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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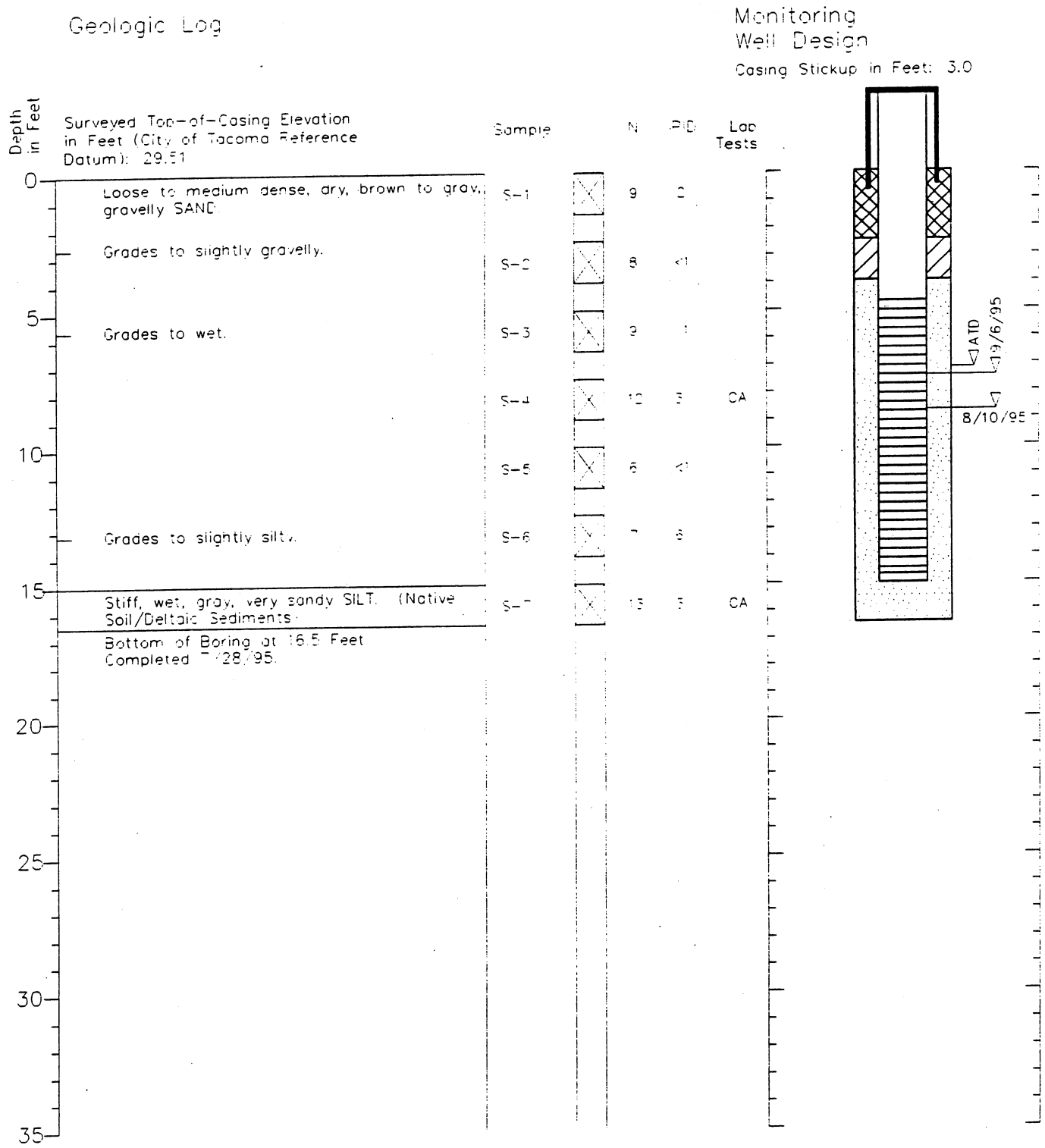
Figure A-12

Boring Log and Construction Data for Monitoring Well MW-19



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.

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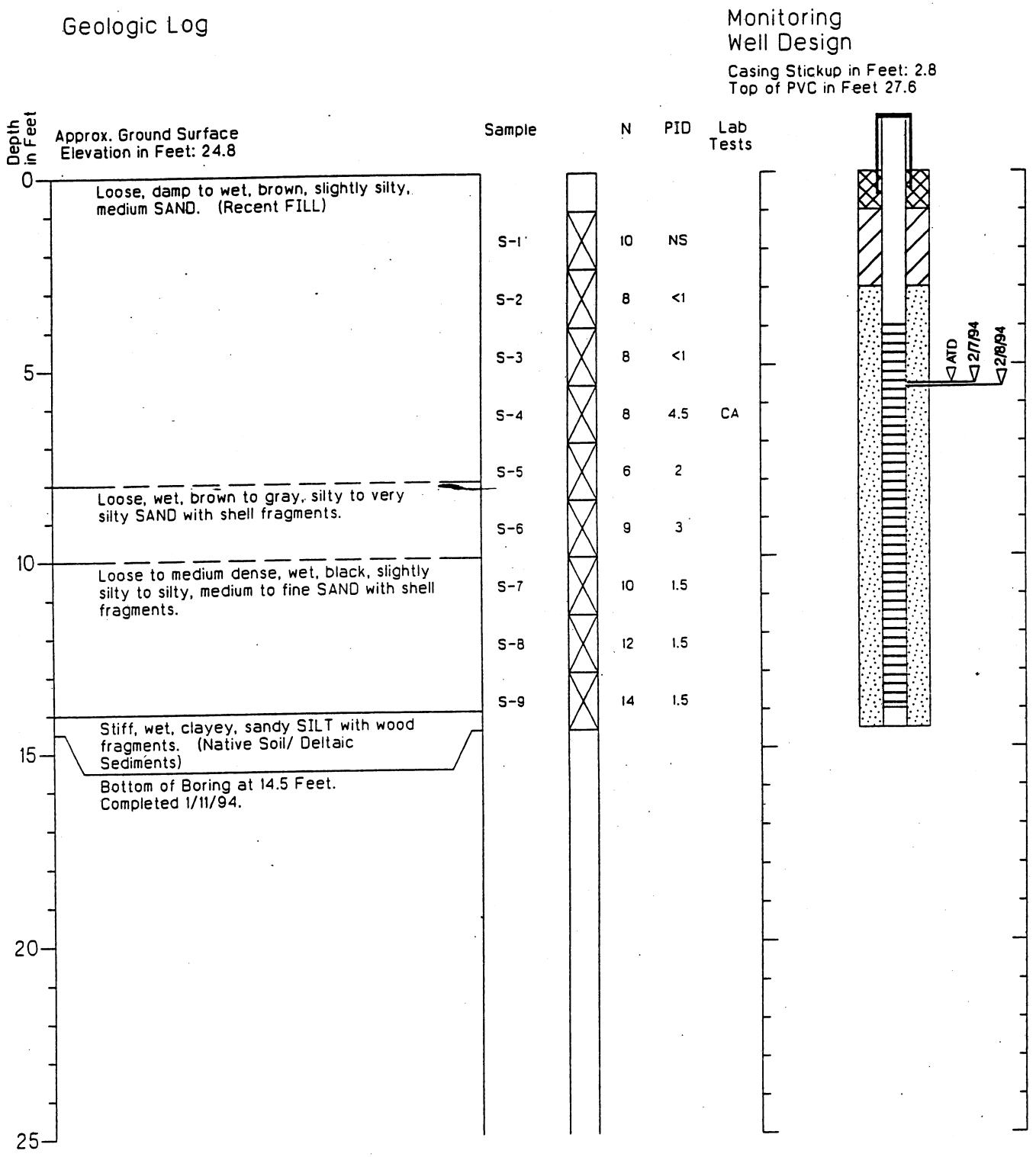
J-3712-09 7/95

Figure A-13

Boring Log and Construction Data for Monitoring Well MW-2



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Reference Elevation Datum - Port of Tacoma (mean lower low water)
   High Tide - 2/7/94
   Low Tide - 2/8/94

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J-3712-04 1/94

Figure A-3

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: MW20-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron/J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE 13.36 TOP OF RISER 12.55						
0	0-16.5' BGS - See Log from MW20-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/BENTONITE GROUT BENTONITE SAND PACK 8"Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16	END OF BOREHOLE @ 16.5ft BGS	-3.14					

WELL DETAILS
Screened interval:
3.36 to -1.64ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: MW20-25
DATE COMPLETED: July 2, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron/J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE 13.53 TOP OF RISER 13.22						
0	0-26.5' BGS - See Log from MW20-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-12.97					

WELL DETAILS
Screened interval:
-6.47 to -11.47ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: MW20-50
DATE COMPLETED: July 2, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams/C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	13.21
	TOP OF RISER	12.93
0	FILL, sand, trace silt, trace gravel, fine to medium grained, medium brown, dry	
4	- becoming moist below 4 ft BGS	
6	- with brick fragments below 6 ft BGS	
8	- with glass fragments, dark brown below 8 ft BGS	
10	- becoming wet below 10 ft BGS	
	- silt seam, soft, medium brown, wet from 10.9 to 11.0 ft BGS	
12	SP-SAND, fine to medium grained, dark brown, wet (NATIVE)	1.21
14	- silt seam from 15 to 15.1 ft BGS	
16	- shell fragments from 16 to 16.5 ft BGS	
	ML-SILT, soft, gray, wet	-3.29
	- fine sand seam (SP) from 17 to 17.2 ft BGS	
18	- becomes firm @ 17.2 ft BGS	-4.79
	SM-SAND, some silt, some shell fragments, fine to medium grained, wet	
20	- silt seam (ML) from 18.3 to 18.9 ft BGS	
	- silt seam (ML) from 20 to 20.1 ft BGS	
22		-9.39
	SP-SAND, trace silt, fine to medium grained, dark brown, moist	
24		
26	- silt seam (ML), grey, moist from 26 to 26.1 ft BGS	
28		
30		
32		
	- silt seam (ML) from 32.9 to 33 ft BGS	
34	- silt seam (ML) from 33.5 to 33.6 ft BGS	

MONITORING WELL: AT-GRADE PROTECTIVE COVER; CEMENT/ BENTONITE GROUT; 2"Ø PVC RISER; 8"Ø BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS1		1.0	25	0
SS2		0.6	19	0
SS3		1.0	14	0
SS4		1.0	4	0
SS5		1.4	4	0
SS6		1.7	7	0
SS7		1.7	7	0
SS8		2.0	16	0
SS9		1.7	1	0
SS10		2.0	17	0
SS11		1.4	7	0
SS12		2.0	7	0
SS13		2.0	9	0
SS14		0.9	10	0
SS15		2.0	40	0
SS16		1.0	18	0
SS17		1.9	13	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

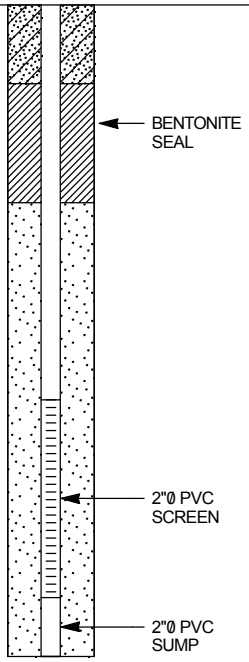
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: MW20-50
DATE COMPLETED: July 2, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams/C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	SM-SAND, some silt, fine grained, dark grey to black, wet	-22.79
38	ML-SILT, little fine sand, dark grey, moist	-25.29
40	SM-SAND, some silt, fine grained, dark grey to black, wet	-26.29
46	ML-SILT, some sand, fine grained, dark grey, wet	-33.29
50	END OF BOREHOLE @ 50.0ft BGS	-36.79

MONITORING WELL

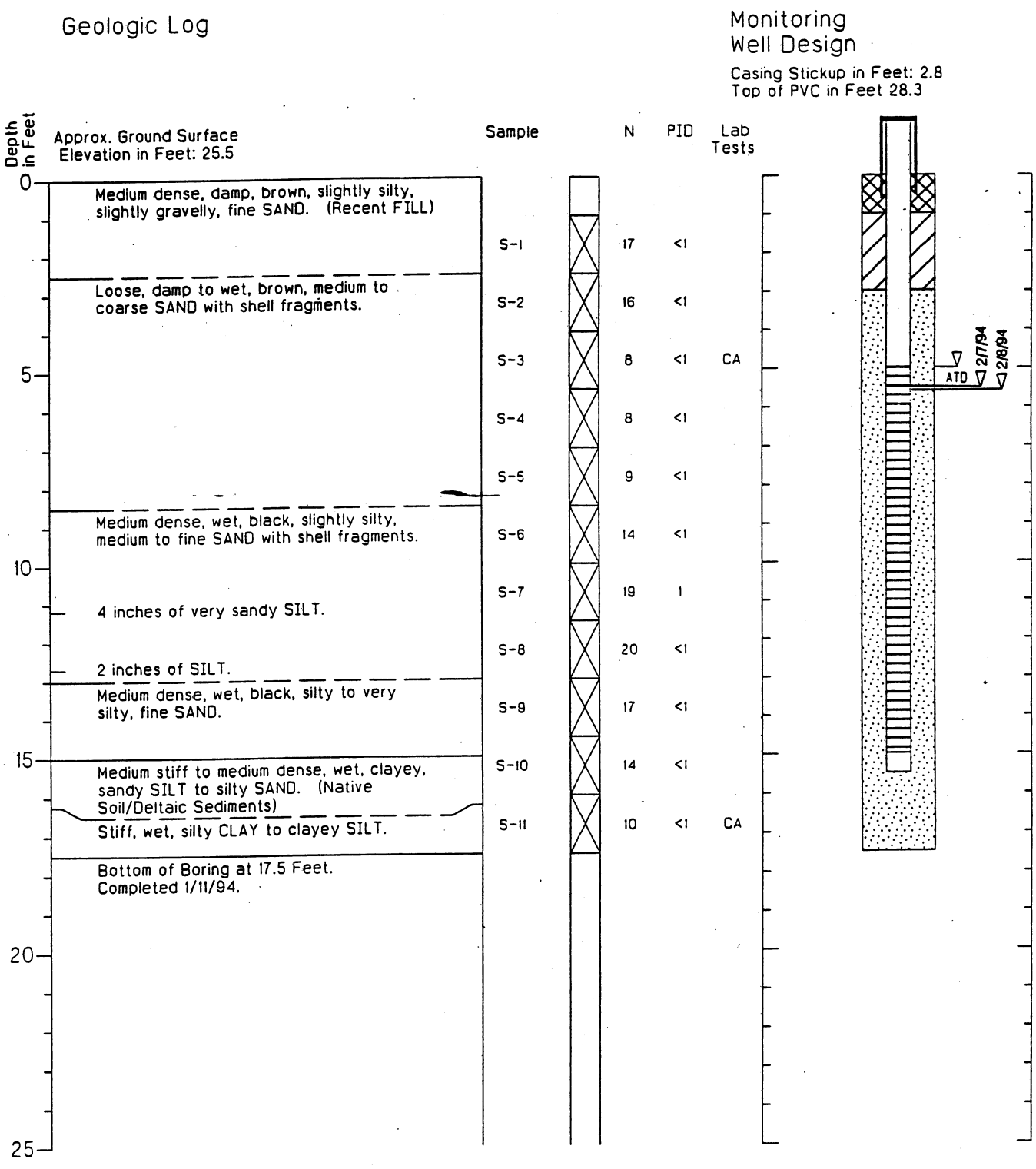


WELL DETAILS
Screened interval:
-31.79 to -36.79ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS18		1.9	17	0
SS19		1.1	27	0
SS20		1.7	7	0
SS21		1.9	34	.7
SS22		1.4	14	0
SS23		1.7	23	0
SS24		1.9	8	0
SS25		1.9	7	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

Boring Log and Construction Data for Monitoring Well MW-3



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Reference Elevation Datum - Port of Tacoma (mean lower low water)
   High Tide - 2/7/94
   Low Tide - 2/8/94

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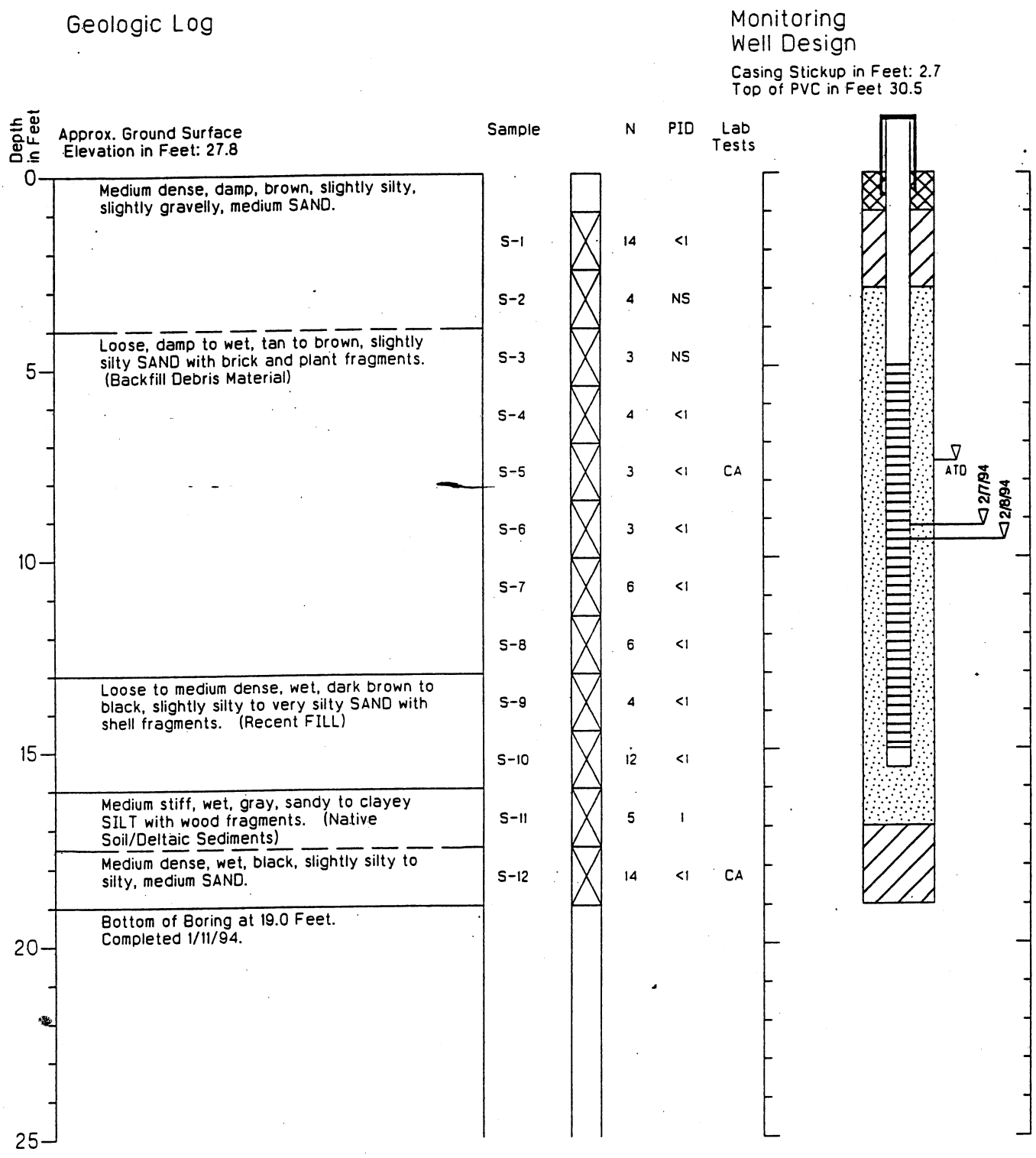
Figure A-4

Boring Log and Construction Data for Monitoring Well MW-4



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Reference Elevation Datum - Port of Tacoma (mean lower low water)
   High Tide - 2/7/94
   Low Tide - 2/8/94

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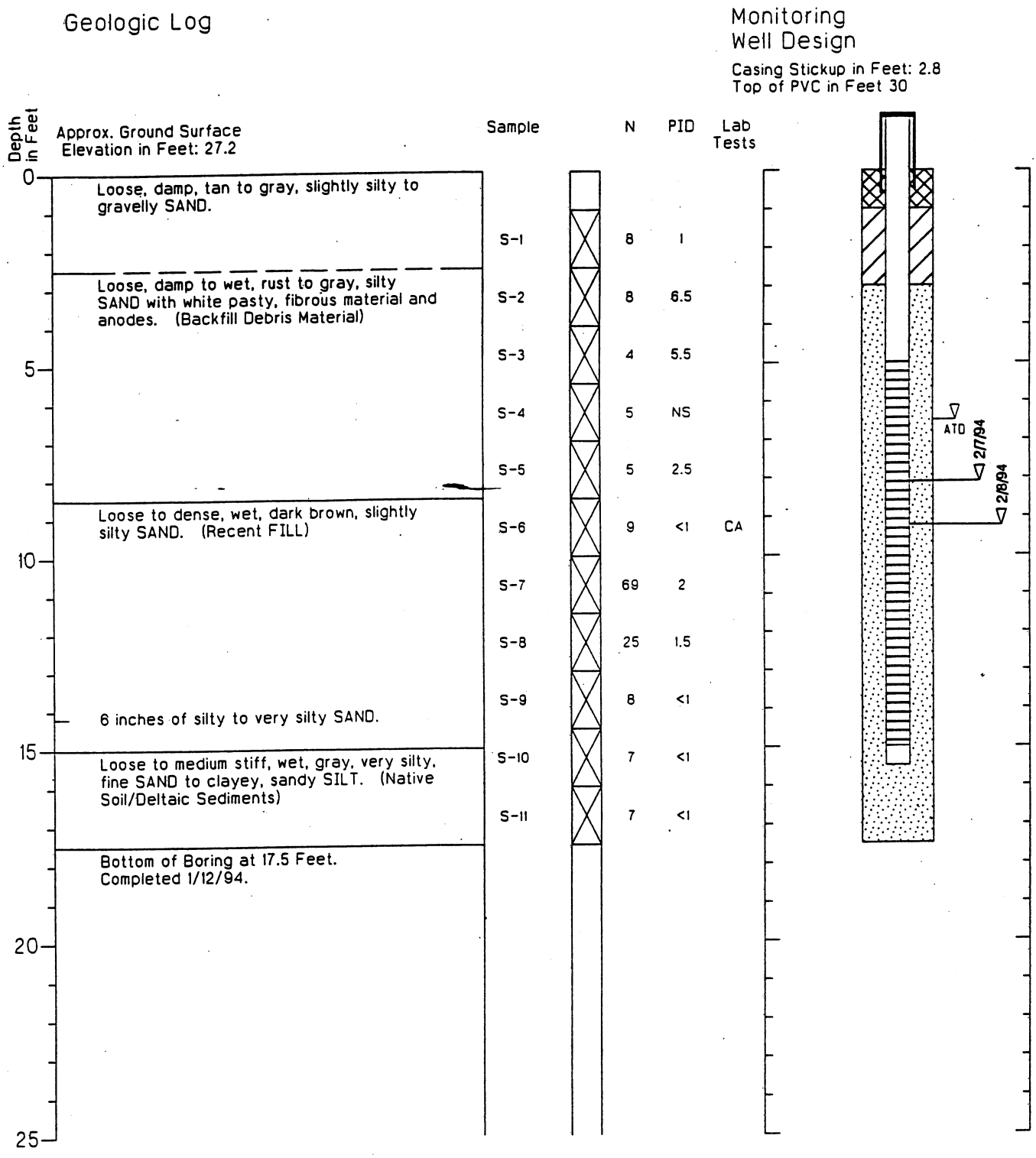
Figure A-5

Boring Log and Construction Data for Monitoring Well MW-5



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. Ground water level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
4. Reference Elevation Datum - Port of Tacoma (mean lower low water)
   High Tide - 2/7/94
   Low Tide - 2/8/94

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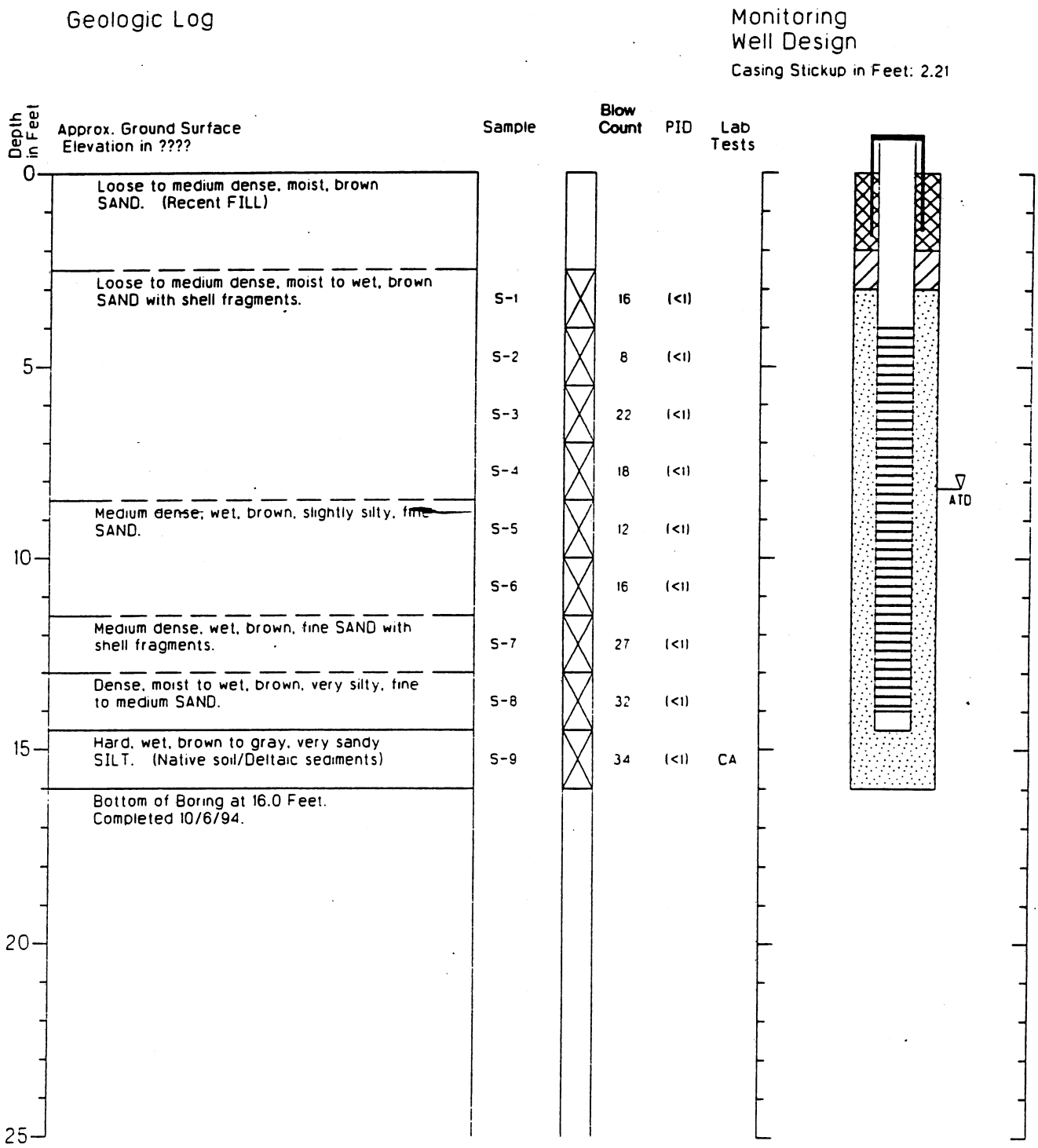
Figure A-6

Boring Log and Construction Data for Monitoring Well MW-6



1. Refer to Figure A-1 for explanation of descriptions and symbols.
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PRI311 001205

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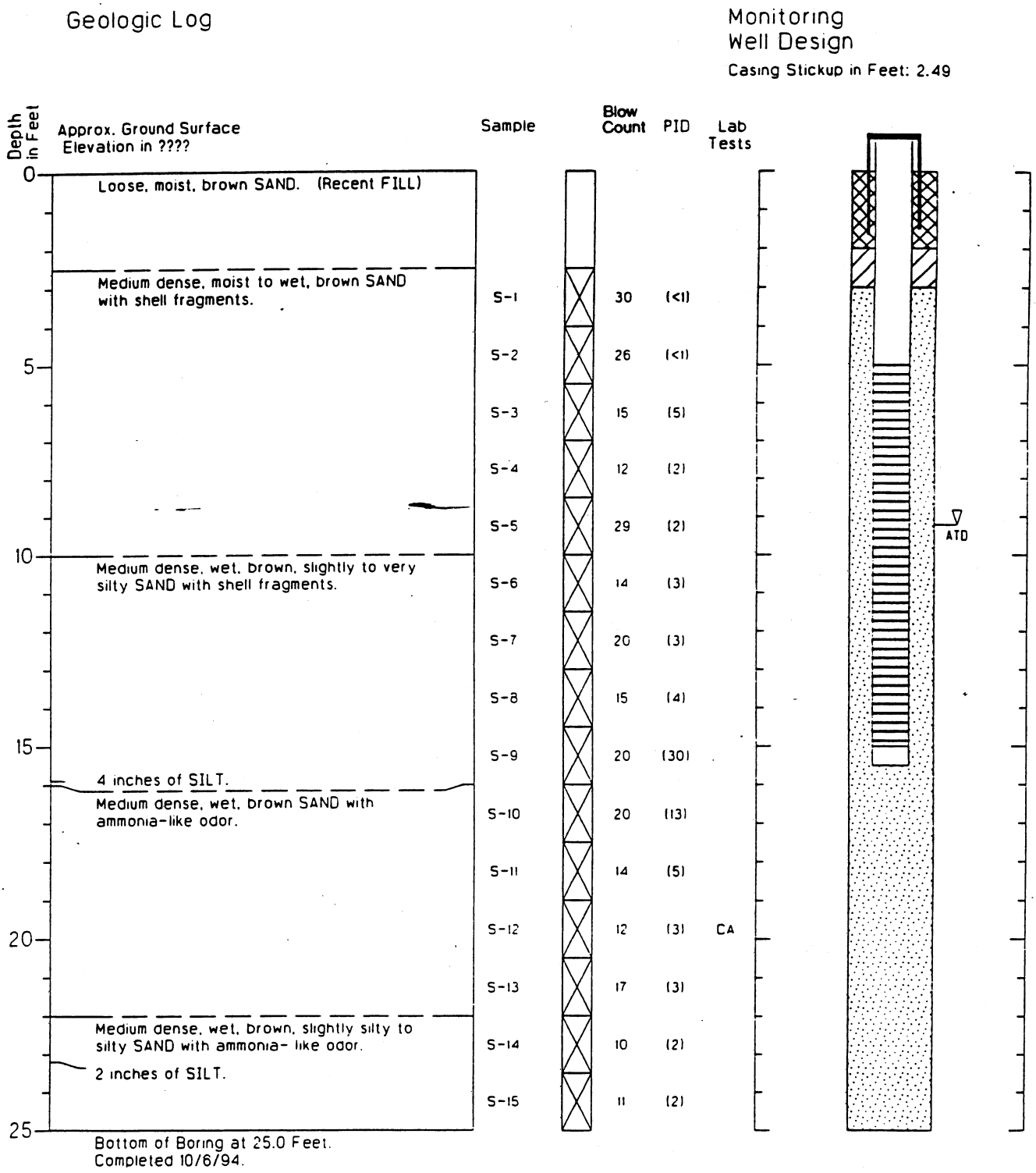
Figure A-2

Boring Log and Construction Data for Monitoring Well MW-7



1. Refer to Figure A-1 for explanation of descriptions and symbols.
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PRI311 001206

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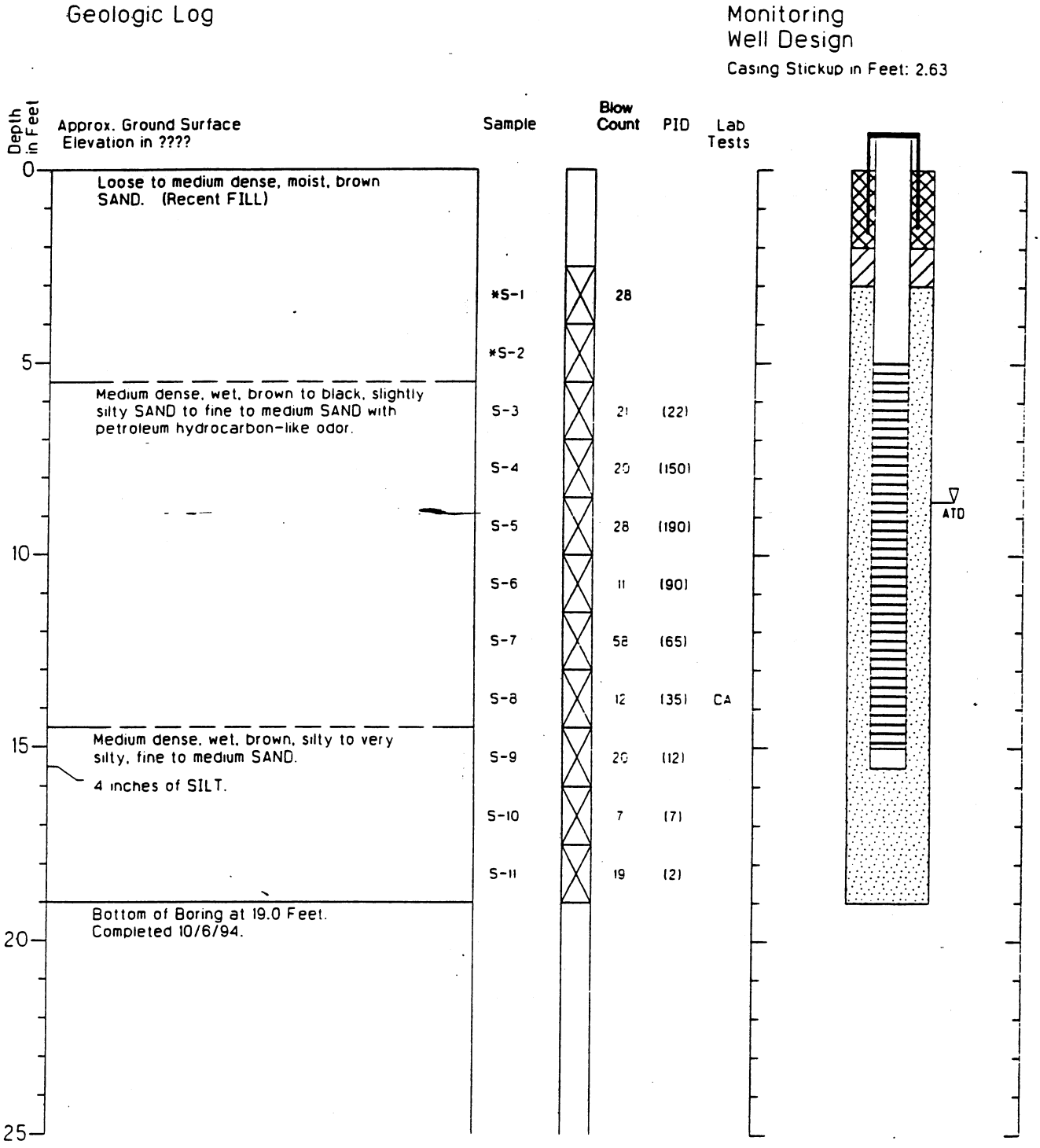
Figure A-3

Boring Log and Construction Data for Monitoring Well MW-8



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PRI311 001207

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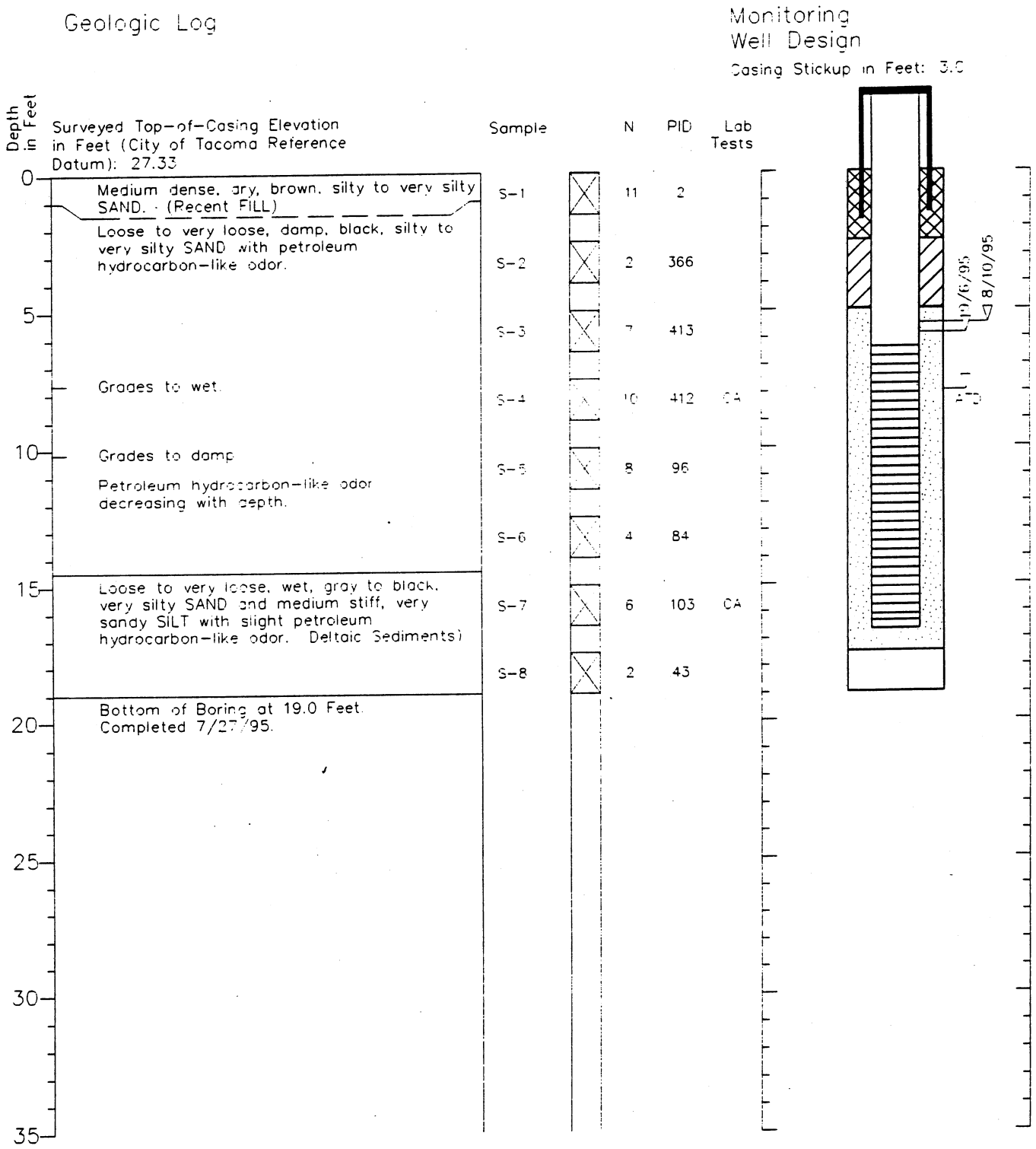
Figure A-4

Boring Log and Construction Data for Monitoring Well MW-9



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2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
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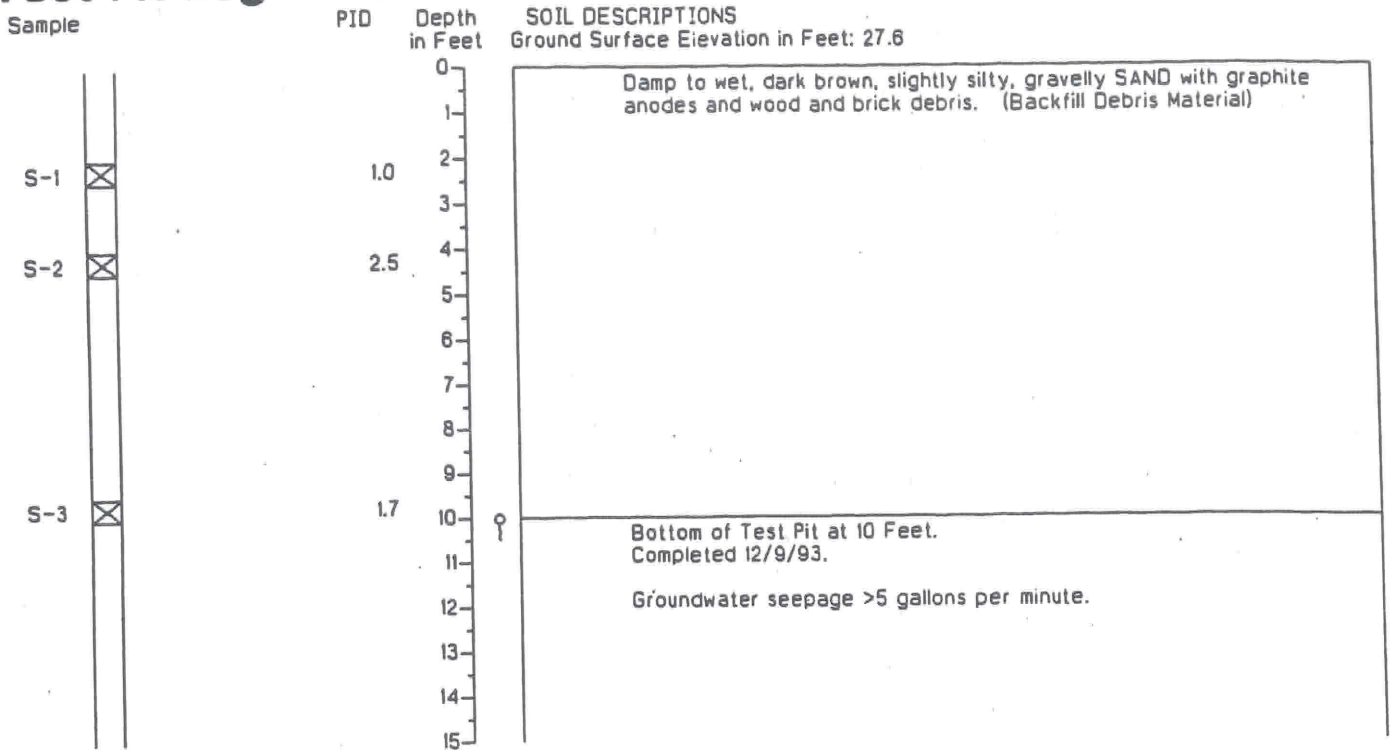
Figure A-2

Test Pit Log TP-9



Test Pit Log TP-10

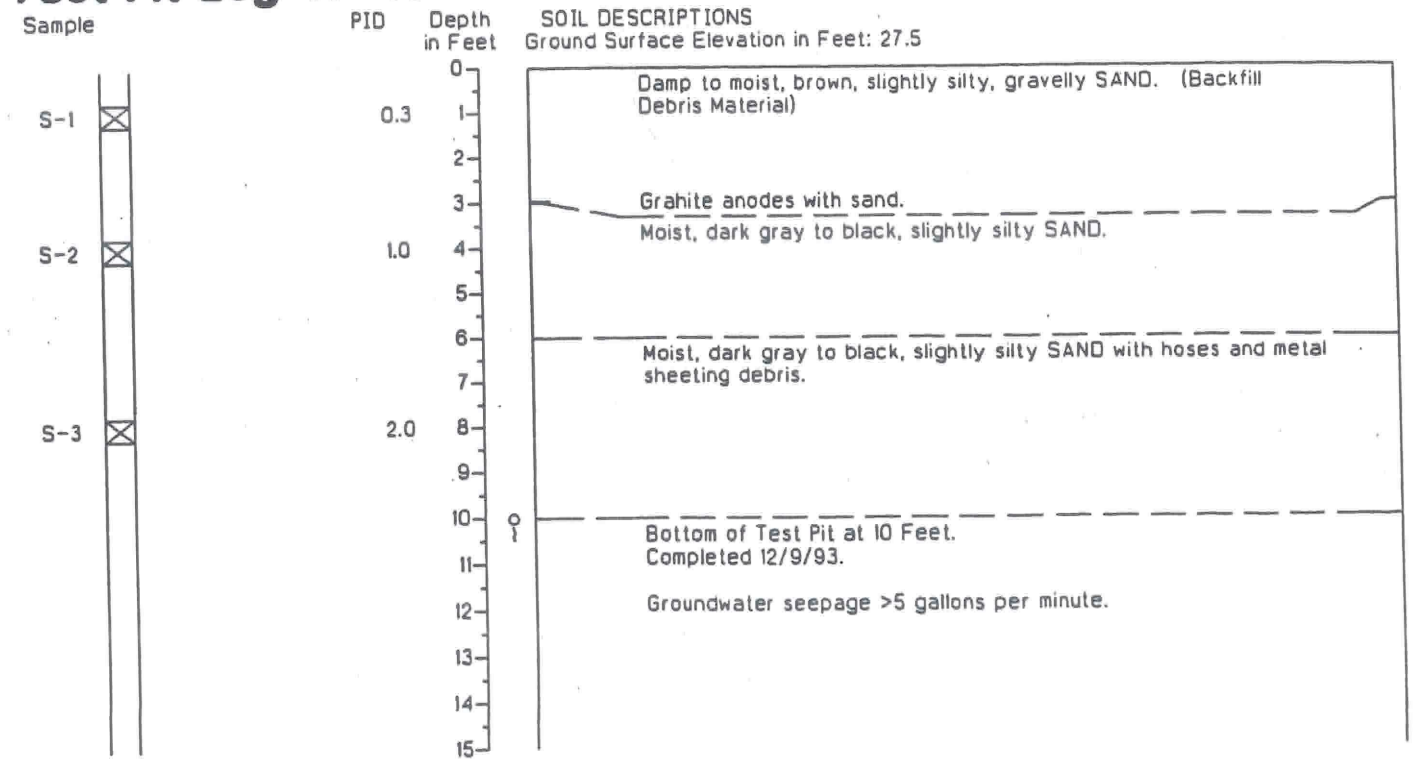


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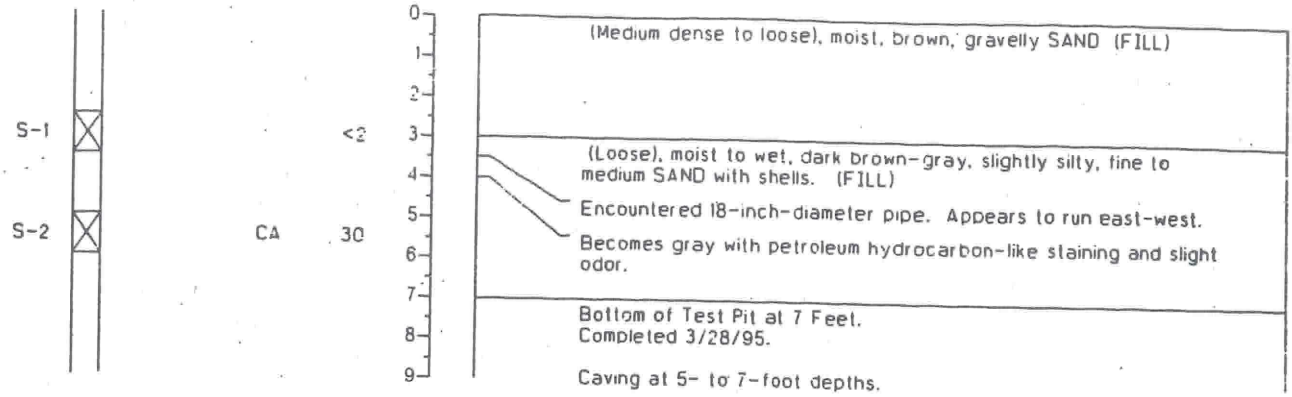
Figure A-10

Test Pit Log TP-9



Test Pit Log TP-10

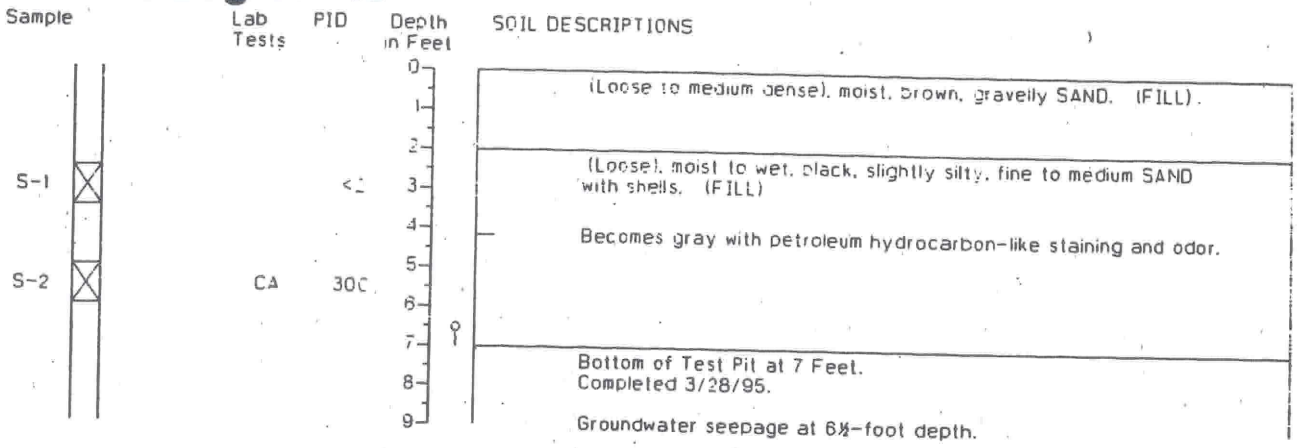


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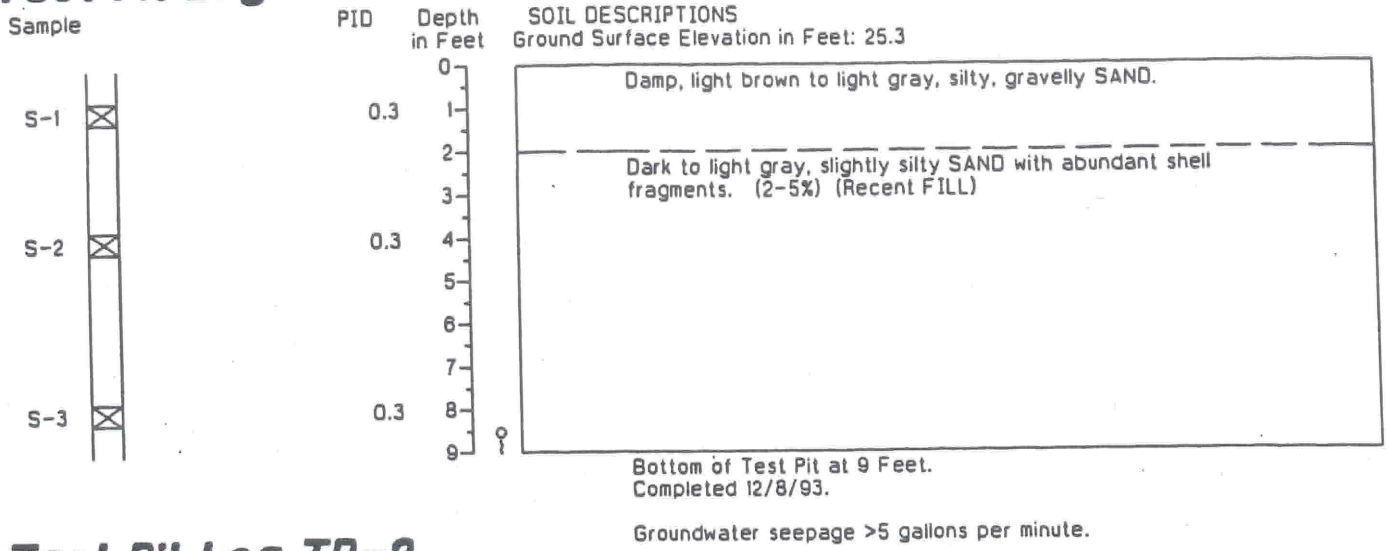
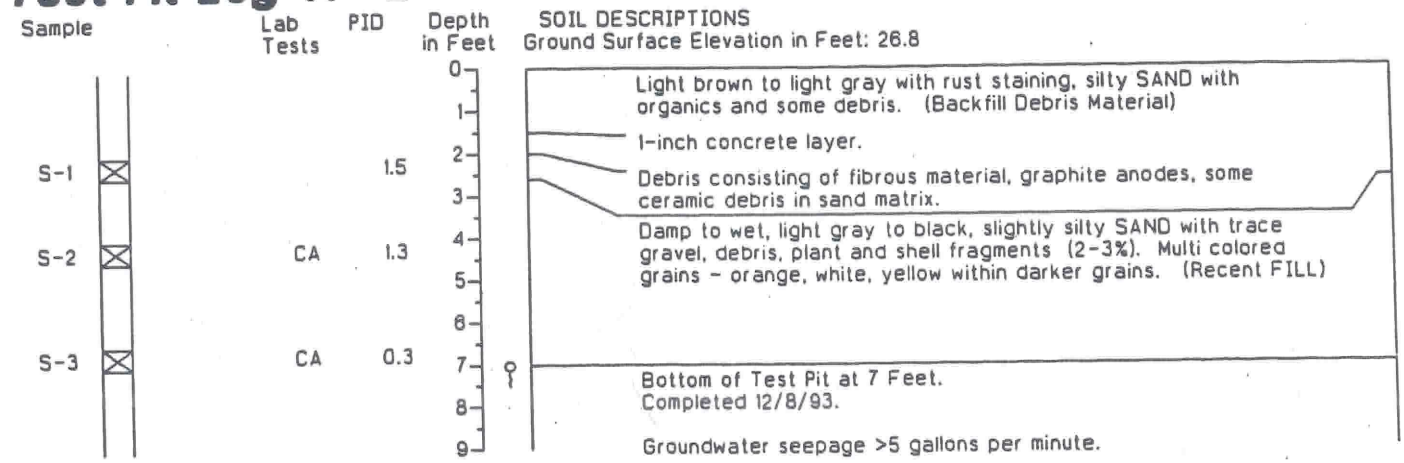
Figure A-17

Test Pit Log TP-1



Test Pit Log TP-2



Test Pit Log TP-3

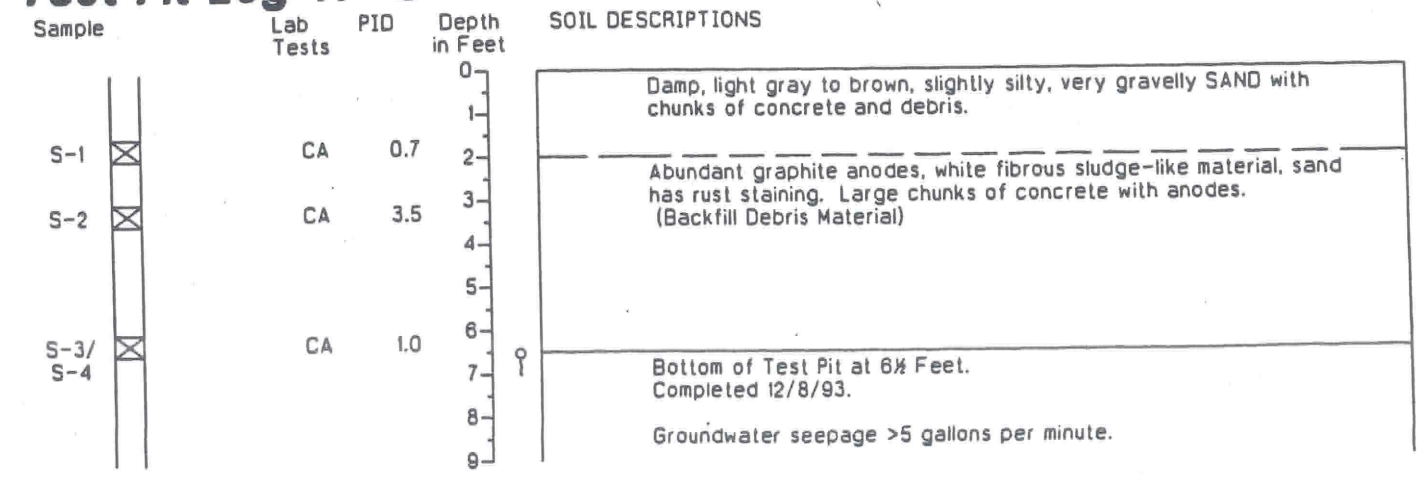


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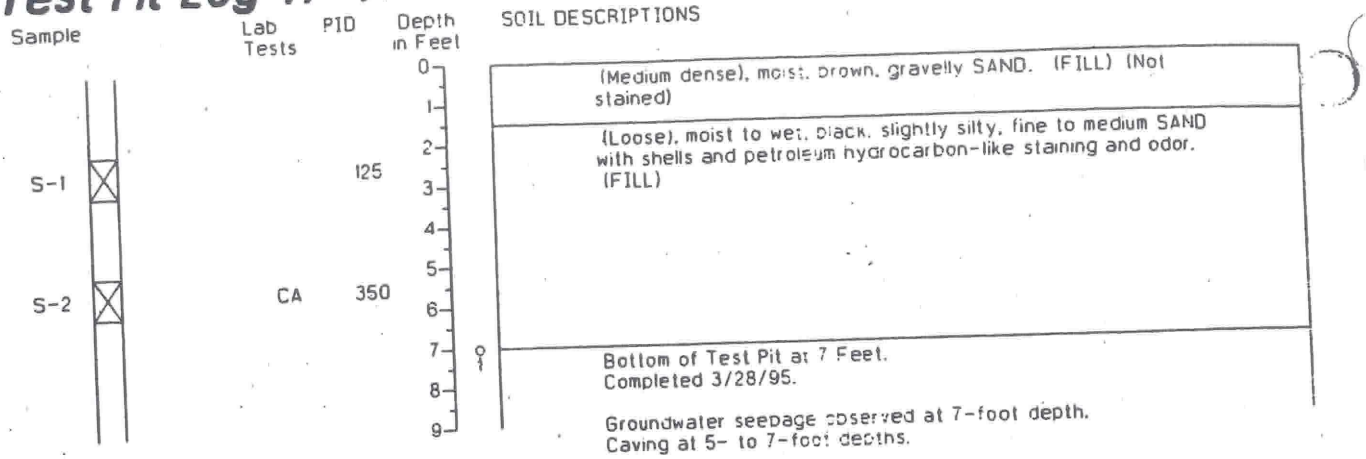
Figure A-7

Test Pit Log TP-1



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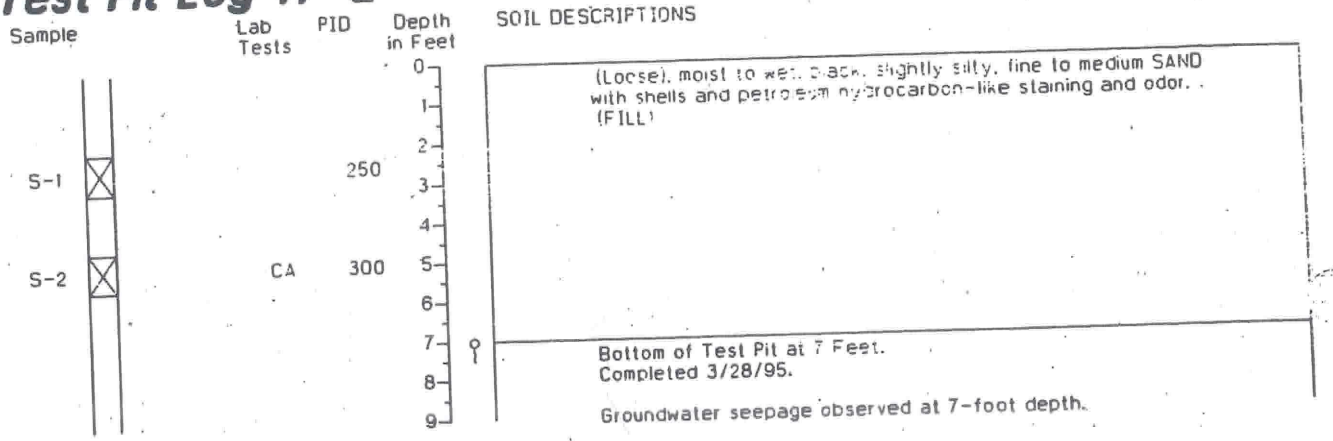

Test Pit Log TP-3

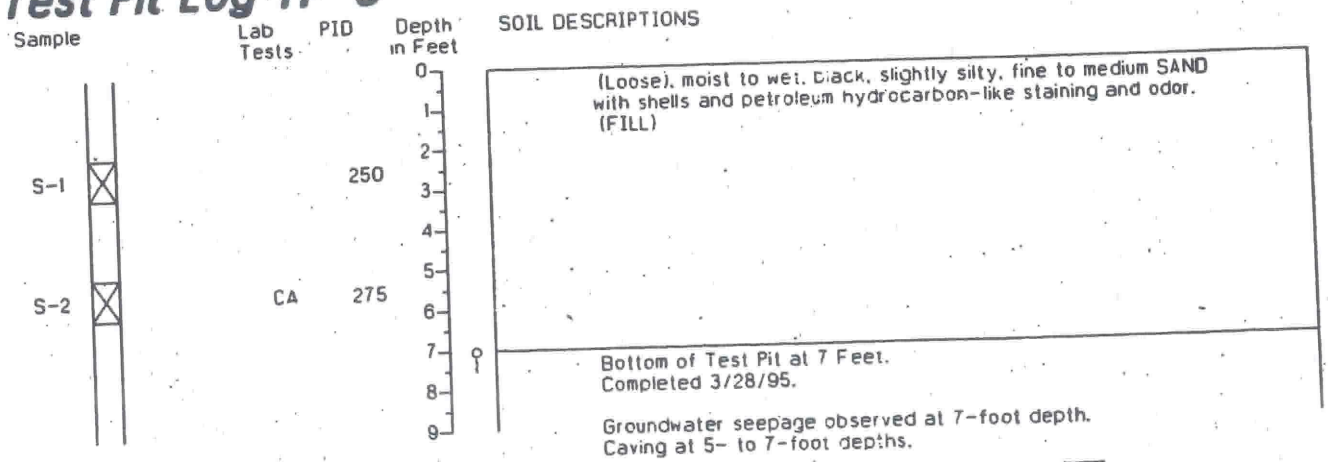

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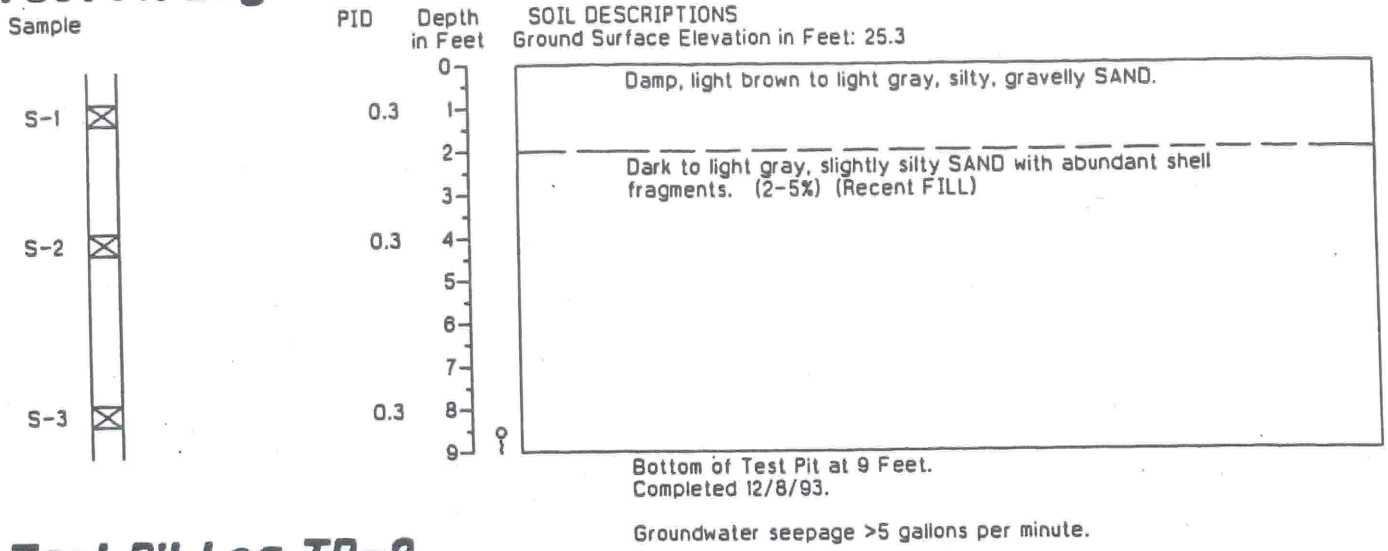
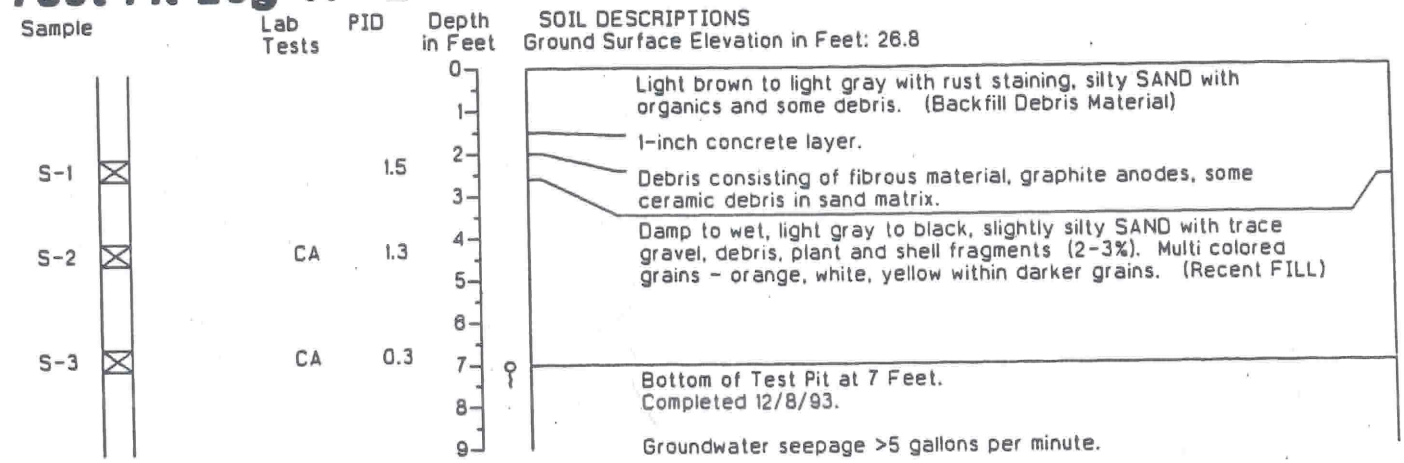
Figure A-14

Test Pit Log TP-1



Test Pit Log TP-2



Test Pit Log TP-3

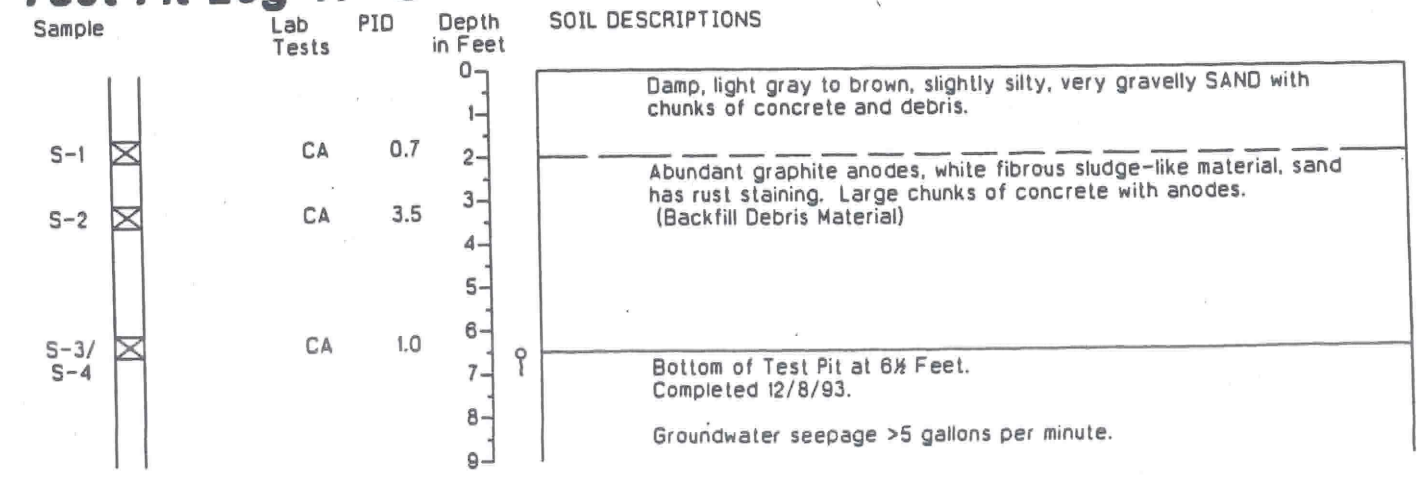


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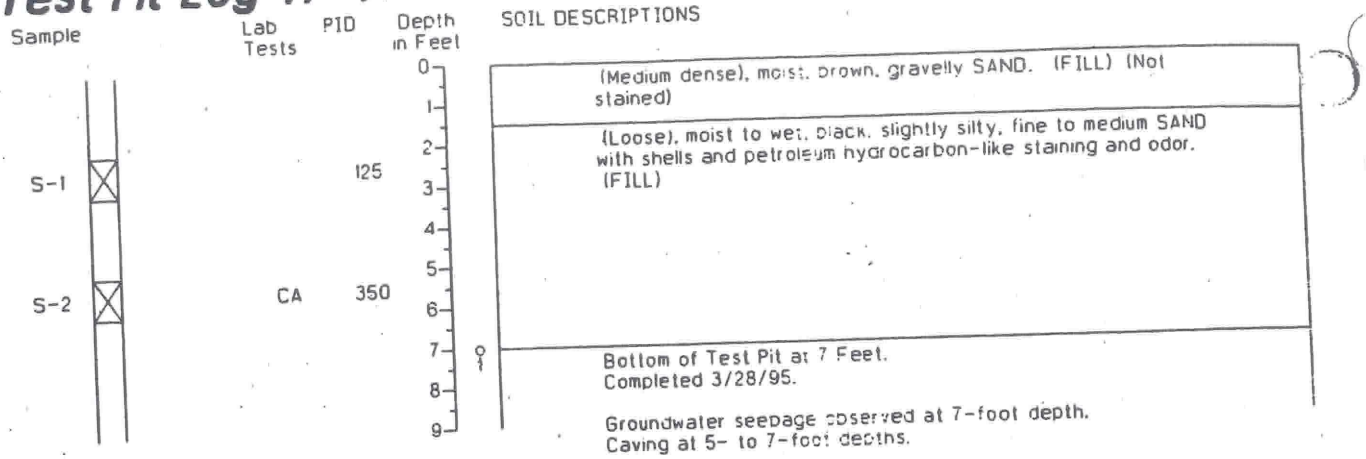
Figure A-7

Test Pit Log TP-1



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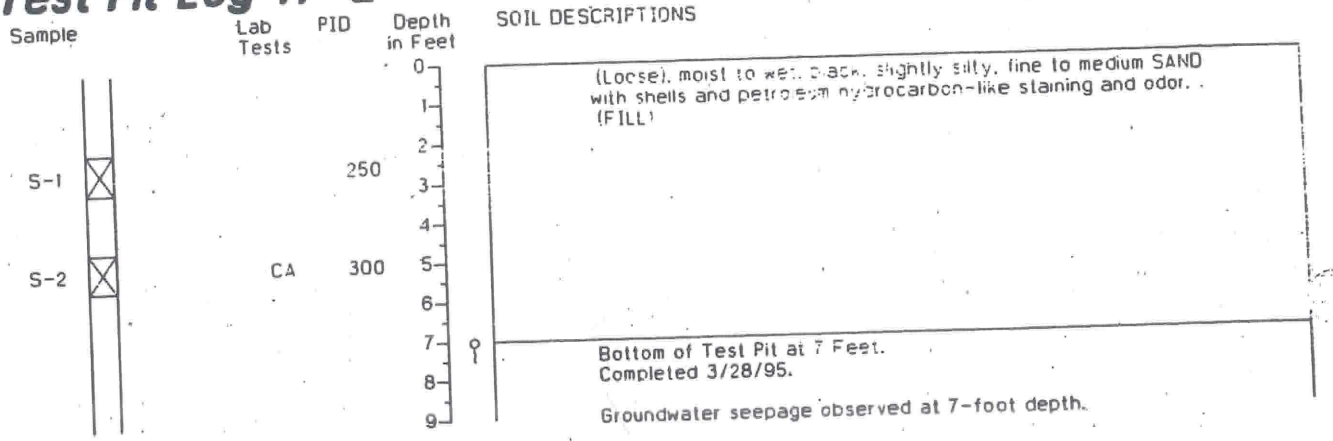

Test Pit Log TP-3

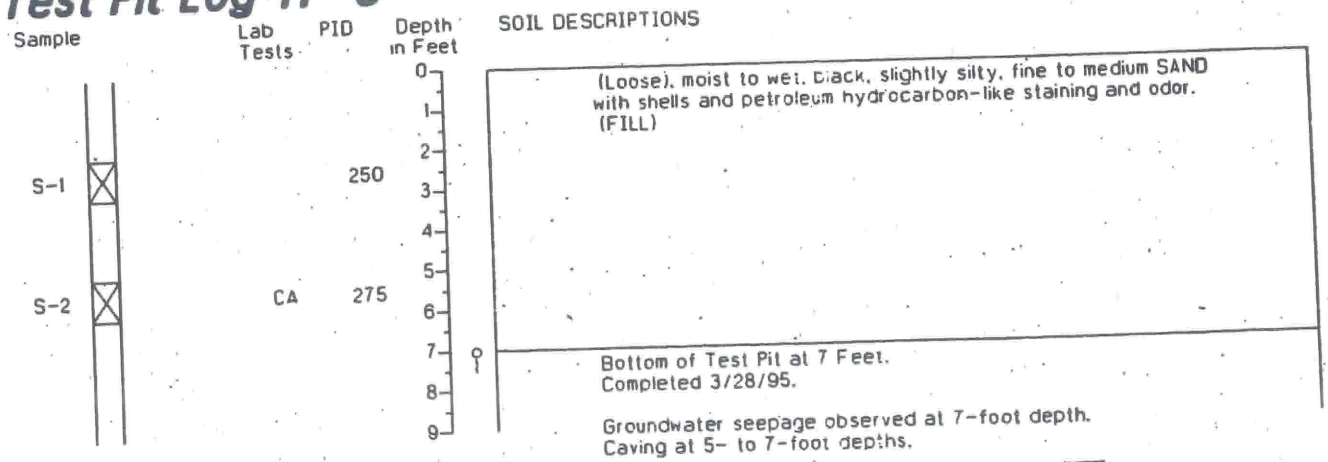

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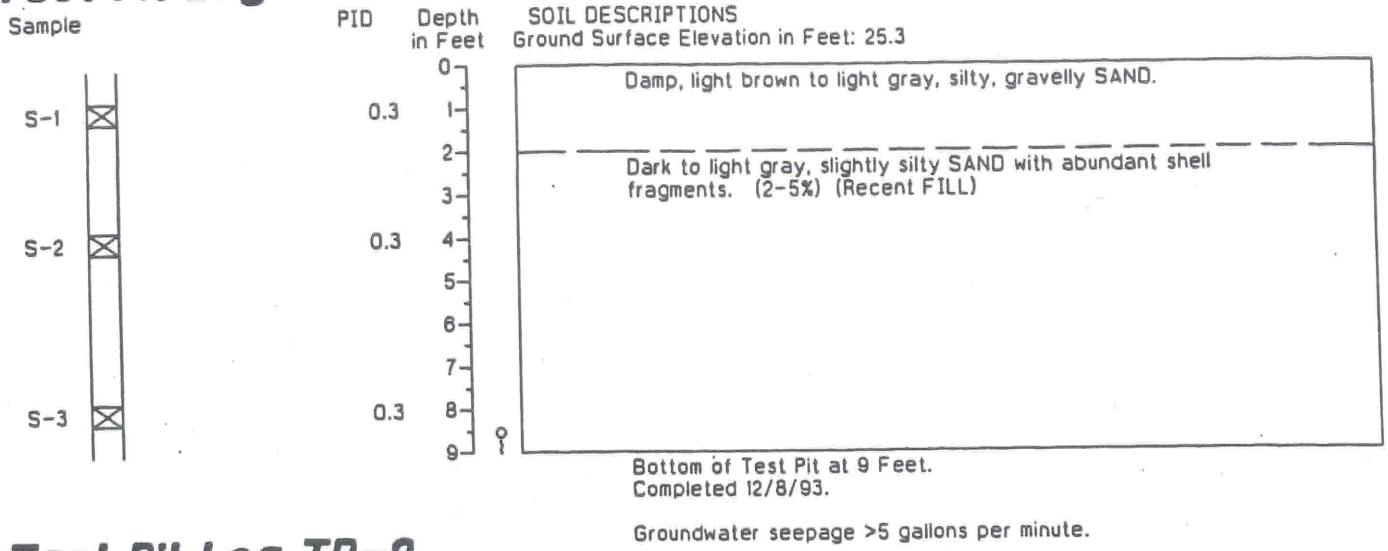
Figure A-14

Test Pit Log TP-1



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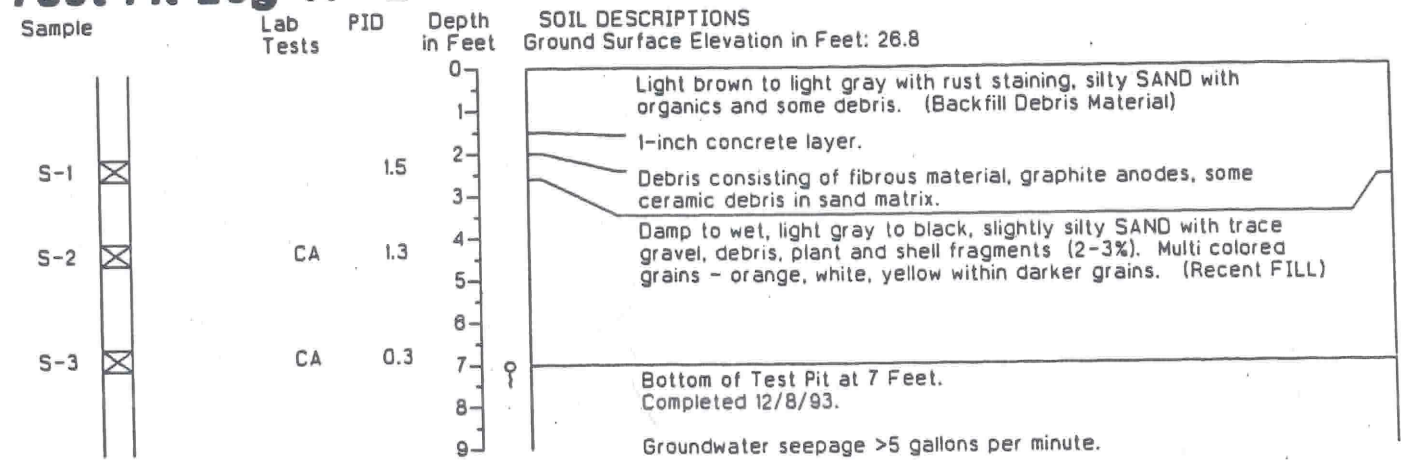

Test Pit Log TP-3

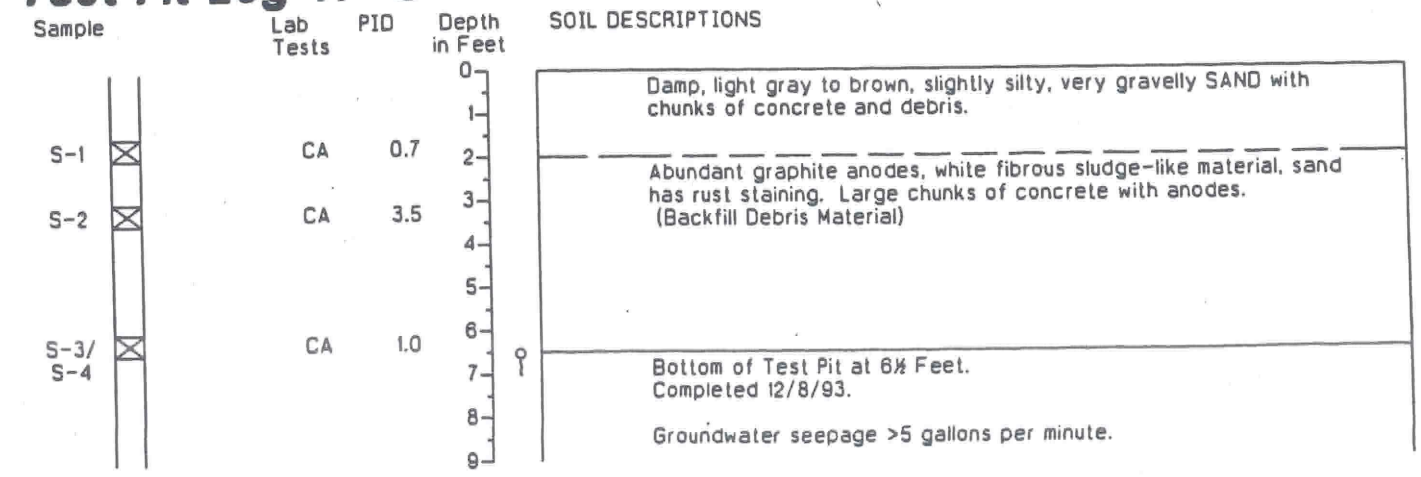

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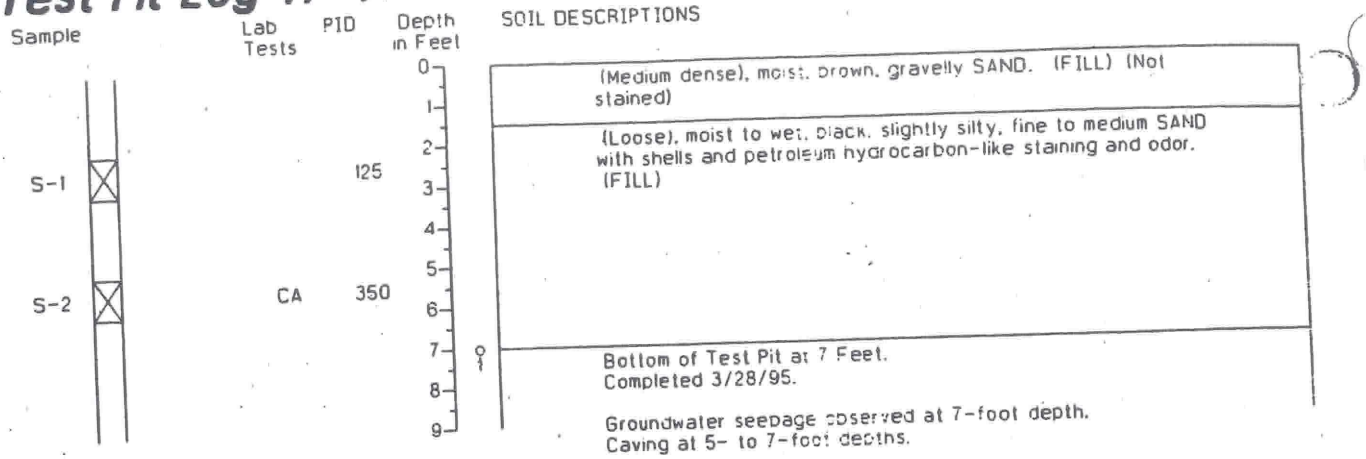
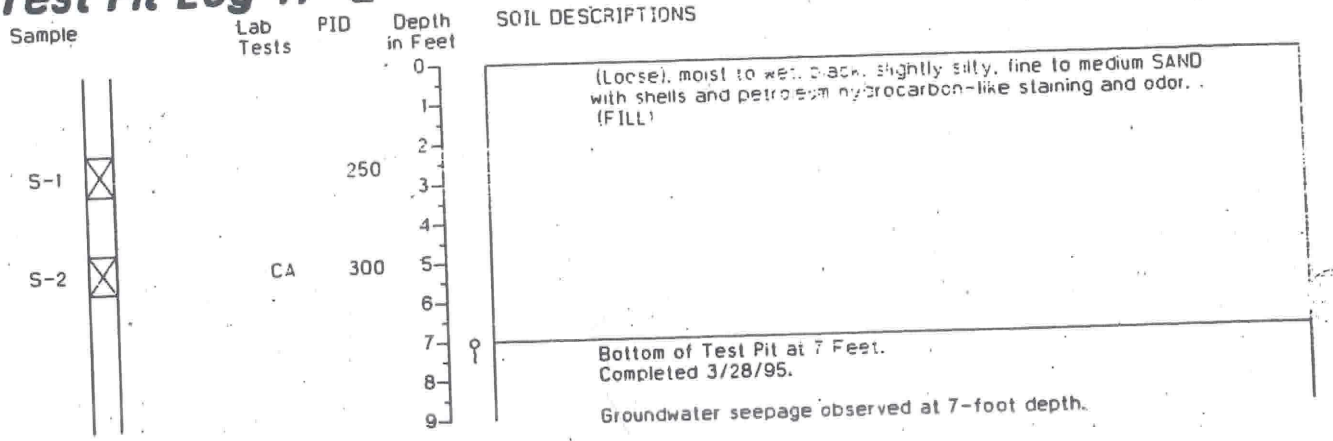
Figure A-7

Test Pit Log TP-1



Test Pit Log TP-2



Test Pit Log TP-3

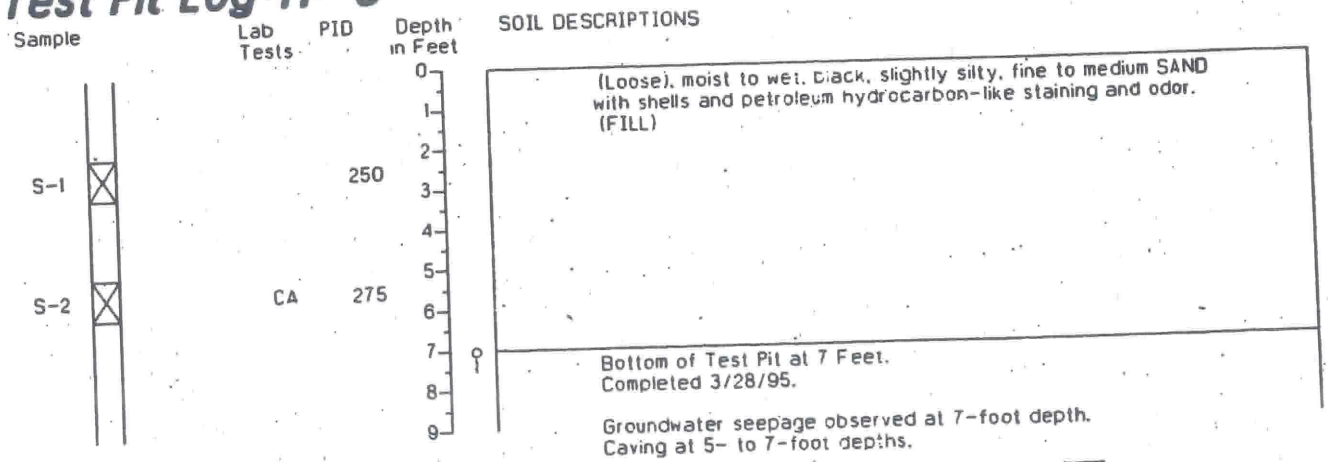


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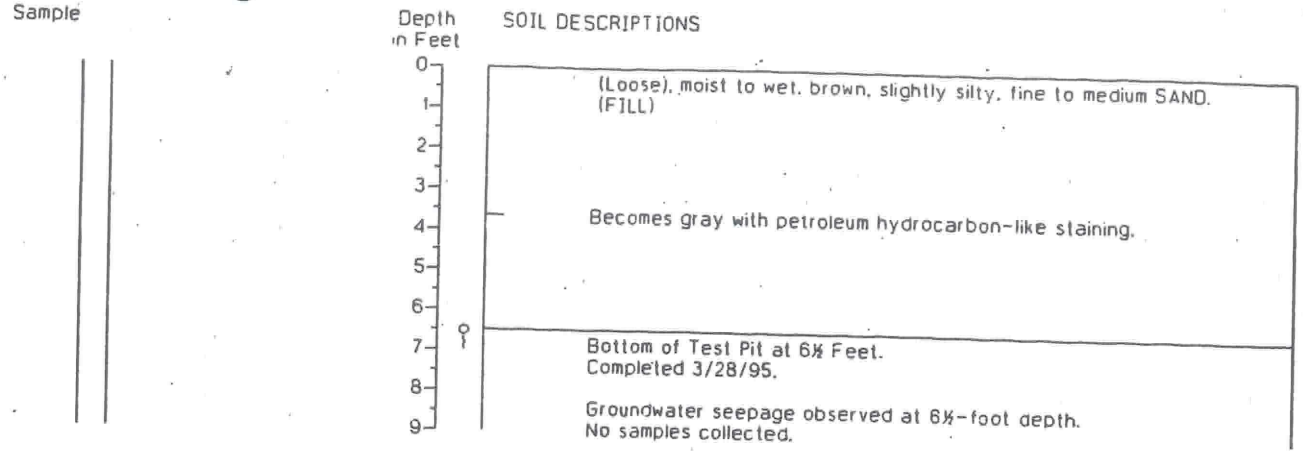
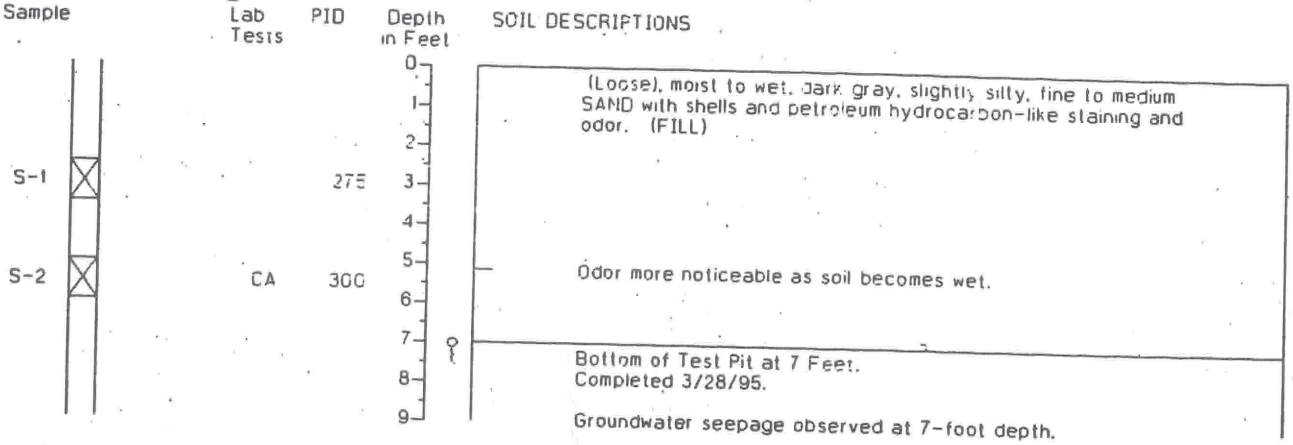
Figure A-14

Test Pit Log TP-3A



Test Pit Log TP-4



Test Pit Log TP-5

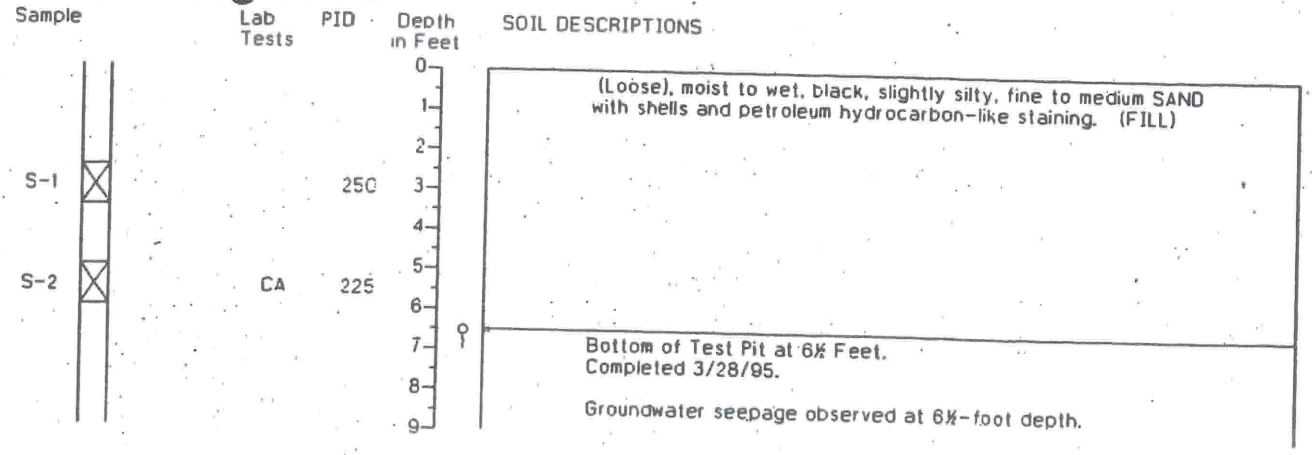


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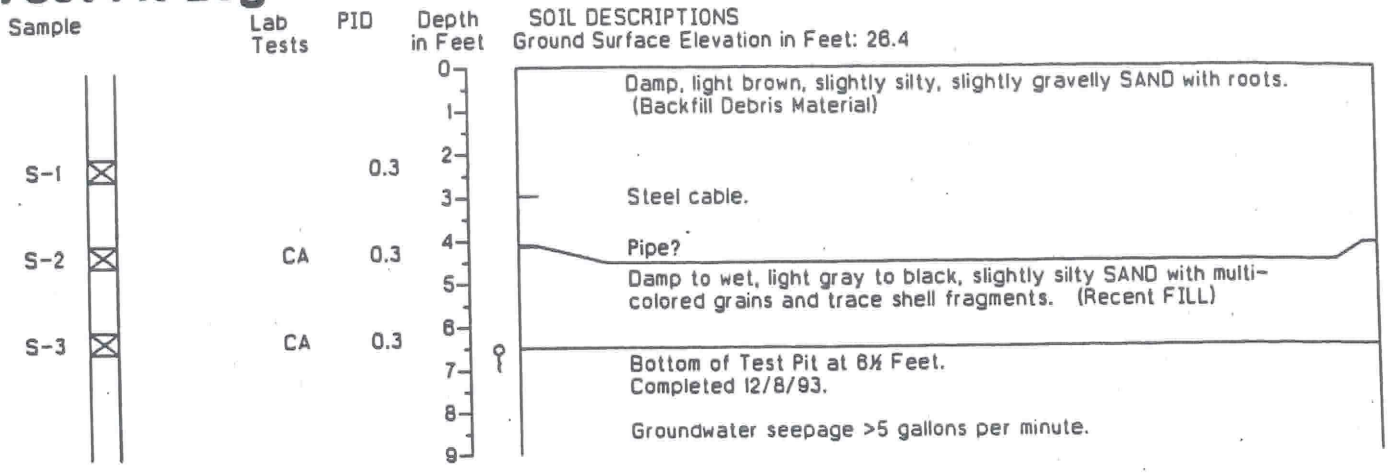
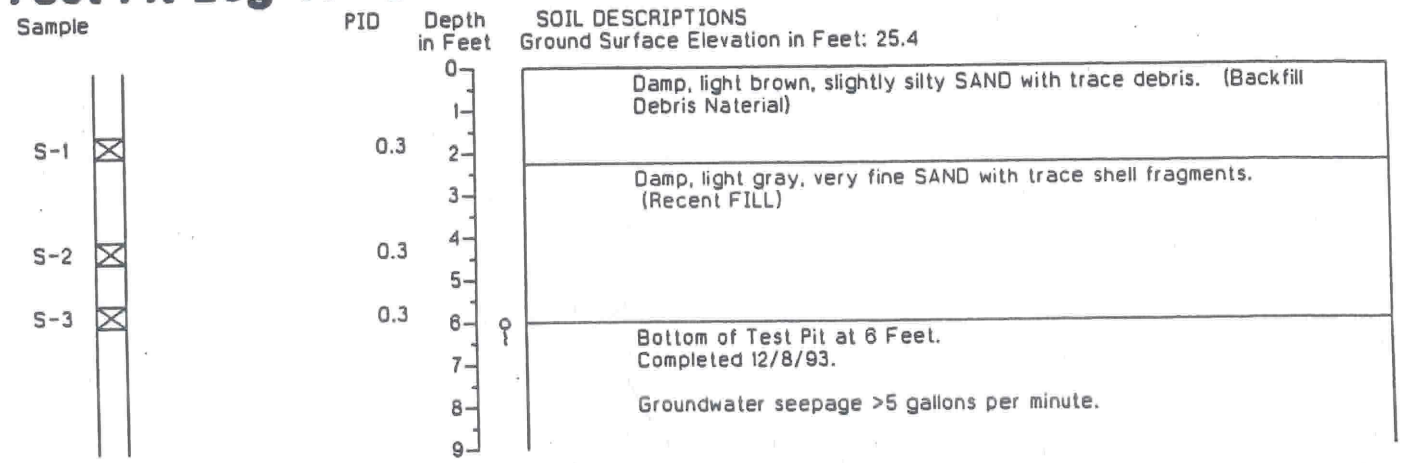
Figure A-15

Test Pit Log TP-4



Test Pit Log TP-5



Test Pit Log TP-6

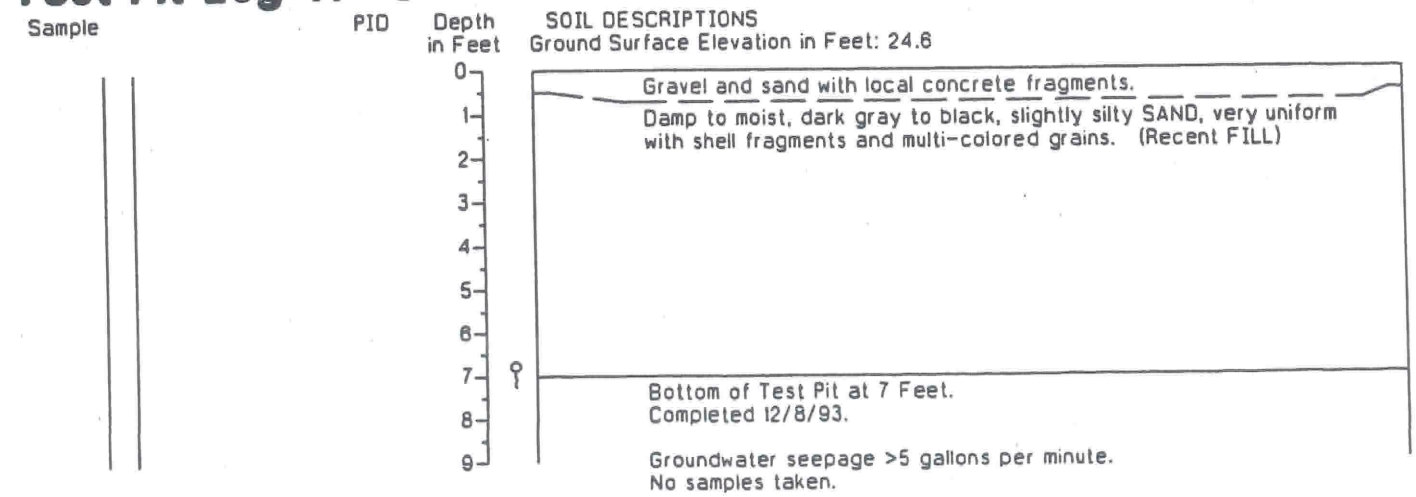


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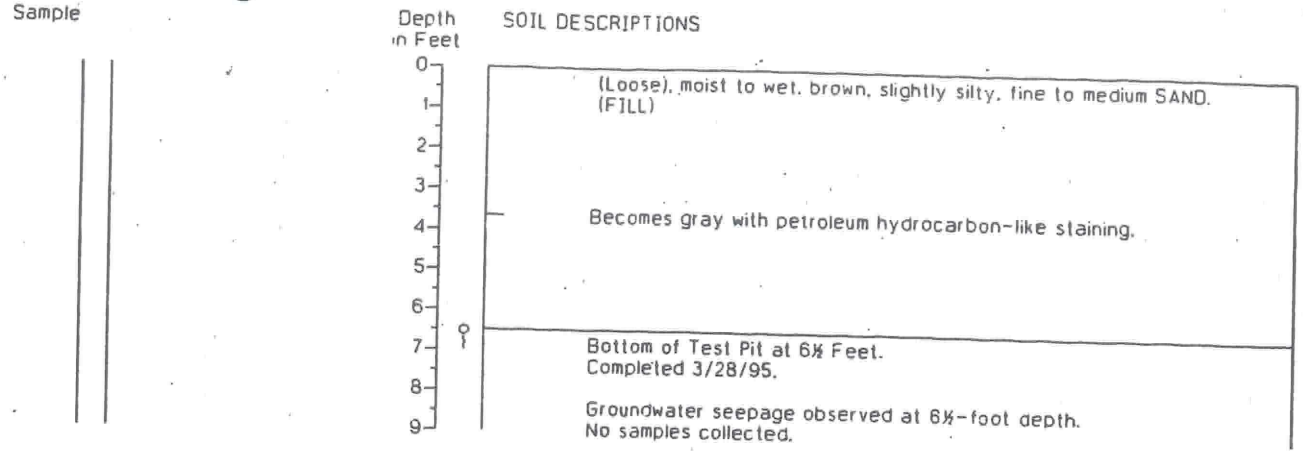
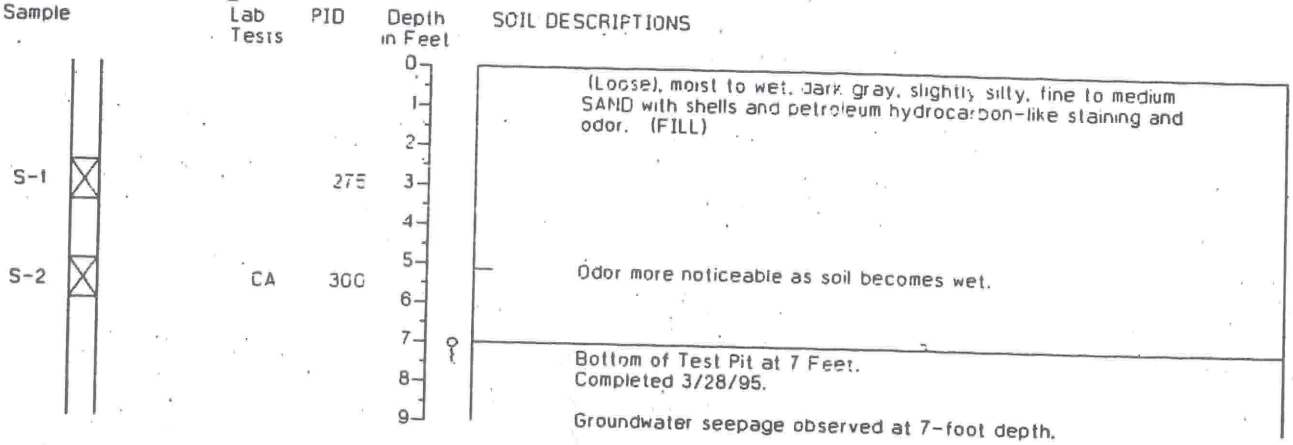
Figure A-8

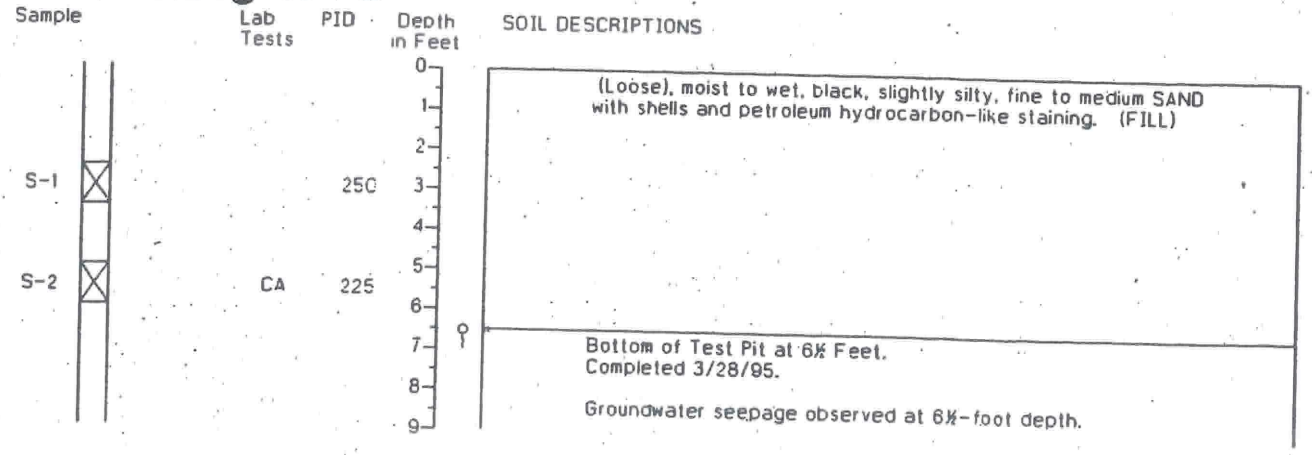
Test Pit Log TP-3A



Test Pit Log TP-4



Test Pit Log TP-5



1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
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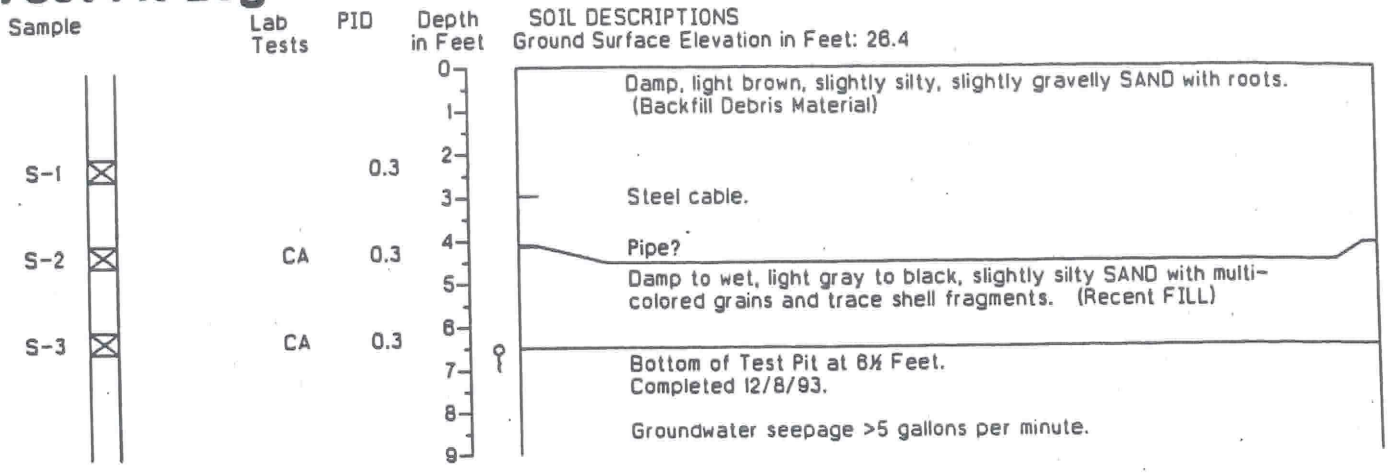
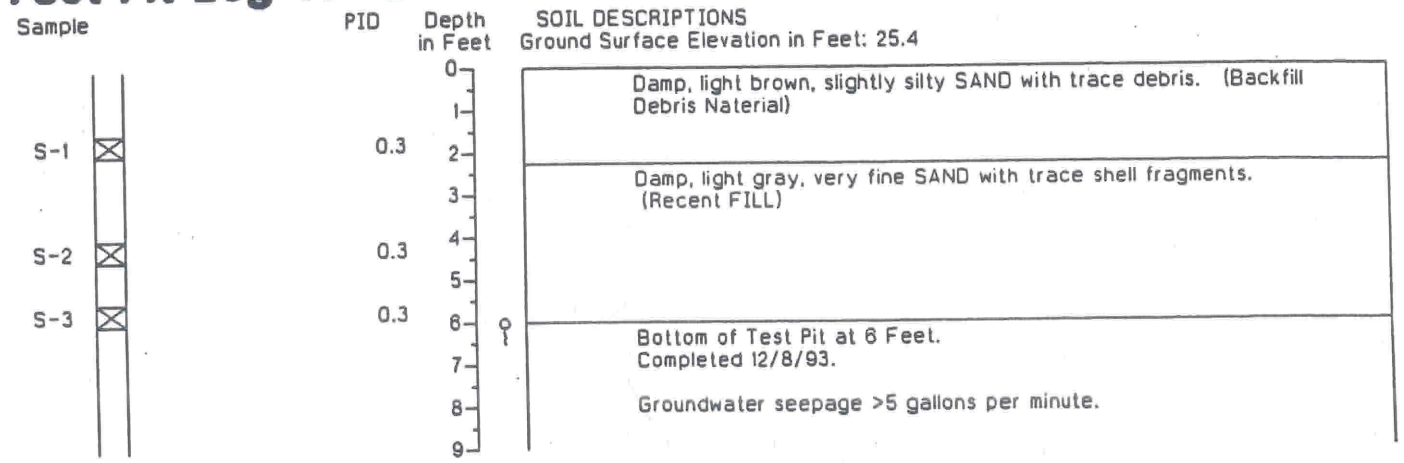
Figure A-15

Test Pit Log TP-4



Test Pit Log TP-5



Test Pit Log TP-6

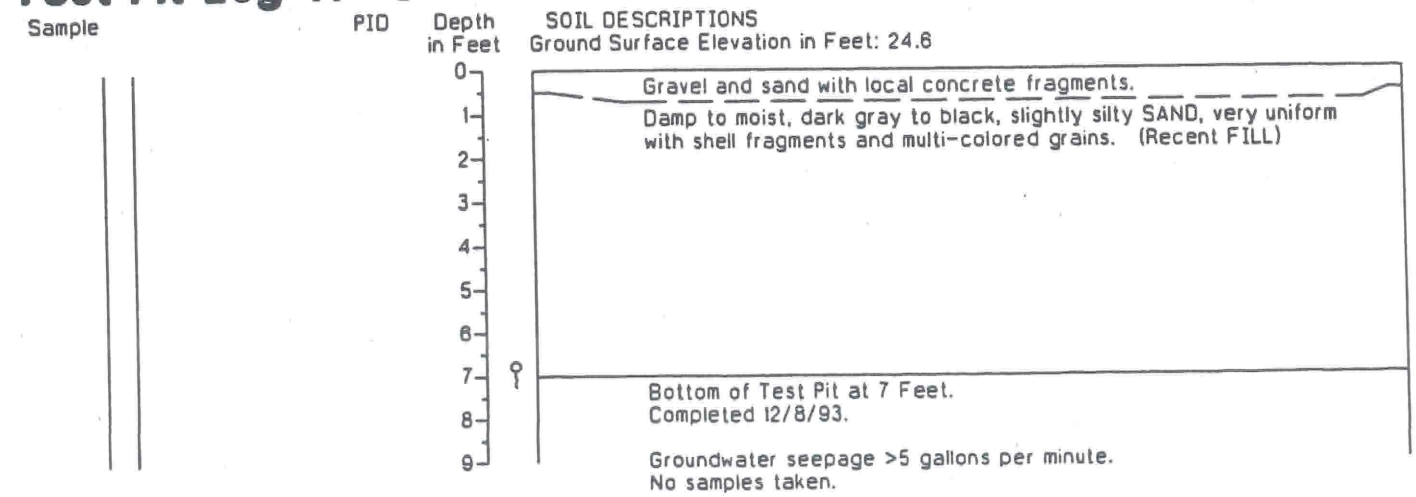


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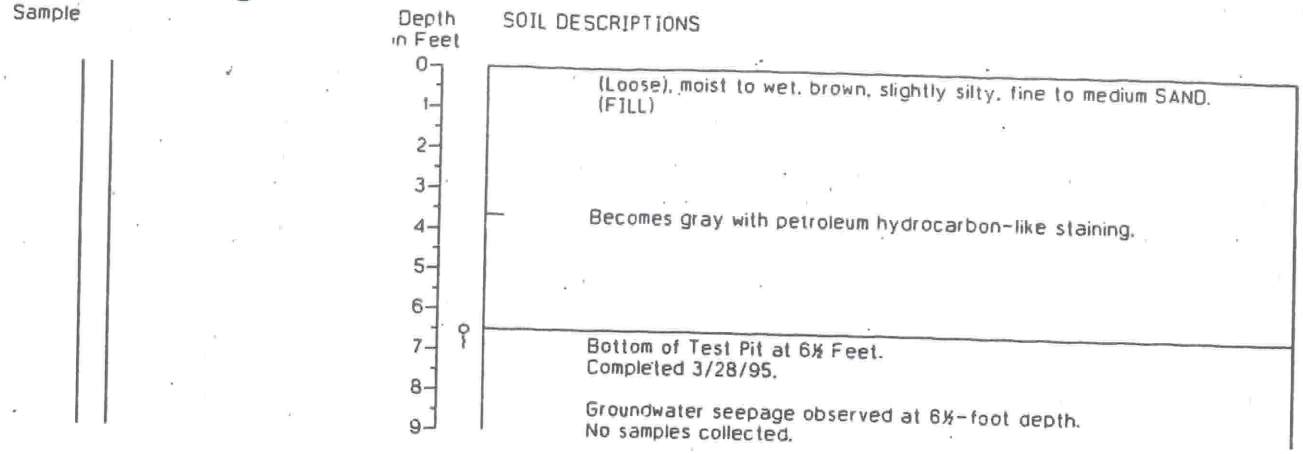
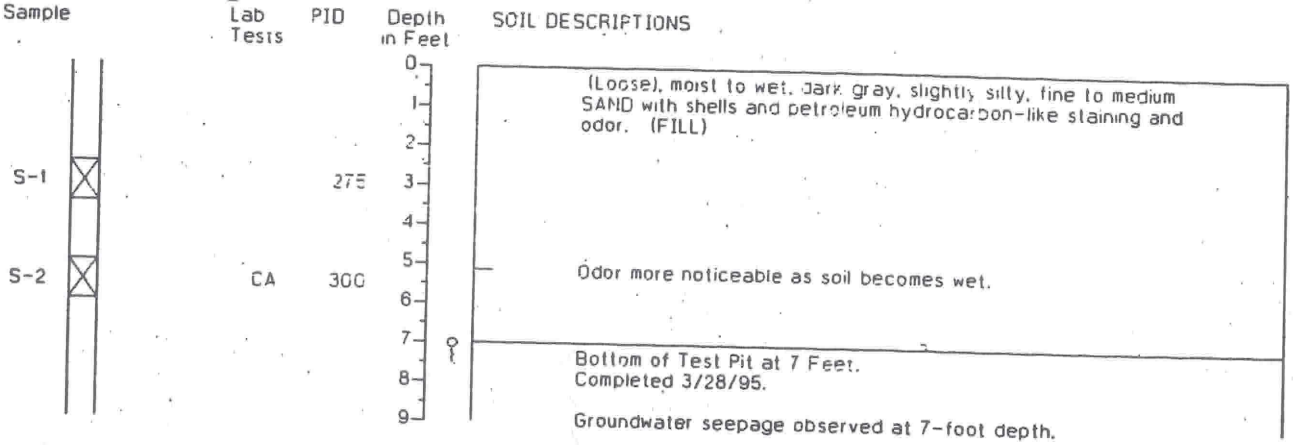
Figure A-8

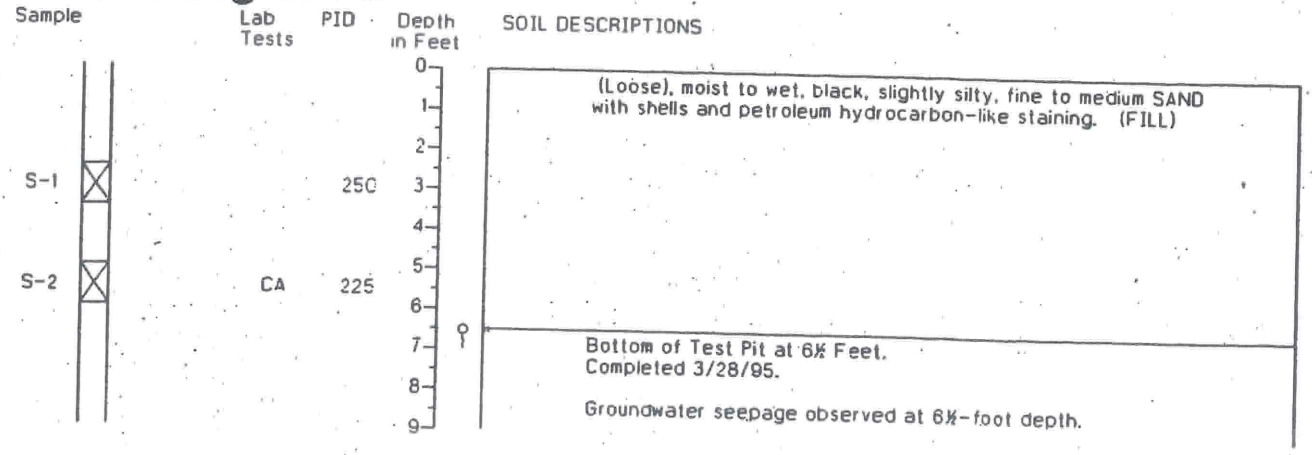
Test Pit Log TP-3A



Test Pit Log TP-4



Test Pit Log TP-5



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HARTCROWSER

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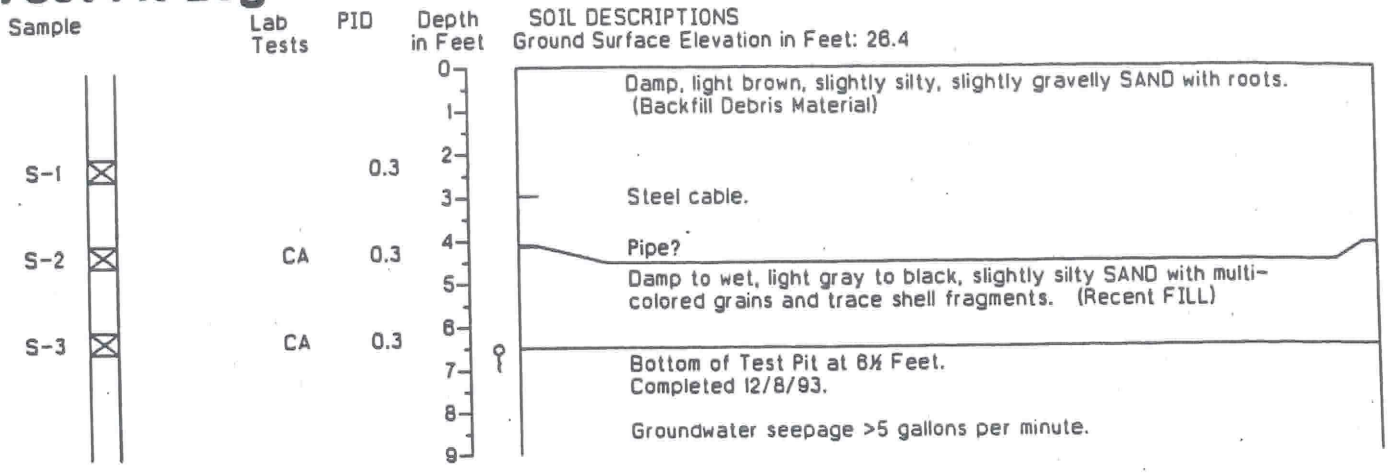
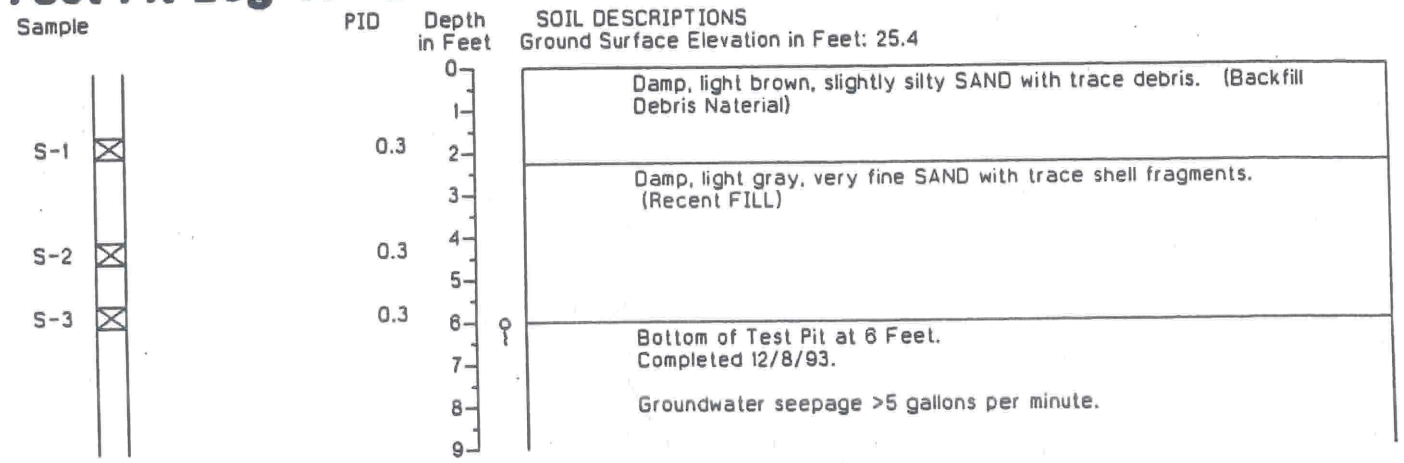
Figure A-15

Test Pit Log TP-4



Test Pit Log TP-5



Test Pit Log TP-6

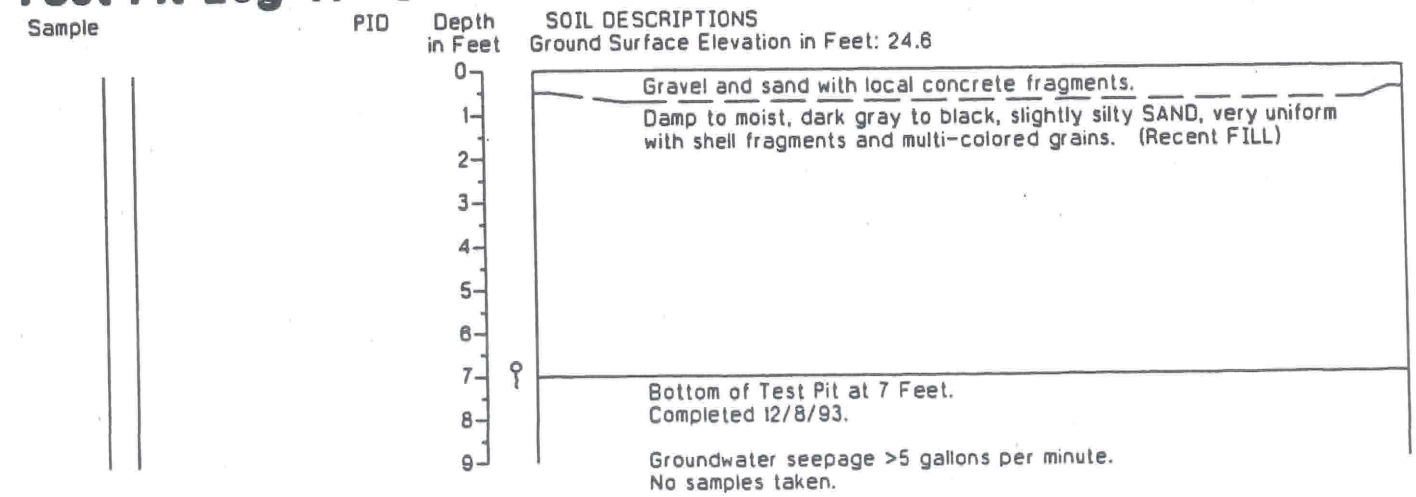


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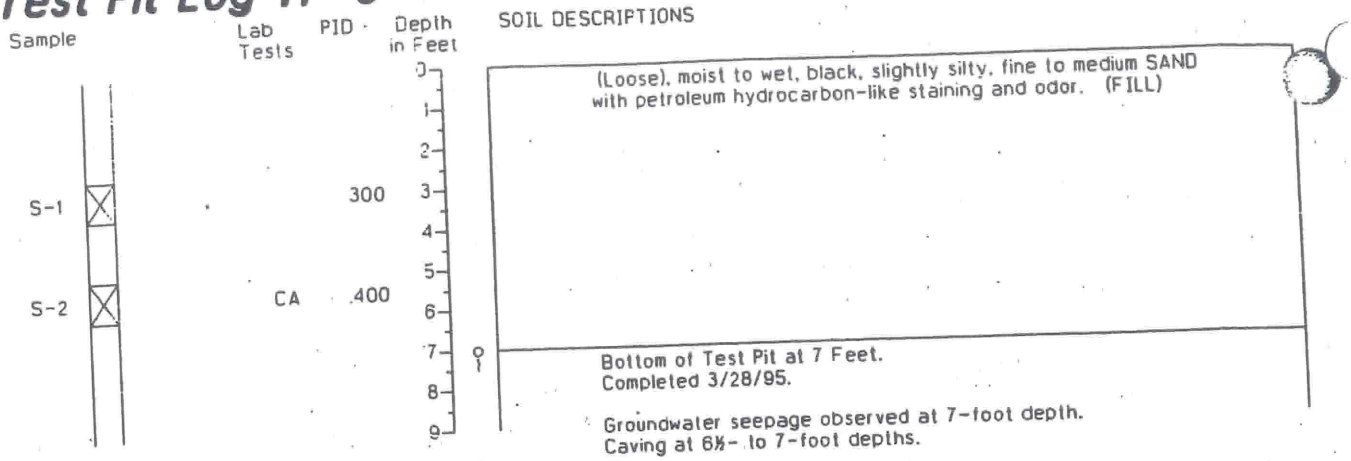
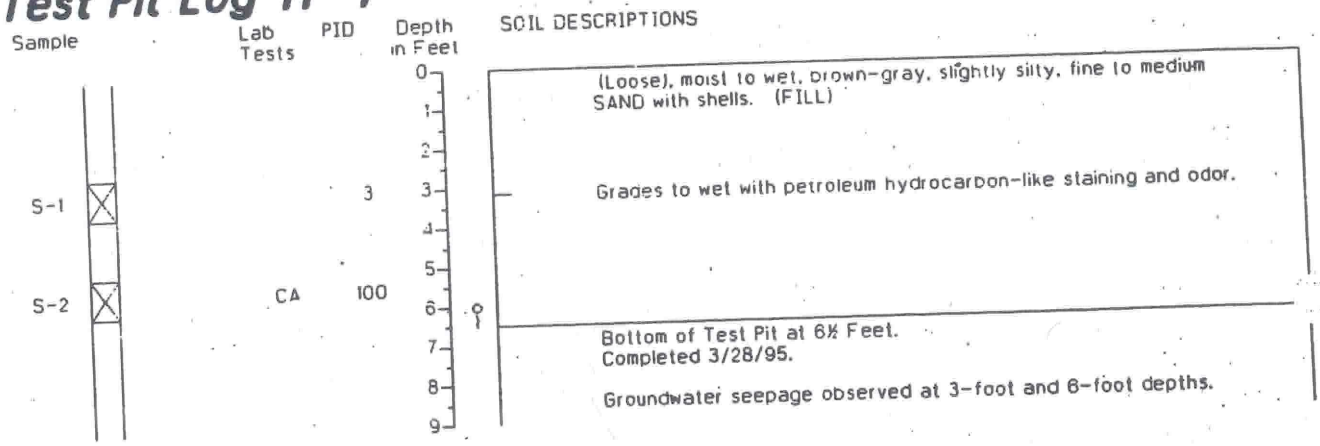
Figure A-8

Test Pit Log TP-6



Test Pit Log TP-7



Test Pit Log TP-8

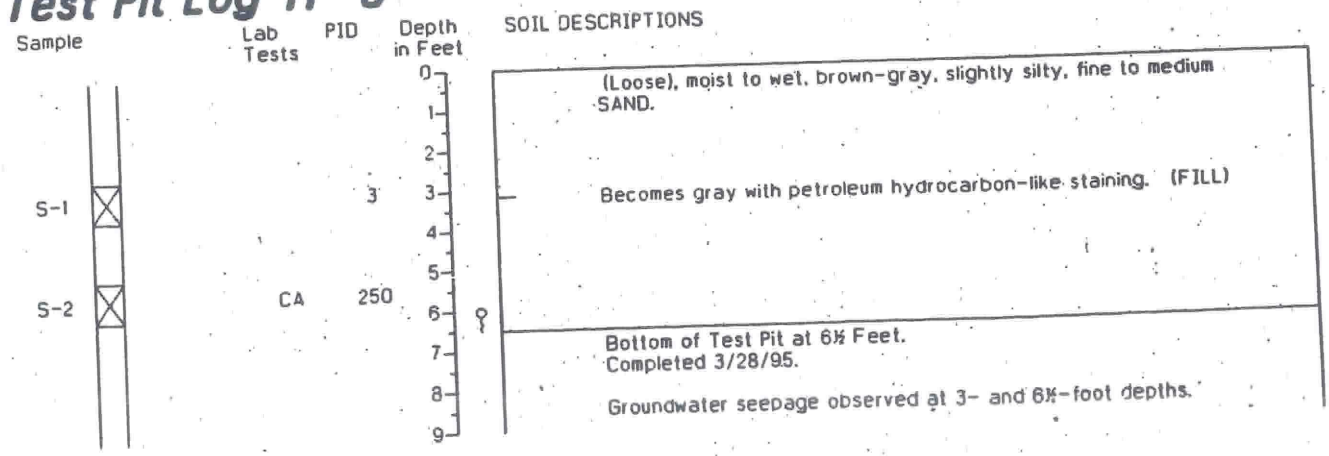


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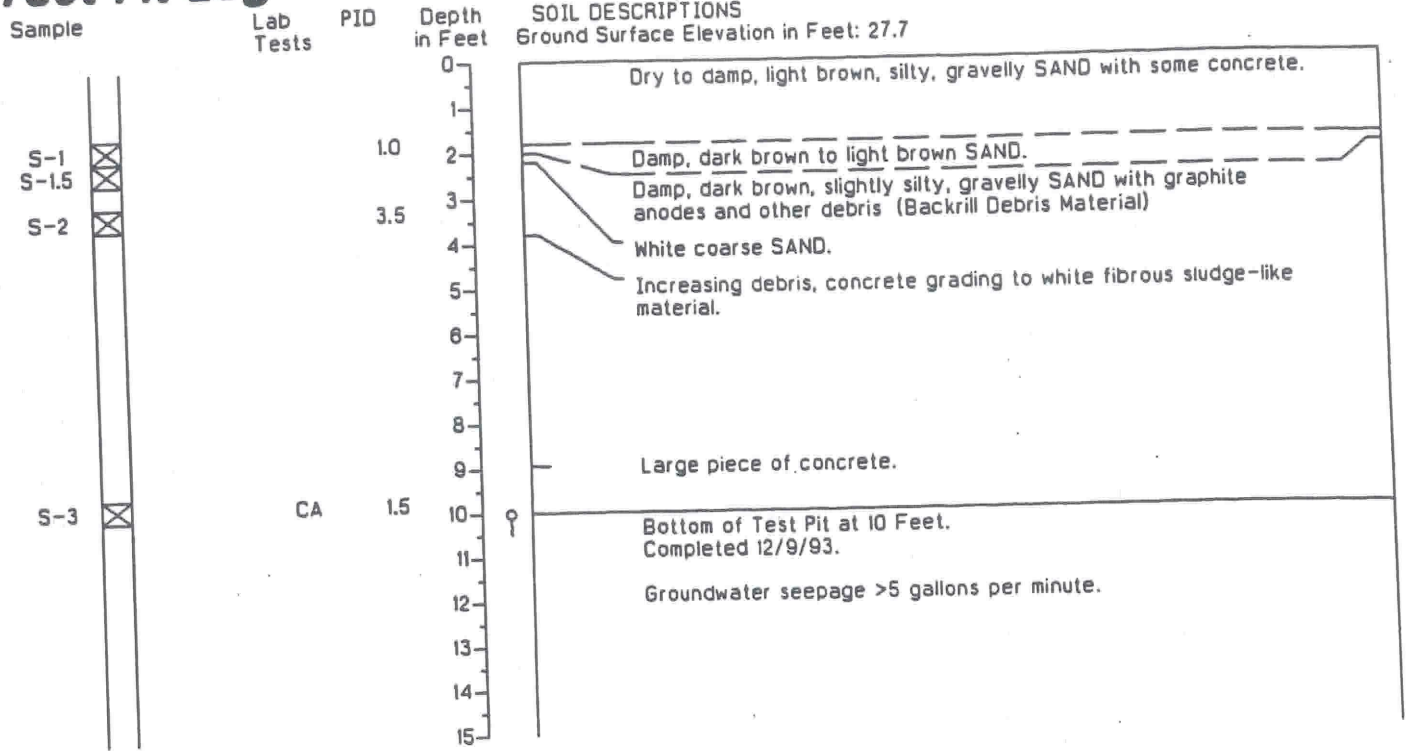
Figure A-18

Test Pit Log TP-7



Test Pit Log TP-8

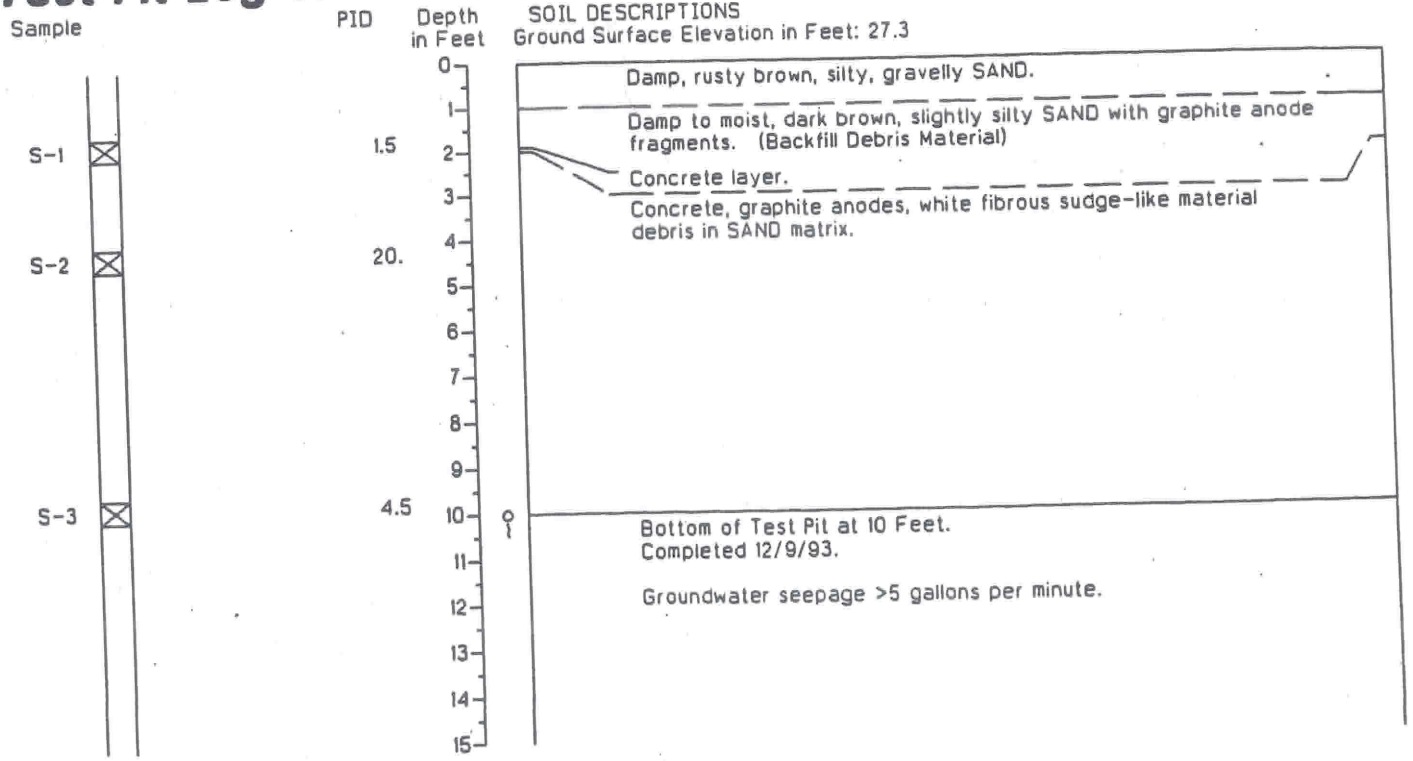


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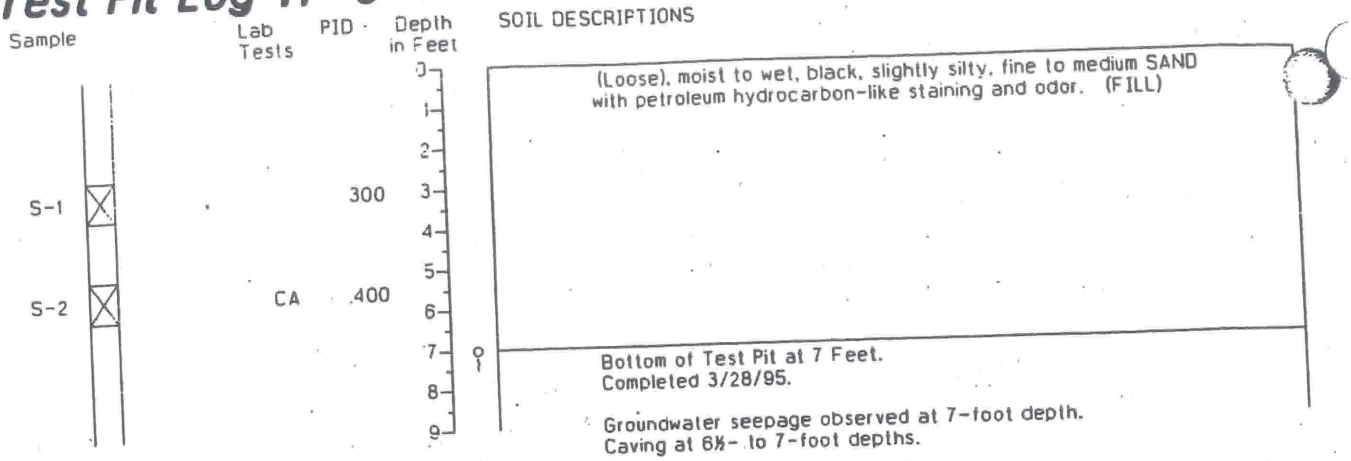
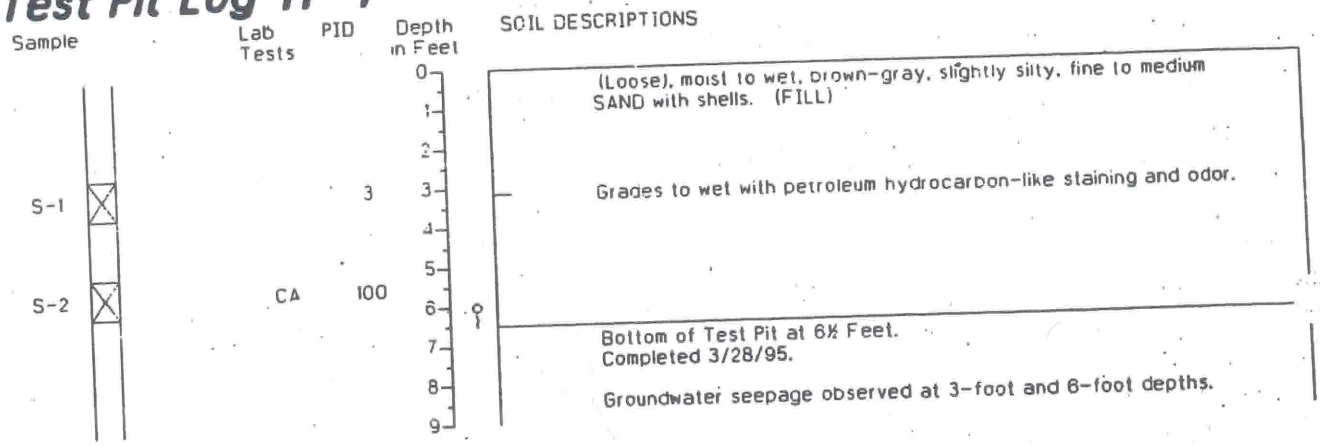
Figure A-9

Test Pit Log TP-6



Test Pit Log TP-7



Test Pit Log TP-8

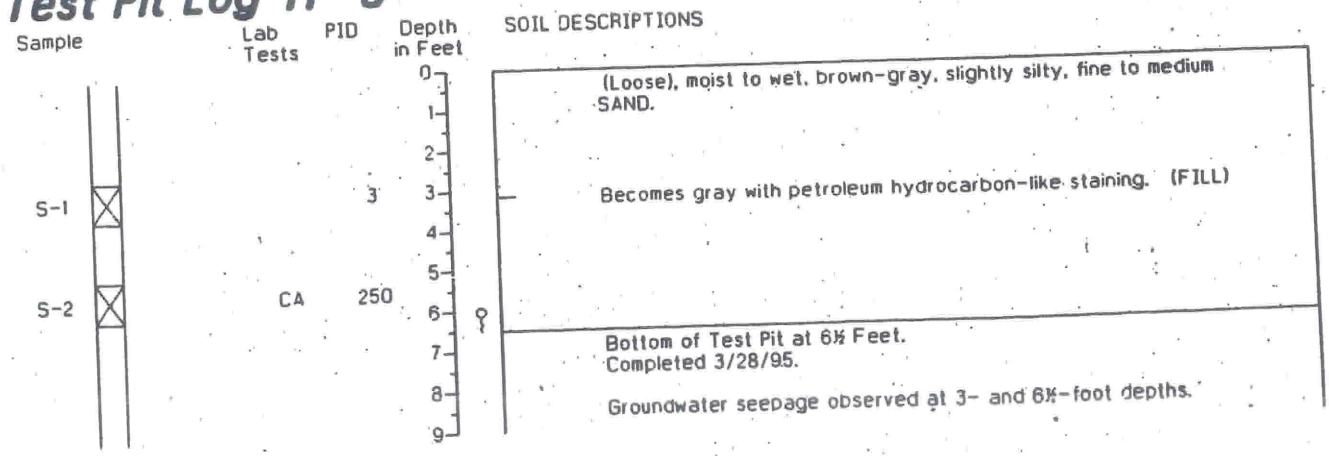


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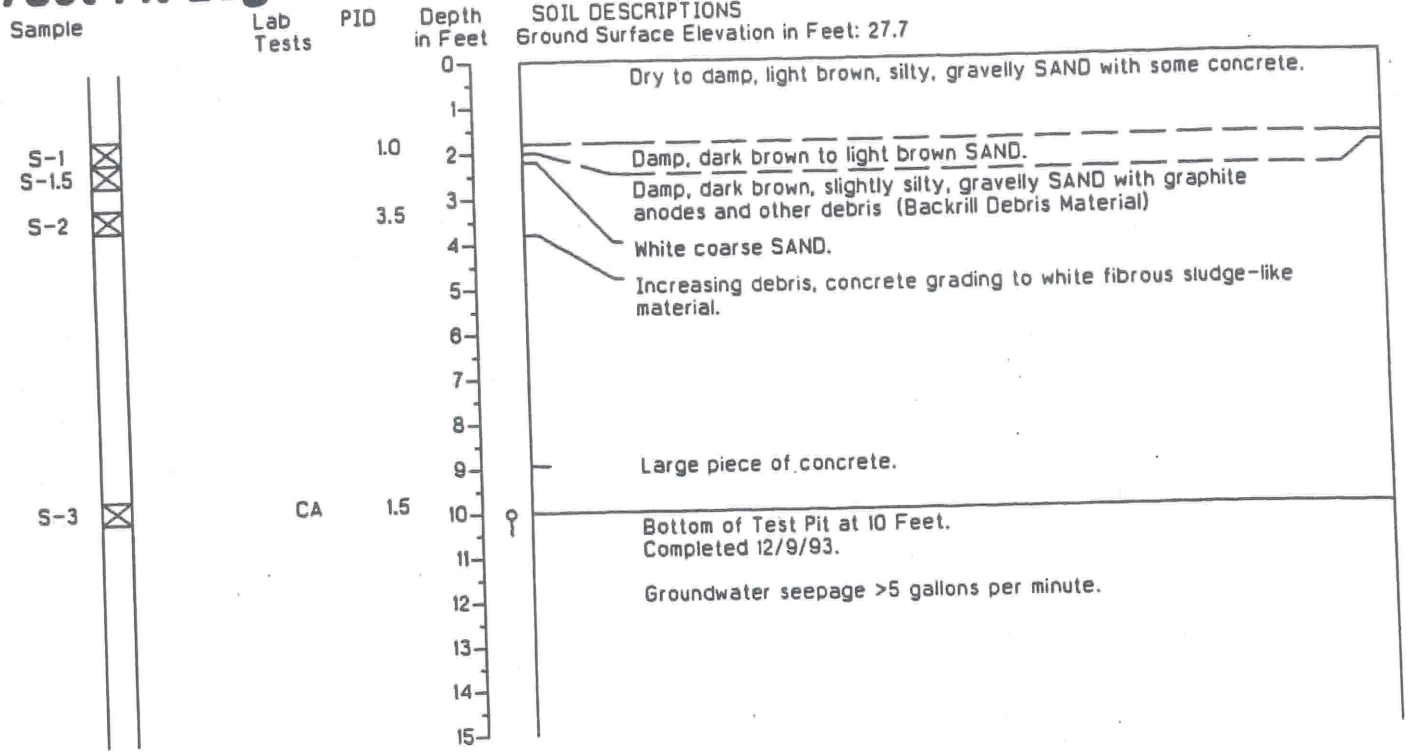
Figure A-18

Test Pit Log TP-7



Test Pit Log TP-8

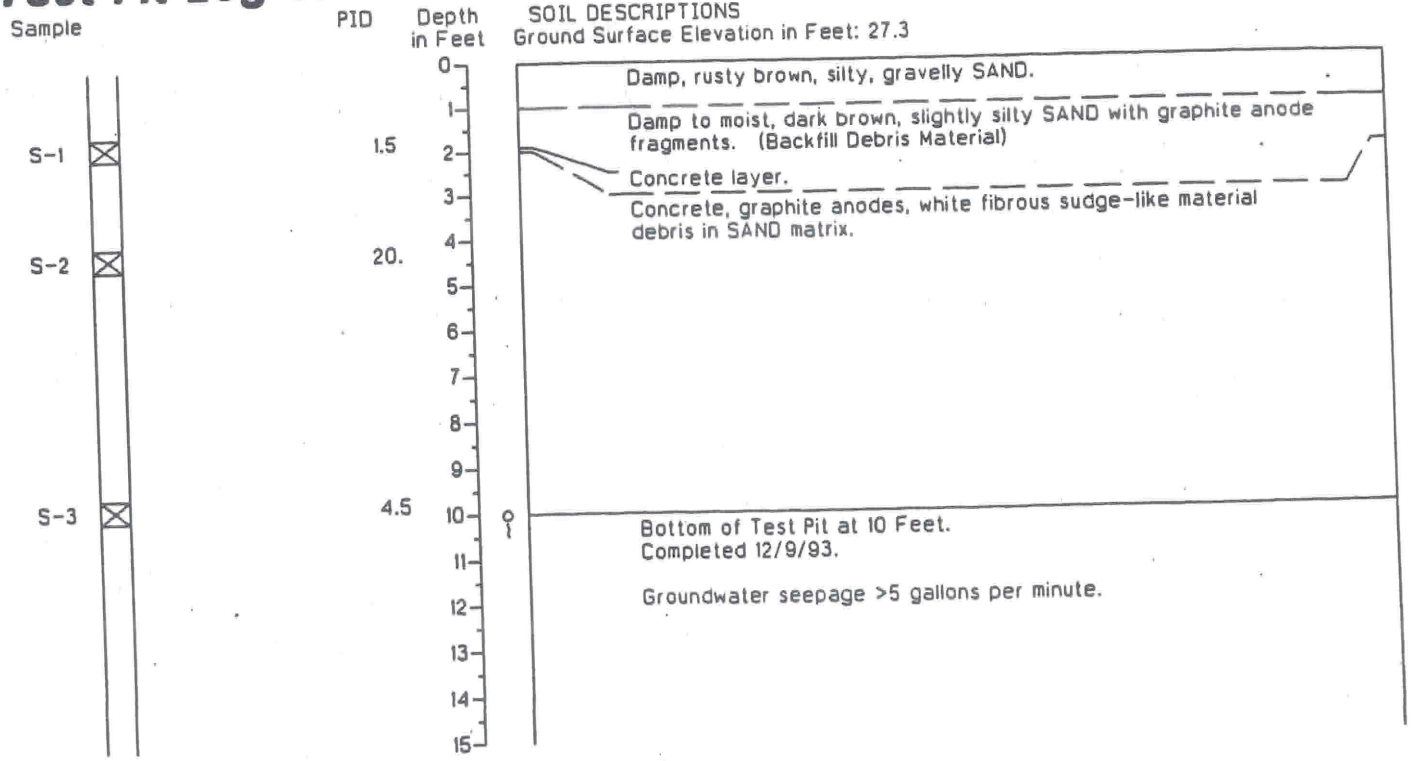


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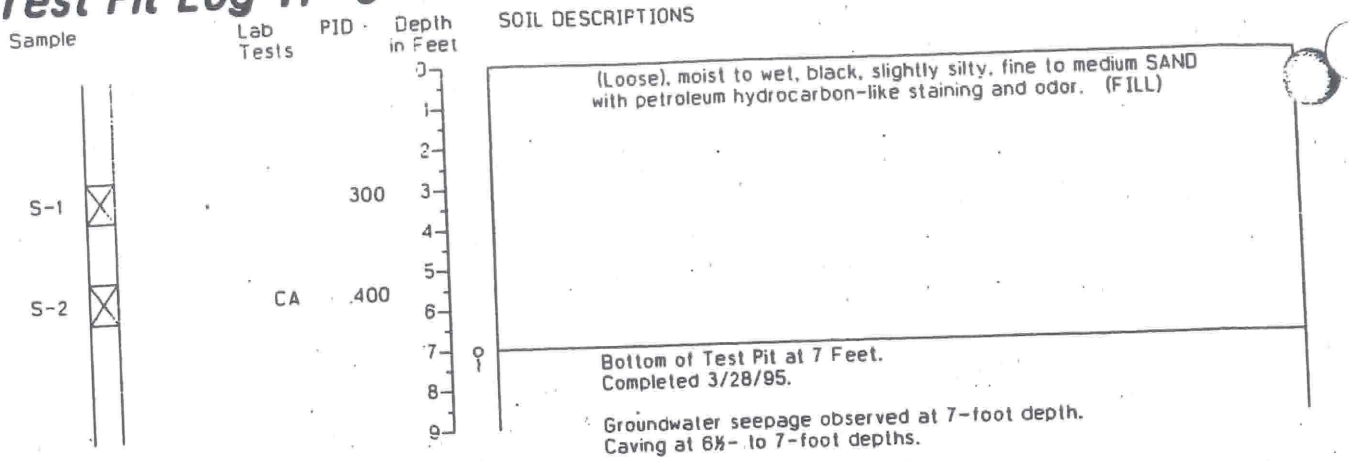
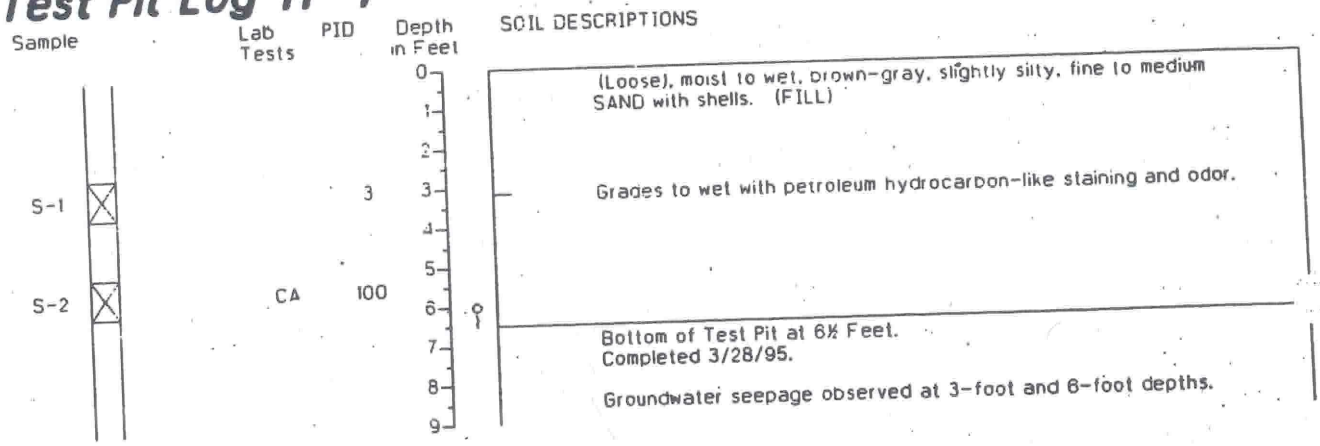
Figure A-9

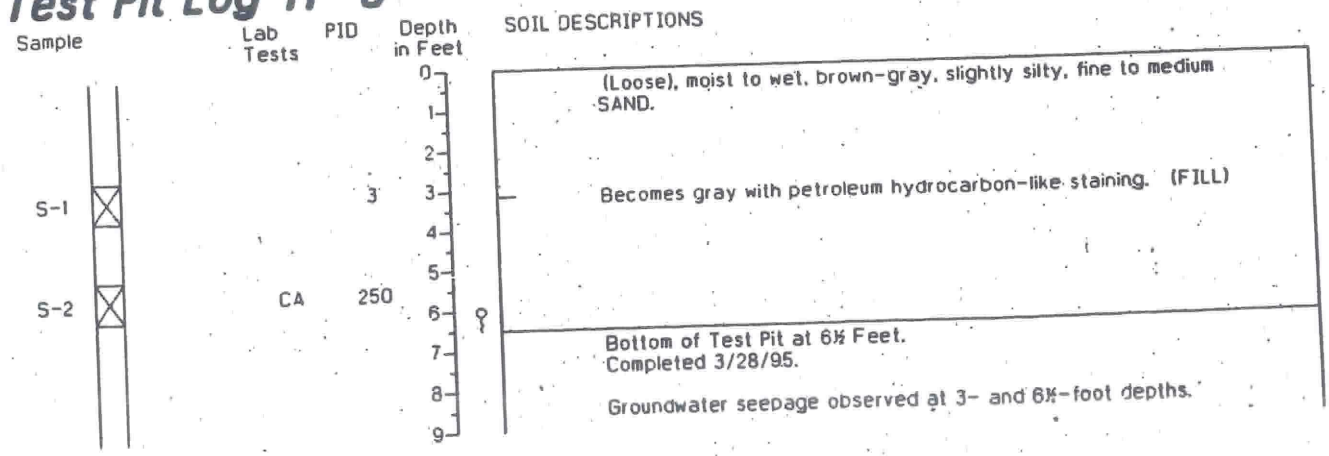
Test Pit Log TP-6



Test Pit Log TP-7



Test Pit Log TP-8



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HARTCROWSER

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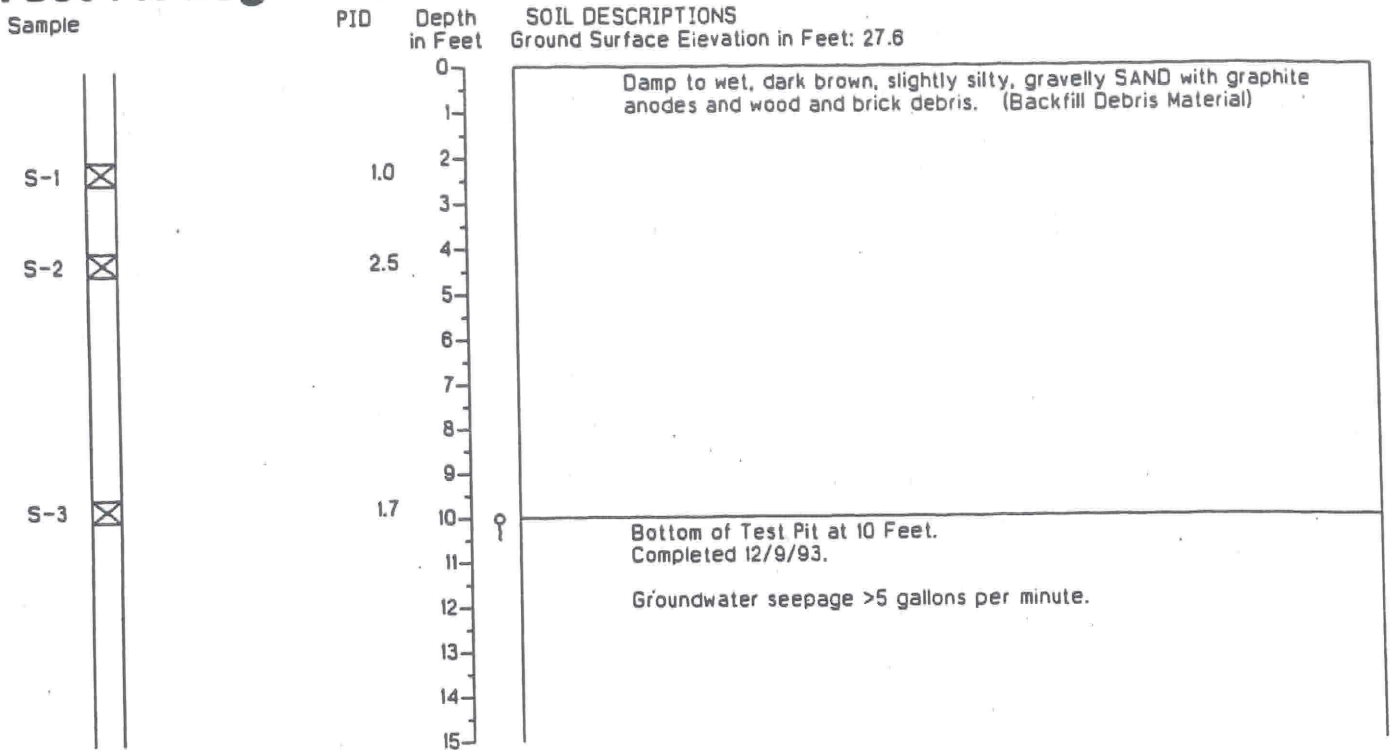
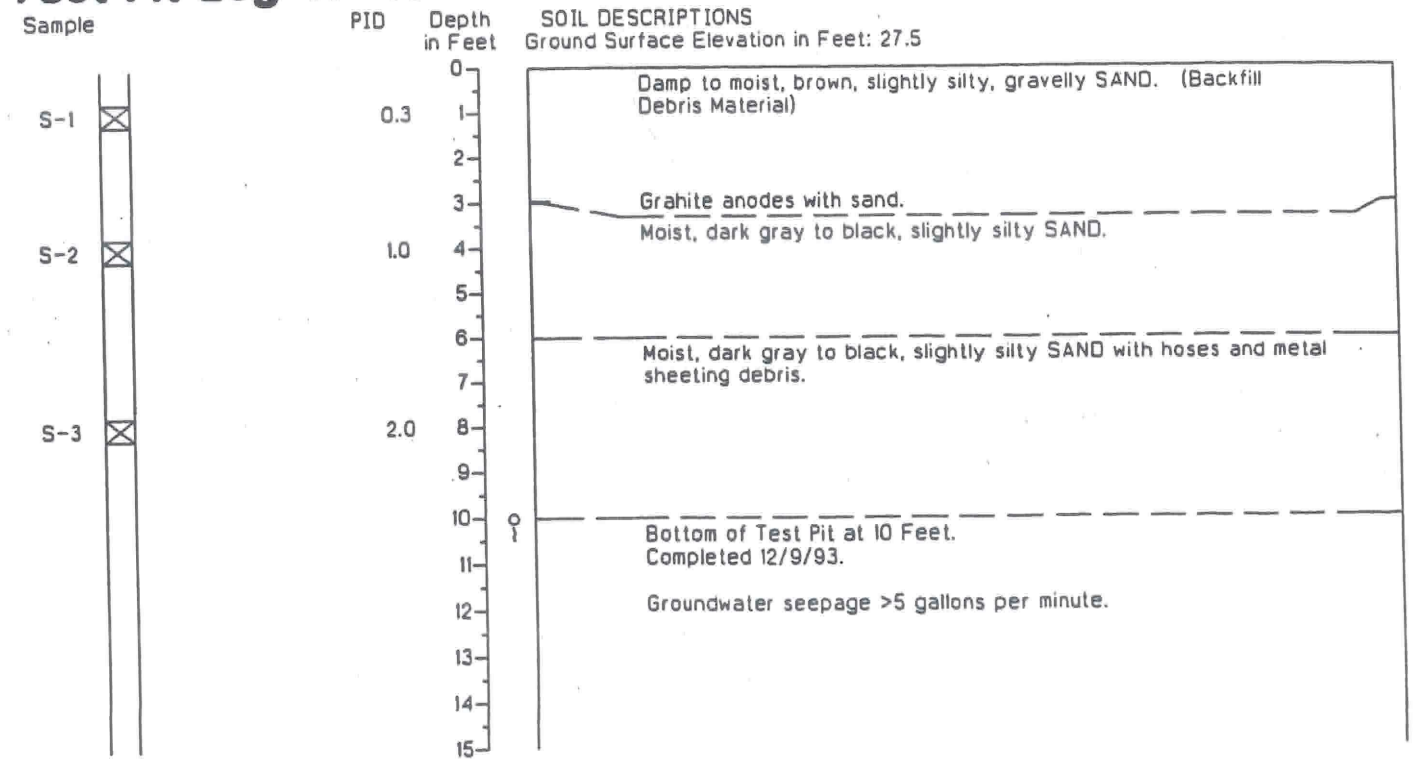
Figure A-18

Test Pit Log TP-9



Test Pit Log TP-10



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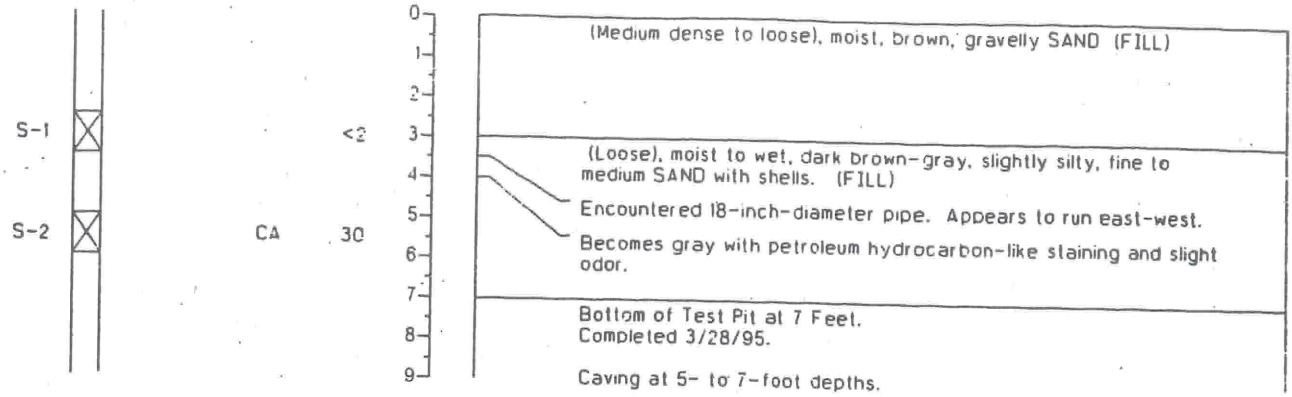
HARTCROWSER

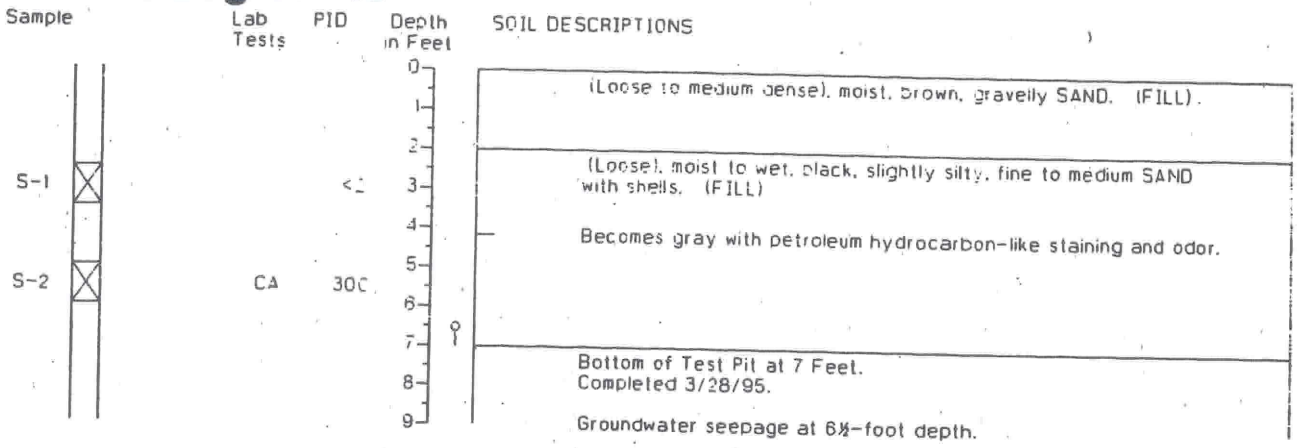
J-3712-04 12/93

Figure A-10

Test Pit Log TP-9



Test Pit Log TP-10



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HARTCROWSER
J-3712-09 3/95
Figure A-17

DNAPL Source Area Borings

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-34
DATE COMPLETED:
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.38						
0	SP-SAND, loose (AIR KNIFED TO 10.0ft bgs)		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1AK				
10	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet	2.38						6.1
	- with silt at 11.6ft BGS							
12	- trace silt at 12.5ft BGS			1RS		5.0		
		-1.12						
14	ML-SANDY SILT, firm, fine grained sand, dark gray, wet, trace shell fragments	-1.52						13.8
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-2.12 -2.42						
16	ML-SANDY SILT, firm, fine grained sand, dark gray, wet, trace shell fragments			-001				9889
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-4.12						
	- odor at 15ft BGS)			2RS -002		5.0		
18	- weak positive DNAPL dye test at 15.0ft BGS - positive DNAPL dye test at 15.5ft BGS - positive DNAPL dye test at 16.0ft BGS							3071
	CL-SILTY CLAY, soft, low plasticity, dark gray, wet	-6.52		-003				
	- negative DNAPL dye test at 17.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/22/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-34
DATE COMPLETED:
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 17.5ft BGS - medium plasticity at 18.1ft BGS - negative DNAPL dye test at 19.0ft BGS						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments						1504
22	- trace silt at 21.3ft BGS - negative DNAPL dye test at 21.5ft BGS		3RS		5.0		
	- no silt, medium grained at 23.2ft BGS						2246
24	- negative DNAPL dye test at 24.0ft BGS						
26							373.5
		-15.32	4RS		5.0		
28	ML-CLAYEY SILT, soft, low plasticity, dark gray, wet, trace shell fragments		-004				67.2
		-17.52					
30	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						686.2
	- negative DNAPL dye test at 31.5ft BGS		5RS		5.0		
32							
34							228.5
		-22.72	-005				
36	ML-SANDY SILT, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						168.0
			6RS		5.0		
38							128.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-004)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-34
DATE COMPLETED:
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet - negative DNAPL dye test, neutral pH (7) at 40.5ft BGS	-27.62		-006				711.4
42	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-29.62		7RS		5.0		
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-30.62						620.6
44	- negative DNAPL dye test at 45.0ft BGS							
46								59.4
				8RS		4.5		
48								188.8
50								
	- trace wood at 51.1ft BGS			-007				605.1
52	- negative DNAPL dye test at 52.0ft BGS	-39.62						
	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet, trace shell fragments, trace wood - neutral pH (6) at 52.5ft BGS			9RS		5.0		
54	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments, trace wood	-41.32						379.8
56	- neutral pH (6) at 56.0ft BGS - negative DNAPL dye test at 56.5ft BGS							818.6
	MI-SANDY SILT, firm, fine grained sand, dark gray, wet, trace shell fragments	-44.82		10RS		5.0		
58	- silt, some sand at 58.2ft BGS - negative DNAPL dye test at 58.5ft BGS			-008				840.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/22/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-34
DATE COMPLETED:
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
		-48.82						1371.0
62	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-49.72						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood			11RS -009/ 001		5.0		
	- negative DNAPL dye test at 62.5ft BGS							
64	- with silt at 64.0ft BGS							2992.0
	- negative DNAPL dye test at 64.5ft BGS							
	CL-SILTY CLAY, firm, low plasticity, brownish gray, wet	-52.62						
66	- negative DNAPL dye test at 66.0ft BGS							907.8
				12RS		5.0		
68	- negative DNAPL dye test at 68.5ft BGS			-010				1361.0
	- trace fine grained sand at 69.6ft BGS							
70	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-57.82						
	- medium grained at 71.6ft BGS							3460.0
72	- negative DNAPL dye test at 72.0ft BGS			-011				
				13RS		5.0		
74	- negative DNAPL dye test at 74.5ft BGS							3032.0
	END OF BOREHOLE @ 75.0ft BGS	-62.62						
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/22/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-35
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.96						
	ASPHALT & AGGREGATE							
	SP-SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, dry to moist	11.46						
2				1RS		5.0		--
4								
	NO RECOVERY (5 TO 7.5ft BGS)	6.96	BACKFILLED WITH CEMENT/ BENTONITE GROUT	-001				
6								
	SP-SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, dry to moist	4.46		2RS		2.5		
8								0.0
	- thin silty partings at 9.8ft BGS - wet at 10.0ft BGS							
10								0.0
12				3RS		5.0		
	- thin sandy silt seam, wet, wood fragments at 13.6ft BGS							0.0
14				-002				
	- 2" sandy silt seam, soft, wet at 15.7ft BGS							
16	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-3.94						84.2
	ML-SILT, trace sand, soft, non plastic, slow dilatancy, dark gray, wet	-5.44		4RS		5.0		
18								506.8
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white	-7.14						
		-7.94						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-35
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	grains and red grains throughout, trace sand size shell fragments, wet - negative DNAPL dye test at 19.5ft BGS						1381
22	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet - wood fragments at 20.5ft BGS - negative DNAPL dye test at 21.0ft BGS	-11.04	5RS		5.0		
24	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - very wet at 23.5ft BGS - interbedded silt stringers at 24.4ft BGS - becoming sandy at 24.8ft BGS	-13.24	-003				440.9
26	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet						79.3
28	- fine to medium sand seam at 28.2ft BGS		6RS		5.0		390.9
30							267
32	- wood fragments at 32.0ft BGS - partially intact shell fragments at 32.6ft BGS		7RS		5.0		
34	- 1" sandy silt seam at 34.1ft BGS - intact shells at 35.2ft BGS		-004/ 005				199.2
36	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet - very wet at 36.7ft BGS	-24.14					140.7
38	- very wet, wood fragments at 38.0ft BGS		8RS		5.0		202.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-35
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- wood fragments at 43.0ft BGS			9RS		5.0		246
44	SP-SAND, trace to with silt, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet - negative DNAPL dye test at 44.0ft BGS	-31.84		-006				574
46	SM-SILTY SAND, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet to very wet - negative DNAPL dye test at 46.0ft BGS	-33.94		10RS		5.0		1058
48								552.7
50	- negative DNAPL dye test at 49.5ft BGS							
52				11RS		5.0		339.8
54	- 4" coarse, medium and fine sand, trace fine gravel seam, wet at 55.1ft BGS			-007				279.9
56	- negative DNAPL dye test at 55.5ft BGS							2150
58				12RS		5.0		
	- negative DNAPL dye test at 59.0ft BGS							3160

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-35
DATE COMPLETED: October 2, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- increase in sand content at 61.3ft BGS							198.0
62	- partial shell fragments at 62.4ft BGS			13RS		4.0		
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-50.84						
64	- negative DNAPL dye test at 64.0ft BGS	-52.04		-008				479.0
	NO RECOVERY (64 TO 65ft BGS)	-53.04						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							
66								1114
	- negative DNAPL dye test at 67.5ft BGS			14RS		4.0		
68								1329
	- negative DNAPL dye test at 69.0ft BGS	-57.04						
	NO RECOVERY (69 TO 70ft BGS)							
70	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-58.04						831.2
	- negative DNAPL dye test at 71.5ft BGS	-59.64						
72	SM-SILTY SAND, trace clay, very fine grained, well sorted, dark gray-brown, trace white grains and red grains throughout, trace sand size shell fragments, wet			15RS		5.0		
	- wood fragments at 72.2ft BGS							
74	- increase in clay content at 73.1ft BGS							222.6
	END OF BOREHOLE @ 75.0ft BGS	-63.04		-009				
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-36
DATE COMPLETED: May 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.64						
	AIR KNIFED							
2				1RS		0.0		
4								
	SP-SAND, trace silt, with gravel, fine grained, compact, fine and coarse subangular to subrounded gravel, well sorted, dark gray, white grains and red grains, moist	7.64	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	- decrease in gravel content at 6.0ft BGS	6.54						0.0
	SP-SAND, fine grained, trace silt, compact, well sorted, black gray, white grains and red grains, shells throughout, moist			2RS		5.0		
8	- increase in shell content at 8.8ft BGS							0.0
	- slight increase in moisture content at 9.5ft BGS							
10	- wet, faint odor from 10.1 to 19.0ft BGS			-001				
	- silty clay nodule, gray at 11.8ft BGS							102
12				3RS		5.0		
	- silty clay nodule, gray at 13.0ft BGS			-002				
14								2130
	- negative DNAPL dye test at 15.0ft BGS							
16								45.8
				4RS		5.0		
18								
	- silty clay lens, decrease in odor at 18.9ft BGS							194.8
	- silty clay lens, gray at 19.2ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-36
DATE COMPLETED: May 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
		-8.56					155.2
22	SM-SILTY SAND, fine grained, compact, trace fine gravel, dark gray, white grains and red grains, shell fragments throughout, wet, rapid dilatancy	-9.16	-003				
			5RS		5.0		
	SP-SAND, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments throughout						
24	- trace fine gravel at 22.0ft BGS						114.8
	- trace coarse subangular gravel at 24.5ft BGS						
26	- silty clay lens, gray at 26.3ft BGS		-004				427.0
			6RS		5.0		
28							345
	- silty clay lens, gray at 29.4ft BGS						
30		-17.86					
	SM-SILTY SAND, trace clay, fine grained, compact, slight plasticity, dark gray, wet, trace sand size shell fragments, rapid dilatancy, neutral pH (7.5)	-18.76					123.2
32	SP-SAND, compact, fine grained, well sorted, dark gray, white grains and red grains, trace shell fragments, wet,		7RS		5.0		
		-20.46					
	ML-SILT, with sand, fine grained, compact, trace clay, slight plasticity, moderate dilatancy, dark gray, moist to wet	-20.96					154.8
34	- 0.5" long flat wood fragment at 33.5ft BGS						
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments, wet	-22.36					
36	- silty clay nodule at 33.8ft BGS						
	NO RECOVERY (35-40ft BGS)						
			8RS		0.0		
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-36
DATE COMPLETED: May 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM/ML-SAND AND SILT, fine grained, loose, rapid dilatancy, dark gray, wet	-27.36		-005				207.3
42				9RS		5.0		
	- slight decrease in sand content at 43.7ft BGS	-31.16						76.6
44	CH-SILTY CLAY, trace fine grained sand, soft, high plasticity, dark gray, wet	-31.76						
	SM-SILTY SAND, fine grained, loose, well sorted, dark gray, wet							
46	SP-SAND, fine grained, compact, well sorted, dark gray, white grains and red grains, wet	-33.36						327.8
	SM-SILTY SAND, fine grained, loose, well sorted, dark gray, white grains and red grains, wet	-33.86						
	SM/ML-SAND AND SILT, trace clay, compact, fine grained, well sorted, rapid dilatancy, slight plasticity, dark gray, wet	-34.76		10RS -006/ 007		5.0		220.5
48	ML-SILT, with clay, trace fine grained sand, soft, slight plasticity, rapid dilatancy, dark gray, wet	-36.36						
50	END OF BOREHOLE @ 50.0ft BGS	-37.36						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-37
DATE COMPLETED: May 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.28						
0	SP-SAND, trace gravel, fine grained, compact, well sorted, gray, moist			1RS		0.0		
7.28	SP-SAND, trace fine gravel, trace silt, fine grained, compact, dark gray, white grains and red grains, sand size shells throughout, moist - trace coarse gravel at 6.2ft BGS		BACKFILLED WITH CEMENT/ BENTONITE GROUT	2RS		3.5		0.0
3.78	NO RECOVERY (8.5-10ft BGS)							0.0
10	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, moist, odor - trace fine angular gravel at 10.1ft BGS - trace vegetative material, 0.75" long rootlets, wet at 10.3ft BGS	2.28		-001 -002 3RS		5.0		7.1 15.7
14	- 3.1" trace subrounded cobble at 12.8ft BGS - decrease in odor at 14.5ft BGS							
-2.72	NO RECOVERY (15-20ft BGS)			4RS		0.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001, -002)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-37
DATE COMPLETED: May 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, wet	-7.72	-003				306.4
	NO RECOVERY (21.5-25ft BGS)	-9.22	5RS		1.5		
22							
24							
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, wet, faint odor, neutral pH (7) - trace fine subangular to subrounded gravel at 26.7ft BGS	-12.72					76.2
26			6RS		3.5		
28			-004				184.5
	NO RECOVERY (28.5-30ft BGS)	-16.22					
30	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, wet, faint odor - slight increase in silt content at 31.2ft BGS	-17.72					98.6
32	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, white grains and red grains, shell fragments throughout, rapid dilatancy, wet	-19.42 -20.02 -20.22	7RS		5.0		
	SP-SAND, trace silt, fine grained compact, well sorted, dark gray, white grains and red grains, shells throughout, wet	-20.72					70.9
34	SM-SILTY SAND, trace clay, fine grained, compact, well sorted, dark gray, wet	-22.22					
	CH-SILTY CLAY, trace sand, soft, high plasticity, gray, wet - shell fragment at 34.0ft BGS	-22.92					456
36	SP-SAND, with silt, fine grained, compact, well sorted, white grains and red grains, shells throughout - silty clay lens at 35.0ft BGS	-24.02	-005				
	SM/ML-SAND AND SILT, trace clay, loose, fine grained, well sorted, trace plasticity, rapid dilatancy, dark gray, wet	-25.12	8RS		5.0		
38	- decrease in silt content at 36.0ft BGS	-25.72					67.9
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, wet - trace medium grained at 36.9ft BGS	-26.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-37
DATE COMPLETED: May 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	SM-SILTY SAND, fine grained, compact, well sorted, rapid dilatancy, dark gray, wet - silty clay lens at 37.9ft BGS							
	CL-SILTY CLAY, trace sand, soft, medium plasticity, gray, wet	-29.12						63.2
	SM/ML-SAND AND SILT, trace clay, compact, well sorted, slight plasticity, rapid dilatancy, dark gray, wet - slight increase in clay content at 39.5ft BGS	-30.22		9RS		5.0		
44	- slight decrease in sand content at 41.3ft BGS	-31.32		-006				78.4
	ML-SILT, with sand, fine grained, well sorted, slight plasticity, rapid dilatancy, dark gray, white grains and red grains, wet - slight increase in sand content at 42.0ft BGS - neutral pH (7) at 42.5ft BGS							
46	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, white grains and red grains, wet	-34.22						29.9
	SM-SILTY SAND, fine grained, compact, well sorted, rapid dilatancy, dark gray, wet - decrease in sand content at 46.3ft BGS			10RS		5.0		
48	ML-SILT, with sand, trace clay, fine grained, compact, slight plasticity, well sorted, dark gray, wet - fine grained sand seam at 47.2ft BGS - trace fine subangular gravel at 49.0ft BGS			-007				248.2
50	- fine grained sand seam at 49.3ft BGS							
	END OF BOREHOLE @ 50.0ft BGS	-37.72						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-38
DATE COMPLETED: May 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.22						
	AIR KNIFED							
2				1RS		0.0		
4								
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, moist	7.22	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	- trace fine and coarse grained gravel at 6.2ft BGS							0.0
8				2RS		6.0		
								0.4
	- trace laminated silt, dense at 9.4ft BGS							
10	- faint odor from 10.0 to 13.3ft BGS			-001				
	- wet at 10.5ft BGS							
12								45.5
	- trace fine subangular to subrounded gravel at 12.3ft BGS			-002				
	- trace coarse subangular to subrounded gravel at 13.0ft BGS	-1.08		3RS		2.3		
14	NO RECOVERY (13.3-15ft BGS)							
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shells throughout, wet, faint odor	-2.78						
16								110
	- silty sand seam at 16.8ft BGS							
	- 0.5" clay nodule at 17.3ft BGS			4RS -003		5.0		
	- neutral pH (7) at 17.5ft BGS							
18	- 0.5" clay nodule at 18.1ft BGS							
	- 0.75" clay nodule at 18.4ft BGS							475
	SM-SILTY SAND, fine grained, compact, trace clay, well sorted, dark gray, wet, faint odor	-6.78 -6.98						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-38
DATE COMPLETED: May 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CH-CLAY, trace fine grained sand, soft, high plasticity, gray, wet, faint odor	-7.78					
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, shell fragments throughout, wet, faint odor	-9.28	-004				215
22	NO RECOVERY (21.5-25ft BGS)		5RS		1.5		
24							
	SP-SAND, trace silt, fine grained, well sorted, dark gray, white grains and red grains, sand size shell fragments throughout, wet, faint odor	-12.78					
26							52.3
	- trace fine gravel at 27.3ft BGS		6RS		5.0		
28							216
30							
	- slight increase in silt content at 31.3ft BGS						19.2
32	ML-SILT, with sand, trace clay, fine grained, loose, slight plasticity, dark gray, wet, faint odor	-19.78	-005				
	SP-SAND, trace silt, fine grained, well sorted, dark gray, white grains and red grains, shells throughout, wet, faint odor	-20.38	7RS		5.0		
34							450
	- slight increase in silt content, dense at 34.8ft BGS - negative DNAPL dye test at 35.0ft BGS - clay stringer at 35.1ft BGS		-006				
36							263
	SM/ML-SAND AND SILT, trace clay, fine grained, compact, well sorted, rapid dilatancy, dark gray, wet, faint odor	-24.38	8RS		0.0		
38							
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shells throughout, wet, faint odor	-26.18	-007				680

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-38
DATE COMPLETED: May 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, fine grained, compact, dark gray, wet - negative DNAPL dye test at 40.0ft BGS	-27.78						201
42	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, wet, faint odor	-29.48		9RS		5.0		
	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, white grains and red grains, trace shells, wet	-31.08 -31.78						670
44	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, wet, faint odor	-32.08 -32.28		-008				
	SM-SILTY SAND, fine grained, compact, dark gray, wet							
46	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments throughout, wet							881
	- negative DNAPL dye test at 45.0ft BGS - rootlets, wood debris, flat wood 0.11" long at 47.0ft BGS	-34.88 -35.18		10RS -010		5.0		
48	ML-SILT, trace sand, fine grained, compact, rapid dilatancy, dark gray, white grains and red grains, sand size shell fragments, wet, faint odor	-36.78						401
	- negative DNAPL dye test at 47.5ft BGS			-009				
50	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, white grains and red grains, sand size shell fragments, wet, faint odor	-37.78						
52	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments, wet, faint odor - flat wood debris at 49.7ft BGS							
	END OF BOREHOLE @ 50.0ft BGS							
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-40
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.77						
0	AIR KNIFED (0-7ft BGS)							
2				1RS		0.0		
4								
	SP/GP-SAND AND GRAVEL (native backfill)	7.77	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6								
	GRANULAR BENTONITE	6.07						
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark brown, moist to wet, trace sand size shell fragments throughout	5.77		2RS		5.0		
8				-001				4.7
10	- partially intact shell fragment at 9.8ft BGS							
	- rounded pebbles and cobbles at 11.0ft BGS							29.4
12	- negative DNAPL dye test at 12.0ft BGS			-003				
				3RS		4.0		
	- positive DNAPL dye test at 13.0ft BGS - partially intact shell fragments at 13.2ft BGS							
14	- clay nodules at 13.9ft BGS - positive DNAPL dye test at 14.0ft BGS - clay nodules at 14.7ft BGS - positive DNAPL dye test at 15.0ft BGS			-002				1493
16	- negative DNAPL dye test at 16.0ft BGS							
				-004				118
	- negative DNAPL dye test at 17.0ft BGS							
	ML-SANDY SILT TO SILT, trace clay, soft, rapid dilatancy, dark gray, wet	-4.63		4RS		5.0		
18	- negative DNAPL dye test at 18.0ft BGS							
	SP-SAND, with silt, fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments throughout	-5.83		-005				82

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-40
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- becoming compact at 21.0ft BGS							103.2
22	NO RECOVERY (22-25ft BGS)	-9.23		5RS		2.0		
24								
	SP-SAND, with silt, fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments throughout	-12.23		-006				92.2
26								
	SC-CLAYEY SAND, with silt, fine grained, loose, well sorted, rapid dilatancy, white grains and red grains throughout, dark gray, wet to very wet, trace sand size and larger shell fragments	-14.03		6RS		5.0		53.3
28								
30	SP-SAND, with silt, very fine to fine grained, well sorted, dark gray, wet, white grains and red grains throughout, trace sand size and larger shell fragments throughout	-17.33						55.8
32	- silt nodules, medium gray, wet at 32.4ft BGS			7RS		5.0		
34								91.4
36	- elevated pH (10) at 37.0ft BGS							13.0
38	- trace clay, increase in silt content at 37.8ft BGS			8RS		5.0		
				-007				17.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-40
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- elevated pH (10) at 41.0ft BGS							117
				9RS		5.0		
	- grading to silty very fine sand at 43.0ft BGS							
44								68.2
46	- grading to very fine sand, with silt at 46.0ft BGS							10.0
				10RS -008		5.0		
48								
	- wood fragments at 48.7ft BGS							42.7
50	- wood fragments at 50.2ft BGS							
	- grading to silty very fine sand at 51.4ft BGS							7.2
52				11RS		5.0		
	- grading to very fine sand, with silt at 53.2ft BGS							
54								15.7
	- grading to silty very fine sand at 54.6ft BGS							
	- very wet at 55.8ft BGS							
56								17.9
				12RS -009		5.0		
58								15.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-40
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- grading to very fine to fine sand, with silt at 60.7ft BGS - wood fragments at 61.3ft BGS - grading to silty very fine sand at 61.8ft BGS							96.6
				13RS		5.0		
64	- grading to very fine to fine sand, with silt at 63.2ft BGS - grading to silty very fine sand, medium gray at 63.9ft BGS - grading to very fine to fine sand, with silt at 64.4ft BGS							24.9
	NO RECOVERY (65-66.5ft BGS)	-52.23						
66	- wood fragments at 66.5ft BGS	-53.73						10.3
	SP-SAND, with silt, very fine to fine grained, well sorted, dark gray, wet, white grains and red grains throughout, trace sand size and larger shell fragments throughout			-010				
68	- silt nodules, medium gray, wet at 68.4ft BGS - silt nodules, medium gray, wet at 68.9ft BGS			14RS		3.5		1.7
70	- partially intact shell fragments at 69.6ft BGS - grading to silty very fine sand at 70.6ft BGS							218.7
72				15RS		5.0		
	ML-SANDY SILT TO SILT, firm, slight plasticity, slow dilatancy, dark gray, wet	-60.63						276.0
74	END OF BOREHOLE @ 75.0ft BGS	-62.23		-011				
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-010, -011)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-41
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	13.35						
	AUGERED (0-7ft BGS)		BACKFILLED WITH CEMENT/ BENTONITE GROUT					
				1RS		0.0		0
	SP/GP-SAND AND GRAVEL (native backfill), with bentonite	6.35		2RS		3.2		
	SM-SAND, with silt, fine grained, dense, well sorted, medium gray, moist	5.55		-001				202.4
	SP-SAND, trace silt, fine grained, dense, with white grains and red grains throughout, dark brown, moist, trace sand size and larger shell fragments	4.45		-002				
	- weak positive DNAPL dye test at 10.0ft BGS	3.35						
	NO RECOVERY (10-12.5ft BGS)							
	- saturated at 12.5ft BGS	0.85		3RS		2.5		
	SP-SAND, trace silt, fine grained, dense, with white grains and red grains throughout, dark brown, moist, trace sand size and larger shell fragments			-003				5.3
	- small rounded pebbles at 13.5ft BGS							
	- partially intact shell fragments at 14.0ft BGS							
	- weak positive DNAPL dye test at 16.0ft BGS							365.0
	- weak positive DNAPL dye test at 17.0ft BGS	-3.85		-004				
	SM-SILTY SAND, very fine to fine sand, loose, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments			4RS		5.0		
	- 2" clay seam, dark gray, wet at 17.4ft BGS							472.4
	- weak positive DNAPL dye test at 18.0ft BGS							
	- 3" clay seam, dark gray, wet at 19.0ft BGS			-005				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-41
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- very weak positive DNAPL dye test at 19.5ft BGS						212.3
22			5RS		5.0		
	- 1' zone of partial to nearly complete shell fragments at 23.0ft BGS						
24	- very weak positive DNAPL dye test at 24.0ft BGS	-10.65	-006				832.1
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						
26	- trace fine rounded gravel at 25.5ft BGS						242.4
			6RS		5.0		
28			-007				
							317.4
	- 3" silt seam, soft, medium gray, wet at 29.4ft BGS						
30							
							256.4
		-18.35					
32	SM-SILTY SAND, very fine to fine grained sand, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size and larger shell fragments	-18.95	7RS		5.0		
	- partially complete shell fragment at 32.1ft BGS	-19.45	-008				
34	SP-SAND, trace silt, fine grained, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-20.75					183.0
	SM-SILTY SAND, very fine to fine grained sand, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size and larger shell fragments						
36	- wood fragments at 34.0ft BGS						132.7
	SP-SAND, trace silt, fine grained, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments		8RS		5.0		
38	- wood fragments and partial shell fragments at 35.1ft BGS						
	- 1-1/2' zone with partial shell fragments at 36.4ft BGS						270.6
	- wood fragments at 37.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-006)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-41
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
				-009				41.8
42	SM-SILTY SAND, trace clay, very fine to fine sand, loose to compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-28.05		9RS		5.0		
44	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - thin silt seam, wet at 44.7ft BGS	-30.65						40.1
46								69.2
48	SM-SILTY SAND, trace clay, very fine to fine sand, loose to compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-33.45		10RS		5.0		
50	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - wood fragments at 49.5ft BGS	-36.05						139.8
52	- wood fragments at 51.8ft BGS			-010				146.2
	SM-SILTY SAND, very fine to fine sand, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-39.45		11RS		5.0		
54	- becoming silty sand, with clay at 53.5ft BGS	-40.75						23.5
56	SC-CLAYEY SAND, with silt, very fine grained, well sorted, compact, trace white grains and red grains, dark gray, wet, trace sand size shell fragments							2.3
	SM-SILTY SAND, trace clay, compact, well sorted, very fine to fine sand, compact, trace white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-43.55		12RS		5.0		
58								35.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-41
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- very loose at 60.2ft BGS - becoming competent at 61.6ft BGS							51.2
				13RS		5.0		
64	- negative DNAPL dye test at 63.0ft BGS - negative DNAPL dye test at 64.0ft BGS			-011				843.2
66								
	- negative DNAPL dye test at 66.5ft BGS			-012				944.3
	- 2" clay seam, dark gray,w et at 67.2ft BGS			14RS		5.0		
68								
								989.0
	- increase in clay content at 69.4ft BGS							
70								
	SC-CLAYEY SAND, with silt, very fine sand, compact, well sorted, trace white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-57.75						624.2
72				15RS		5.0		
								702.2
74				-013				
	END OF BOREHOLE @ 75.0ft BGS	-61.65						
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-01
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.77						
2	FILL MATERIAL, aggregate, sand, brick fragments, stones, brown to dark brown, damp							7.7
	- 4" sandy clay layer, gray at 2.5ft BGS			1RS		5.0		5.4
4								
	FILL MATERIAL, aggregate, crushed bricks, fine to medium sand, red/black, damp	7.77	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6								8.8
	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, white grains and red grains throughout, damp	6.17		2RS		5.0		
8	- sand size shell fragments at 8.0ft BGS - faint laminations at 8.4ft BGS			-001				10.2
10								
								11.3
12	- 1" silt seam, moist at 12.8ft BGS			3RS		3.5		
	NO RECOVERY (13.5-15ft BGS)	-0.73						16.1
14								
	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, white grains and red grains throughout, damp	-2.23						
16	- 1" silt seam, moist at 15.5ft BGS - very wet at 16.0ft BGS							1159
	SM-SILTY SAND, fine grained, compact, well sorted, dark brown to gray, wet	-4.03						
		-4.73		4RS		5.0		
18	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown to gray, white grains and red grains throughout, wet, strong odor			-002				
	- negative DNAPL dye test at 18.0ft BGS - positive DNAPL dye test at 19.0ft BGS	-6.13		-003				3072
	CL-CLAY, trace silt, soft, low plasticity, gray,	-7.03						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-01
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	wet						
	SP-SAND, trace silt, fine grained, compact, well sorted, gray to dark gray, white grains and red grains, wet		-004				790
22	- negative DNAPL dye test at 20.0ft BGS - negative DNAPL dye test at 21.5ft BGS						
	SM-SILT SAND, fine grained, compact, well sorted, gray to dark gray, very wet	-9.53	5RS		4.0		
	- negative DNAPL dye test at 22.5ft BGS						495
24	NO RECOVERY (24-25ft BGS)	-11.23					
	- negative DNAPL dye test at 25.0ft BGS	-12.23					
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace partial shell fragments, wet		-005				3454
26	- sand size shell fragments at 25.3ft BGS	-13.83					
	- 1" silt lens, moist at 25.5ft BGS	-14.43	6RS		4.0		
	- 3" gravel seam, pebble size at 25.8ft BGS						
28	ML-SILT, trace clay, trace sand, stiff, dark gray, wet						792
	SC-CLAYEY SAND, trace silt, fine grained, soft, dark gray, wet	-16.23					
	- partially intact shell fragments at 27.6ft BGS						
	- negative DNAPL dye test at 27.5ft BGS						
30	- crushed shell fragments at 28.3ft BGS	-17.23					
	- partially intact shell fragments at 28.8ft BGS						
	NO RECOVERY (29-30ft BGS)	-18.33					1104
	- negative DNAPL dye test at 30.0ft BGS						
32	SP-SAND, with fine to medium gravel, trace silt, fine grained, loose, well sorted, dark gray, wet	-19.13	7RS		5.0		
	SM-SILTY SAND, fine grained, compact, well sorted, moderate dilatancy, dark gray, wet						
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet		-006				1448
34	- negative DNAPL dye test at 32.5ft BGS	-21.83					
	SM-SILTY SAND, fine grained, compact, well sorted, moderate dilatancy, dark gray, wet	-22.43					
	- negative DNAPL dye test at 35.0ft BGS						
36	SP-SAND, trace silt, trace fine gravel, fine grained, compact, well sorted, trace partial shell fragments, dark gray, wet	-24.13	-007				1265
	SM-SILTY SAND, fine grained, compact, dense, well sorted, low dilatancy, dark gray, wet		8RS		5.0		
38	- negative DNAPL dye test at 37.5ft BGS	-25.43					
	- 2" fine sand seam at 37.6ft BGS						876
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-01
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains throughout, sand size shell fragments throughout, wet - negative DNAPL dye test at 40.0ft BGS							447
42	- negative DNAPL dye test at 42.5ft BGS			9RS		5.0		
	SM-SILTY SAND, trace fine gravel, fine grained, compact, well sorted, rapid dilatancy, dark gray, wet	-30.93		-008				678
44	- negative DNAPL dye test at 45.0ft BGS							
46	- becoming very wet at 46.1ft BGS - becoming sandier at 46.8ft BGS							367
48				10RS		5.0		
				-009				586
50	- negative DNAPL dye test at 50.0ft BGS	-37.33						
	ML-SANDY SILT, soft, moderate dilatancy, dark gray, wet	-37.63						
	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, very wet			-010				950
52		-39.53		11RS		5.0		
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet - wood fragment at 52.4ft BGS							441
54	- negative DNAPL dye test at 52.5ft BGS							
	- negative DNAPL dye test at 55.0ft BGS							
56								569
	SM-SILTY SAND, compact, well sorted, dark gray, very wet	-44.23						
58	- negative DNAPL dye test at 57.5ft BGS			12RS		5.0		
	- becoming wet at 59.4ft BGS							720
		-47.03						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-01
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SANDY SILT, stiff, dense, low dilatancy, dark gray, wet - negative DNAPL dye test at 60.0ft BGS	-47.33						
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, trace white grains and red grains, wet	-48.03						344
62	SM-SILTY SAND, compact, well sorted, dark gray, wet - 1" silty seam, gray, moist at 61.9ft BGS	-49.53		13RS		5.0		
	SP-SAND, trace silt, fine grained, compact, well sorted, trace white grains and red grains, dark gray, wet	-50.13						381
64	SM-SILTY SAND, very fine to fine grained, compact, dark gray, very wet - becoming silty fine grained sand, wet, trace white grains and red grains at 63.9ft BGS			-011				
66								235
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-54.13		14RS		5.0		
68								156
	SM-SILTY SAND, very fine to fine grained, increasing silt content with depth, compact, dark gray, wet to very wet	-56.13						
70								
	- brown stained porewater at 71.2ft BGS							220
72	- elevated pH (18) at 72.5ft BGS			15RS		5.0		
				-012				140
74	ML-SANDY SILT, to silt, compact, dense, dark gray, wet	-61.03						
	END OF BOREHOLE @ 75.0ft BGS	-62.23						
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-02
DATE COMPLETED: May 22, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.32						
2	GP-GRAVEL (FILL), trace concrete debris, fine and coarse grained, brick material, fine sand, loose, dark brown, moist - concrete debris at 0.5ft BGS							14
				1RS		5.0		
		9.32						
4	SP-SAND, trace shells, fine grained, loose, well sorted, dark gray, white grains and red grains, moist							0.6
	- trace fine subangular gravel at 4.6ft BGS		BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6								7.4
	- trace fine subangular gravel at 7.2ft BGS							
8				2RS		5.0		
		4.12						
	SM-SILTY SAND, trace shells, fine grained, compact, well sorted, brown-gray, white grains and red grains, moist	3.62						9.8
10	SP-SAND, trace shells throughout, fine grained, compact, well sorted, dark gray, white grains and red grains, moist - wet at 10.0ft BGS			-001				
								2.6
12				3RS		4.5		
	- clay stringer at 13.4ft BGS							
14	- clay nodule at 14.2ft BGS							12.8
	NO RECOVERY (14.5-15ft BGS)	-2.18						
		-2.68						
16	SM-SILTY SAND, trace clay, fine grained, compact, well sorted, dark gray, white grains and red grains, wet, strong odor - clay stringer at 15.2ft BGS - clay nodule at 15.8ft BGS - trace vegetative material, rootlets at 16.0ft BGS							616
				-002				
	- clay stronger at 17.2ft BGS			4RS		5.0		
18	- clay nodule at 18.0ft BGS - clay nodule at 18.4ft BGS							
		-6.18						237
	CH-SILTY CLAY, trace fine sand, soft, high plasticity, dark gray, wet, strong odor	-6.98						
	SC-CLAYEY SAND, trace silt, fine grained,	-7.28						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA AND MW-94C.GPJ CRA_CORP.GDT 7/5/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-02
DATE COMPLETED: May 22, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	loose, dark gray, wet, strong odor							
	SP-SAND, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, shells throughout, wet							0.0
	- faint odor from 20.0 to 25.0ft BGS	-9.28						
22	SM-SILTY SAND, fine grained, compact, white and red grains, shells throughout, well sorted, dark gray, wet, faint odor	-10.18		5RS		5.0		
	- trace coarse grained sand at 22.1ft BGS							
24	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, shells throughout, wet, faint odor							0.0
	- trace vegetative matter at 23.0ft BGS							
26								54.3
	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, wet, sand size shell fragments	-14.68		6RS		5.0		
28								361
	- silt seam at 29.0ft BGS			-003				
	SP-SAND, trace silt, trace shells throughout, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet	-16.88						
30		-17.98						
	ML-SILT, trace sand, compact, sand size shells throughout, dark gray, rapid dilatancy, wet	-18.38						101
	SP-SAND, with silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, sand size shells, wet	-19.18						
32	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, wet	-20.28		7RS		5.0		
	SP-SAND, with silt, fine grained, compact, sand size shell fragments throughout, rapid dilatancy, dark gray, wet	-20.78						109
34	ML-SILT, with sand, firm, rapid dilatancy, dark gray, wet, sand size shell fragments	-21.68						
	CI-SILTY CLAY, with sand, firm, medium plasticity, gray, wet	-22.88						
36	SM/ML-SAND AND SILT, trace clay, compact, rapid dilatancy, dark gray, wet	-23.78		-004				1089
	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, wet	-24.08						
	SP-SAND, with silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, rapid dilatancy, wet			8RS		5.0		
38	- pooling non multi-phased water, light brown, faint odor from 36.4 to 39.8ft BGS							392
	- negative DNAPL dye test at 37.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-003, -004)

OVERBURDEN LOG 007843WIN WMUA AND MW-94C.GPJ CRA_CORP.GDT 7/5/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-02
DATE COMPLETED: May 22, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM/ML-SAND AND SILT, trace clay, compact, well sorted, rapid dilatancy, dark gray, faint odor	-27.88					
	CL-SILTY CLAY, trace fine grained sand, medium plasticity, firm, gray, wet, faint odor	-28.28					170.1
42			9RS		5.0		
	SP-SAND, with silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, sand size shells throughout, wet, faint odor	-30.98					
44			-005				252.8
46							87.8
	CL-SILTY CLAY, trace fine grained sand, firm, medium plasticity, gray, wet, faint odor	-34.08					
48	- soft, high plasticity at 48.1ft BGS		10RS		5.0		
	- slight increase in sand content at 49.0ft BGS						86.6
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, sand size shells throughout, wet, faint odor	-36.88					
50							
	CH-SILTY CLAY, trace fine grained sand, soft, high plasticity, gray, wet	-38.48					71.8
	SP-SAND, trace silt, trace sand size shell fragments throughout, fine grained, compact, well sorted, dark gray, white grains and red grains, wet	-39.28					
52			11RS		5.0		
54							453.1
	- wood debris, flat at 54.8ft BGS						
	- negative DNAPL dye test at 55.0ft BGS		-006				
56							62.1
	- wood debris at 56.6ft BGS - wood, twig at 56.7ft BGS - wood, flat at 56.8ft BGS - wood, twig at 57.3ft BGS		12RS		5.0		
58							421.1
	- slight increase in silt content at 59.8ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMUA AND MW-94C.GPJ CRA_CORP.GDT 7/5/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-02
DATE COMPLETED: May 22, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- negative DNAPL dye test, elevated pH (9-10) at 60.0ft BGS - pockets of brown water, not multiphased, moderate odor from 60.3 to 65.0ft BGS							126
				13RS		5.0		
64								185
	- elevated pH (9-10) at 65.0ft BGS			-007				
66								105.8
	ML-SILT, with clay, trace fine grained sand, loose, slight plasticity, rapid dilatancy, gray, wet	-53.98						
				14RS		5.0		
68								683.9
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, wet	-56.78						
70	- negative DNAPL dye test at 69.9ft BGS - elevated pH (9-11) at 70.0ft BGS	-57.68		-008				
	SM/ML-SAND AND SILT, trace clay, fine grained, compact, well sorted, rapid dilatancy, dark gray, wet							43.2
72	- trace rootlet at 71.4ft BGS							
				15RS				
	- trace shell fragments at 73.3ft BGS							
74	- clay stringer at 74.1ft BGS							244.1
	END OF BOREHOLE @ 75.0ft BGS	-62.68		-009				
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA AND MW-94C.GPJ CRA_CORP.GDT 7/5/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-03
DATE COMPLETED: May 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	GROUND SURFACE	11.78
2	GW-GRAVEL (FILL), and sand, concrete, brick, refuse, fine and coarse gravel, fine grained sand, loose, dark gray, moist, odor	
	SP-SAND (FILL), fine grained, compact, well sorted, dark gray, moist, odor	9.78
4	ML-SILT (FILL), with sand, trace fine and coarse gravel, loose, light gray, moist, odor	7.68
6	- trace fine gravel at 5.8ft BGS - trace coarse gravel at 5.9ft BGS - reddish oxidized brick material at 6.0ft BGS	5.68
8	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, with white grains and red grains, shells throughout, moist	
	NO RECOVERY (9.5-10ft BGS)	2.28
10	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, with white grains and red grains, moist, sand size shell fragments throughout	1.78
	- wet at 10.2ft BGS	0.68
12	- clay nodule at 10.9ft BGS	0.18
	ML-SILT, with sand, fine grained, compact, well sorted, dark gray, trace white grains and red grains, sand size shells throughout, wet	-1.22
14	SM/ML-SAND AND SILT, fine grained, compact, dark gray, white grains and red grains, sand size shells throughout, wet, faint odor, rapid dilatancy, neutral pH (8)	-1.82
	CH-CLAY, trace silty sand, soft, high plasticity, gray, medium size shell fragments throughout, wet, faint odor	-3.22
16	NO RECOVERY (13.6-15.0ft BGS)	-4.22
	SP-SAND, with silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments throughout, wet, faint odor	-4.72
18	- clay nodule at 15.9ft BGS	
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains, sand size shell fragments, wet	-6.32 -6.82
	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, shells throughout	-7.82

BOREHOLE: BACKFILLED WITH CEMENT/ BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
				33.1
1RS		5.0		
				37.4
				8.71
2RS		4.5		
-001				46.2
				11.2
3RS		3.6		
				8.1
-002				241
4RS -003		5.0		
-004				1252

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-03
DATE COMPLETED: May 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- trace fine subangular gravel at 16.9ft BGS - negative DNAPL dye test at 16.7ft BGS - positive DNAPL dye test at 17.7ft BGS - sheen, multicolored sheens, strong odor from 17.7 to 18.1ft BGS							111
22	CH-SILTY CLAY, trace fine grained sand, soft, high plasticity, gray, moderate odor - positive DNAPL dye test at 18.7ft BGS			5RS -005		5.0		
24	SM/ML-SAND AND SILT, trace clay, fine grained, compact, well sorted, dark gray, wet, moderate to rapid dilatancy							228
	SP-SAND, trace silt, fine grained, well sorted, dark gray, white grains and red grains throughout, sand size shell fragments throughout, wet - negative DNAPL dye test at 19.9ft BGS - negative DNAPL dye test at 21.0ft BGS - wood fragments, twig at 21.4ft BGS							
26	- negative DNAPL dye test at 23.0ft BGS	-14.82						638
	- rootlets at 23.3ft BGS - trace fine subangular gravel at 24.5ft BGS - negative DNAPL dye test at 25.0ft BGS	-15.12		6RS		5.0		
28	ML-SILT, with sand, fine grained, compact, well sorted, dark gray, wet							1076
	CL-SILTY CLAY, trace fine grained sand, stiff, low to medium plasticity, gray, moist to wet, medium to large shell fragments throughout			-006 -007				
30	- negative DNAPL dye test at 28.0ft BGS	-18.22						
	- fine grained sand seam, dark gray, very moist, strong odor from 29.1 to 29.2ft BGS - positive DNAPL dye test at 29.2ft BGS - negative DNAPL dye test at 29.9ft BGS							369
32	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, sand size shell fragments throughout, wet			7RS		5.0		
	- partially intact shell fragments at 30.5ft BGS - silty at 32.2ft BGS							180
34	- trace fine to medium gravel at 33.6ft BGS - partial shell fragments at 34.6ft BGS							
36	- trace medium gravel at 36.1ft BGS							76.1
	- trace medium gravel at 36.8ft BGS			8RS		5.0		
38				-008				80.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-03
DATE COMPLETED: May 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- 1" silt seam, moist at 41.5ft BGS	-29.82					110
	SM-SILTY SAND, very fine to fine grained, loose, dark gray, very wet	-30.42					
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet		9RS		5.0		
44							82.1
46							125
48		-36.02	10RS		5.0		
	SM-SILTY SAND, fine grained, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet, rapid dilatancy	-36.42					
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-37.62	-009				579
50	- negative DNAPL dye test at 49.0ft BGS	-38.02 -38.22					
	SM-SILTY SAND, fine grained, well sorted, compact, dark gray, white grains and red grains, trace sand size shell fragments, wet, rapid dilatancy		-010				521
52	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet		11RS		5.0		
	- negative DNAPL dye test at 50.0ft BGS						410
54	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, wet, rapid dilatancy						
	- very wet, brown stained porewater at 50.5ft BGS						
56	- wood fragment and partial shell fragments at 51.8ft BGS						385
	- negative DNAPL dye test at 52.5ft BGS						
	- becoming wet at 54.5ft BGS						
	- negative DNAPL dye test at 55.0ft BGS						
	- increase in silt content at 55.8ft BGS		12RS		5.0		
58	- very wet, brown stained porewater at 56.5ft BGS		-011				
	- negative DNAPL dye test at 57.5ft BGS						351
	- becoming wet at 59.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-03
DATE COMPLETED: May 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 60.0ft BGS	-48.62						
	ML-SANDY SILT, stiff, compact, moderate dilatancy, medium gray, wet							
	- very wet, brown stained porewater at 61.5ft BGS	-49.52						354
62	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, wet			13RS		5.0		
	- becoming wet at 63.5ft BGS							380
64								
	SP-SAND, trace silt, fine grained, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-53.22						
66								195
	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, wet	-55.52		14RS		5.0		
68	- very wet at 67.4ft BGS			-012				
								275
	- becoming wet at 69.7ft BGS							
70	SP-SAND, trace silt, fine grained, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-58.22						2811
72				-013				
	- negative DNAPL dye test at 72.5ft BGS			15RS		5.0		
	SM-SILTY SAND, fine grained, compact, rapid dilatancy, dark gray, wet	-61.52						612
74	- very wet at 73.5ft BGS							
	- becoming wet at 74.5ft BGS							
	- becoming clayey at 74.6ft BGS	-63.22						
	- negative DNAPL dye test at 75.0ft BGS							
76	END OF BOREHOLE @ 75.0ft BGS							
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-05
DATE COMPLETED: June 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.40						
0	FILL MATERIAL, aggregate, crushed brick, pieces of brick and concrete, stones, sand and gravel, dry							80.2
2				1RS		5.0		
4								10.5
			BACKFILLED WITH CEMENT/ BENTONITE GROUT					
		6.90						
6	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, trace white grains and red grains throughout, trace sand size and larger shell fragments throughout, moist to wet			-001				2.6
				2RS		4.5		
8								4.8
	- fine sand seam, beige at 9.1ft BGS							
10	- becoming wet at 10.0ft BGS							9.0
12				3RS		5.0		
								24.0
14								
16								86
	- negative DNAPL dye test at 17.5ft BGS	-5.10		4RS -002		5.0		
18	CL-CLAY, trace silt, soft, moderate to high plasticity, dark gray, wet to very wet							
	- negative DNAPL dye test at 18.5ft BGS	-6.10						61
	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, trace white grains and red grains throughout, trace sand size and							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-05
DATE COMPLETED: June 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	larger shell fragments throughout, wet						23
22			5RS		5.0		
24	- 1/2" zone very wet at 23.8ft BGS						101
	CL-CLAY, trace silt, trace sand, stiff, dark gray, wet	-12.90					
26	ML-SANDY SILT TO SILT, stiff, partially intact shell fragments throughout, dark gray, wet, slow dilatancy	-13.40					430
	- small rounded pebbles at 25.9ft BGS						
	- small rounded pebbles at 27.3ft BGS		6RS		5.0		
28	- negative DNAPL dye test at 27.5ft BGS						
	SC-CLAYEY SAND, trace silt, fine grained, compact, dark gray, wet	-15.90	-003				350
	- shell fragments at 28.4ft BGS						
	- shell fragments at 29.6ft BGS						
30	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, wet	-17.40 -17.80					
	- negative DNAPL dye test at 30.0ft BGS						299
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet		7RS		5.0		
32			-004				
	- 2" silt sand lens, dark gray, wet at 33.3ft BGS						
	- 2" silt sand lens, dark gray, wet at 33.7ft BGS						301
34							
36							110
			8RS		5.0		
38							162

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-05
DATE COMPLETED: June 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
42	- 1" silt sand lens, dark gray, wet at 40.4ft BGS - becoming silty at 41.0ft BGS - wood fragments at 42.2ft BGS - negative DNAPL dye test at 42.5ft BGS - small rounded pebbles at 43.0ft BGS			-005 9RS		5.0		709
44	- small rounded pebbles at 43.9ft BGS - becoming silty at 44.5ft BGS - 1/2" silt seam, gray, wet at 44.8ft BGS							219
	SM-SILTY SAND, very fine to fine sand, well sorted, dark gray, trace white grains and red grains, wet	-32.70		-006				
46								710
48	- negative DNAPL dye test at 47.5ft BGS			10RS		5.0		
	SC-CLAYEY SILTY SAND, fine grained, compact, dark gray, wet	-36.20						395
50	SM-SILTY SAND, very fine to fine sand, compact, well sorted, dark gray, trace white grains and red grains, wet - negative DNAPL dye test at 50.0ft BGS	-37.30						1269
52	- negative DNAPL dye test at 52.5ft BGS			11RS -007		5.0		
54	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, trace white grains and red grains, wet - negative DNAPL dye test at 55.0ft BGS	-42.20						1061
56								1447
58	- negative DNAPL dye test at 57.5ft BGS			12RS -008		5.0		
	SM-SILTY SAND, fine grained, compact, well sorted, dark gray, trace white grains and red grains, wet	-46.60						1159

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-05
DATE COMPLETED: June 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- diagonal silt seam at 59.2ft BGS - negative DNAPL dye test at 60.0ft BGS							994
62	- negative DNAPL dye test at 62.5ft BGS			13RS-009		5.0		
	- 2" silt seam, dark gray, wet at 63.2ft BGS							348
64								
66								53.2
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, wet	-54.70		14RS		4.0		
68								210
70								
	- brown stained porewater at 71.0ft BGS							116
72	- small rounded pebbles at 72.2ft BGS			15RS		5.0		
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, wet	-61.20						195
74	- brown stained porewater at 74ft BGS	-62.20						
	ML-SILT, with fine sand, compact, slow dilatancy, medium gray, wet	-62.60		-010				
76	END OF BOREHOLE @ 75.0ft BGS							
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-06
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.93						
0	FILL, aggregate, brick, crushed brick, sand, stones, concrete		BACKFILLED WITH CEMENT/ BENTONITE GROUT					8.8
2				1RS		5.0		
4								9.7
6	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, moist	6.33		-001				8.8
8	- silty seams, beige at 8.5ft BGS			2RS		3.0		12.4
10								11.1
12				3RS		4.5		
14	SM-SILTY SAND, very fine to fine grained, compact, well sorted, gray to dark gray, wet, slow dilatancy	-2.47						11.5
		-3.17						
16	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown to gray, white grains and red grains throughout, sand size shell fragments throughout, wet	-3.87		-002				3011
18	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark brown to gray, wet to very wet - negative DNAPL dye test at 16.0ft BGS - positive DNAPL dye test at 17.0ft BGS - positive DNAPL dye test at 18.0ft BGS - clay nodule at 18.3ft BGS - thin clay seams at 18.8ft BGS	-7.47		4RS -003		5.0		3727

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-06
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- positive DNAPL dye test at 19.0ft BGS	-8.17	-004				
	CL-CLAY, trace silt, soft, high plasticity, dark gray, wet - negative DNAPL dye test at 20.0ft BGS		-005				1093
22	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown to gray, white grains and red grains throughout, sand size shell fragments throughout, wet - becoming very wet at 21.5ft BGS - partially intact shell fragments at 22.3ft BGS - negative DNAPL dye test at 22.5ft BGS		5RS		4.5		
24	- becoming wet at 24.4ft BGS - small cobbles at 24.6ft BGS - negative DNAPL dye test at 25.0ft BGS						1089
26							596
	CL-SILTY CLAY, trace very fine sand, stiff, low plasticity, dark brown to gray, wet - negative DNAPL dye test at 27.5ft BGS	-14.67	6RS		5.0		
28	- becoming sandier at 28.0ft BGS						
	SM-SILTY SAND, very fine to fine grained, compact, slow dilatancy, dark gray, wet	-16.37					568
30	- partially intact shell fragments at 29.8ft BGS - negative DNAPL dye test at 30.0ft BGS						
	ML-SILT, trace sand, trace gravel, stiff, slow dilatancy, medium gray, wet	-18.67 -19.07					119
32	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet - small cobbles at 32.8ft BGS - 3" clayey sand seam at 33.0ft BGS - small cobbles at 33.6ft BGS		7RS		5.0		
34	SC-CLAYEY SAND, trace silt, trace medium gravel, fine grained, compact, dark gray, wet to very wet	-21.87 -22.37					222
	SM-SILTY SAND, very fine to fine grained, compact, dark gray, wet						
36	- becoming very fine sand, with silt at 34.8ft BGS	-23.97					159
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet		8RS		5.0		
38	- partially intact shell fragments at 36.6ft BGS		-006				310

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-006)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-06
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
		-29.57					810
42	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, very fine to fine white grains and red grains throughout, trace sand size shell fragments, wet to very wet - negative DNAPL dye test at 42.5ft BGS		9RS -007		5.0		
44	- neutral pH (7) at 44.0ft BGS - wood fragments at 44.8ft BGS - negative DNAPL dye test at 45.0ft BGS						745
46	- wood fragments at 46.1ft BGS - becoming very wet at 46.3ft BGS						520
	- negative DNAPL dye test at 47.5ft BGS		10RS		5.0		
48	- becoming fine sand, wet at 48.1ft BGS		-008				762
	ML-SANDY SILT, stiff, medium gray, slow dilatancy, wet	-37.17					
50	- negative DNAPL dye test at 50.0ft BGS	-38.27					
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, trace very fine white grains and red grains, trace very fine sand size shell fragments, wet to very wet						320
52			11RS		5.0		
54	- partially intact shell fragments at 54.4ft BGS - thin silt seams at 54.6ft BGS	-42.77					260
	ML-SANDY SILT TO SILT, stiff, with interbedded thin sandy partings, slow dilatancy, dark gray, wet	-43.07					
56	SM-SILTY SAND, very fine to fine grained, compact, dark gray, trace very fine white grains and red grains throughout, wet to very wet - brown stained porewater at 55.5ft BGS - elevated pH (11) at 56.5ft BGS		-009				382
			12RS		5.0		
58	- 2" sandy silt seam at 57.0ft BGS - negative DNAPL dye test at 57.5ft BGS - becoming silty with depth at 58.6ft BGS						168
	- becoming sandy silt to silty sand at 59.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-06
DATE COMPLETED: June 1, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- small pebbles at 62.2ft BGS			13RS		5.0		105
64	- becoming very stiff at 64.0ft BGS							100
66	- 6" clayey silty sand zone at 66.5ft BGS			-010				213
68				14RS		5.0		193
70	- small pebbles at 70.7ft BGS							
72	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-59.37		15RS		5.0		122
74				-011				132
76	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, wet	-62.67						
78	END OF BOREHOLE @ 75.0ft BGS	-63.07						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 11/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-07
DATE COMPLETED: June 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.17						
	FILL, aggregate, brick, crushed brick, concrete, stones, sand, gravel, wet							3.5
2	- dry at 2.0ft BGS			1RS		5.0		
4								54.8
6			BACKFILLED WITH CEMENT/ BENTONITE GROUT					1.4
	SP-SAND, trace silt, compact, well sorted, dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, moist	5.67		2RS-001		3.5		
8	- silt nodule, brown at 6.8ft BGS							3.4
	- thin silt seam at 8.5ft BGS	3.67						
	NO RECOVERY (8.5-10ft BGS)							
10	SP-SAND, trace silt, compact, well sorted, dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, moist	2.17						3.5
	- silt nodule, brown at 6.8ft BGS							
12	- trace fine subrounded gravel at 11.0ft BGS - small rounded pebbles at 12.0ft BGS - partially intact shell fragments at 12.6ft BGS - gray at 12.7ft BGS - 1" silt seam, wet at 13.5ft BGS			3RS		4.5		
14	- 1" silt seam at 14.7ft BGS							10.1
16	- negative DNAPL dye test at 16.5ft BGS							18.4
	- thin clay seam at 17.1ft BGS - negative DNAPL dye test at 17.5ft BGS	-5.43		4RS-002		5.0		
18	CL-CLAY, trace silt, soft, moderate to high plasticity, slow dilatancy, dark gray, wet - negative DNAPL dye test at 18.5ft BGS	-6.23						8.8
	SP-SAND, trace silt, fine grained, loose, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments,							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-07
DATE COMPLETED: June 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	wet							24.8
22	- seam of partially intact shell fragments from 22.3 to 23.1ft BGS			5RS		4.0		
24	- becoming compact at 23.7ft BGS							13.0
	SC-CLAYEY SAND, trace silt, fine grained, soft, slow dilatancy, partially intact shell fragments, dark gray, wet	-13.03						
26	- 2" silt seam, gray, wet at 26.1ft BGS							324
	- negative DNAPL dye test at 27.5ft BGS			-003 6RS		5.0		
28	- partially intact shell fragments at 29.1ft BGS							124
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-17.23						
30	- partially intact shell fragments at 29.7ft BGS							402.1
	- 3" coarse subangular gravel seam at 30.1ft BGS							
32	- wood fragments at 32.0ft BGS			-004 7RS		5.0		
	- negative DNAPL dye test at 32.5ft BGS							
	- 1" sandy silt seam, dark gray, wet at 32.8ft BGS							
34	- 2" sandy silt lens, medium gray, wet at 33.1ft BGS							250.3
	- 2" sandy silt lens, medium gray, wet at 33.8ft BGS							
	- wood fragments, partially intact shell fragments at 35.5ft BGS							
36	- 1" sandy silt lens, medium gray, wet at 35.9ft BGS							312
	- small silt nodules at 36.3ft BGS							
	- wood fragments at 37.2ft BGS							
	- negative DNAPL dye test at 37.5ft BGS			8RS		5.0		
38								250
				-005				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-07
DATE COMPLETED: June 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 40.0ft BGS							561
42	- partially intact shell fragments at 42.2ft BGS - negative DNAPL dye test at 42.5ft BGS			9RS		5.0		
	- small silt nodule at 43.2ft BGS - becoming silty at 43.3ft BGS	-31.33		-006				1129
44	ML-SILT, with very fine sand, compact, low dilatancy, medium to dark gray, wet	-31.73						
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet - negative DNAPL dye test at 45.0ft BGS							
46	- partially intact shell fragment at 45.7ft BGS							136.2
	- negative DNAPL dye test at 47.5ft BGS			10RS		5.0		
48	- negative DNAPL dye test at 48.0ft BGS			-007				665
50	- negative DNAPL dye test at 50.0ft BGS							
	SC-CLAYEY SAND, trace silt, very fine to fine grained, well sorted, dark gray, trace white grains and red grains, wet	-38.63						575
52	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, trace white grains and red grains, wet	-39.83		11RS		5.0		
	- negative DNAPL dye test at 52.5ft BGS							1132
54	- wood fragments at 54.7ft BGS			-008				
	- negative DNAPL dye test at 55.0ft BGS - becoming loose, very wet at 55.6ft BGS							
56								857
	- negative DNAPL dye test at 57.5ft BGS			12RS		5.0		
58				-009				
	- elevated pH (10) at 59.0ft BGS - becoming compact, grading to fine sand, with silt at 59.4ft BGS							1082

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-07
DATE COMPLETED: June 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 60.0ft BGS	-48.13						
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							345
62	- partially intact shell fragment at 61.4ft BGS			-010				
	- negative DNAPL dye test at 62.5ft BGS			13RS		5.0		
								380
64								
	- elevated pH at 64.5ft BGS							
	- 2" sandy silt lens, medium gray, wet at 64.6ft BGS							
	- negative DNAPL dye test at 65.0ft BGS	-53.53						
66	SM-SILTY SAND, very fine to fine grained, loose to compact, well sorted, dark gray, white grains and red grains throughout, wet to very wet							218
	- brown stained porewater at 66.1ft BGS	-55.13						
				14RS		5.0		
68	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet							181
70	- sand size shell fragments at 70.2ft BGS							
		-58.53						
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, trace sand size shell fragments, wet	-59.43						210
72	- brown stained porewater at 71.4ft BGS							
				15RS		5.0		
	SP-SAND, with silt, very fine to fine grained, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							220
74	- brown stained porewater at 73.7ft BGS							
	END OF BOREHOLE @ 75.0ft BGS	-62.83		-011				
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (⬭)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-09
DATE COMPLETED: June 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.74						
	AIRKNIFED (0-6ft BGS)							
2				1RS		0.0		
4			BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, trace sand size shell fragments throughout, dark brown, moist to wet with depth	5.74						
	- partially intact shell fragment at 7.2ft BGS			2RS		4.0		
8				-001				9.7
	- thin (>1/2") coarse gravel seam, wet at 9.3ft BGS							
10	- becoming wet at 10.2ft BGS - wood fragments at 10.4ft BGS							25.9
12	- silt nodules, beige at 12.0ft BGS			3RS		4.5		
	- increasing silt content with depth at 12.6ft BGS							
	- 1" sandy silt seam, medium gray, wet at 13.2ft BGS							80.5
14	- 3" sandy silt seam, medium gray, wet at 13.6ft BGS							
	- 2" sandy silt seam, medium gray, wet at 14.3ft BGS							
	- negative DNAPL dye test at 15.3ft BGS							
16	- negative DNAPL dye test at 16.3ft BGS	-4.56		-002				250
	CL-CLAY, trace silt, soft, moderate to high plasticity, slow dilatancy, medium gray, wet							
	- negative DNAPL dye test at 17.6ft BGS	-5.76		4RS		4.5		
18	SP-SAND, with silt, fine grained, loose, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments			-003				409

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-09
DATE COMPLETED: June 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 20.0ft BGS							
22	- partially intact shell fragments at 22.2ft BGS			5RS		4.8		113
	- grading to fine to medium sand, trace fine gravel at 23.3ft BGS							
24	- small rounded pebbles at 24.2ft BGS - negative DNAPL dye test, small rounded pebbles at 24.5ft BGS	-13.06		-004				153
	CL-CLAY, trace silt, soft, rapid dilatancy, moderate plasticity, medium gray, wet	-13.36						
26	SP-SAND, trace silt, trace fine gravel, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-14.66		-005				161
	CL-CLAY, trace silt, trace fine sand, firm, slow dilatancy, medium plasticity, medium gray, wet			6RS		5.0		
28	- wood fragments at 26.7ft BGS - partially intact shell fragments at 27.4ft BGS	-16.16						220
	SC-CLAYEY SAND, trace silt, fine grained, well sorted, white grains and red grains throughout, medium to dark gray, wet, trace sand size shell fragments	-17.86						
30	- partially intact shell fragment at 28.9ft BGS							
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							274
32	- elevated pH (10) at 30.5ft BGS - clay nodule at 32.0ft BGS			7RS		5.0		
	SC-CLAYEY SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet	-21.66						376
34	- wood fragments at 34.0ft BGS - negative DNAPL dye test at 35.0ft BGS							
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-23.56						
36								601
	- negative DNAPL dye test at 37.5ft BGS	-25.86		8RS -006		5.0		
38	SC-CLAYEY SAND, trace silt, very fine to fine grained, compact, well sorted, trace white grains and red grains, dark gray, wet, trace sand size shell fragments	-26.96						301
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red	-27.66						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-004)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-09
DATE COMPLETED: June 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains throughout, medium gray, wet, trace sand size shell fragments						
42	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - negative DNAPL dye test at 40.0ft BGS		9RS		5.0		92.4
44	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - thin interbedded silt seams at 44.4ft BGS	-32.46 -33.06	-007				363
46	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size and larger shell fragments - negative DNAPL dye test at 45.0ft BGS - partially intact shell fragment at 45.4ft BGS - grading to silty very fine sand at 46.8ft BGS - grading to fine sand at 47.2ft BGS - negative DNAPL dye test at 47.5ft BGS - wood fragments at 47.8ft BGS - negative DNAPL dye test at 49.5ft BGS		10RS -008		5.0		402
48							340
50	SM-SILTY SAND, very fine grained, compact, white grains and red grains throughout, trace sand size shell fragments	-37.86 -38.86					240
52	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - 3" silty very fine sand seam, wet at 51.8ft BGS - elevated pH (11) at 52.0ft BGS	-40.46 -40.96 -41.36	11RS		5.0		
54	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, medium gray, wet	-42.46					385
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-43.46					
56	SM-SILTY SAND, fine grained, compact, well sorted, white grains and red grains throughout, medium gray, wet	-44.56					1008
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments		12RS -009		5.0		
58	SM-SILTY SAND, very fine to fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-46.16					518

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-09
DATE COMPLETED: June 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - negative DNAPL dye test, silt nodules at 57.5ft BGS							722
	SM-SILTY SAND, very fine to fine sand, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments			13RS		5.0		
64	- negative DNAPL dye test at 60.0ft BGS - negative DNAPL dye test at 60.5ft BGS - elevated pH (11) at 61.0ft BGS - grading to silty very fine sand at 62.0ft BGS - negative DNAPL dye test at 62.5ft BGS - negative DNAPL dye test at 64.5ft BGS							765
66								559
	- negative DNAPL dye test at 67.5ft BGS			14RS		5.0		
68				-010				1030
70	- negative DNAPL dye test at 70.0ft BGS							
	SC-CLAYEY SAND, with silt, very fine sand, compact, well sorted, white grains and red grains, dark gray, wet, trace sand size shell fragments	-58.56						63.9
72				15RS		5.0		
74		-62.46		-011				221
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-63.26						
76	END OF BOREHOLE @ 75.0ft BGS							
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-010)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-10
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.93						
0	FILL, red brick, concrete, rubble							5.8
2	GM-GRAVEL, with silt, trace fine to coarse sand, compact, fine grained, poorly sorted, brown, moist	10.03		1RS		5.0		6.2
4	SP-SAND, loose, fine grained, well sorted, brown	7.63						
	- trace fine gravel at 5.0ft BGS	6.93	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	NO RECOVERY (5.0 TO 7.5ft BGS)							--
8	SP-SAND, loose, fine grained, well sorted, brown	4.43		2RS -001		2.5		8.7
10	- dark gray, trace red grains and white grains, wet at 10.0ft BGS							7.8
	- no gravel at 11.4ft BGS			3RS		4.2		
12								8.7
14								
	- negative DNAPL dye test at 15.5ft BGS			-002				
16	- positive DNAPL dye test at 16.5ft BGS			-003				8636
	ML-SANDY SILT, trace clay, firm, low plasticity, dark gray, trace red grains and white grains, wet, slight odor, residual DNAPL	-5.47		4RS		5.0		
18	- positive DNAPL dye test at 19.0ft BGS			-004 -005				8636

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-10
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- positive DNAPL dye test at 20.0ft BGS	-8.17					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments - negative DNAPL dye test at 21.0ft BGS		-006				2575.0
22	- negative DNAPL dye test at 22.0ft BGS		5RS		5.0		
	ML-SANDY SILT, trace fine gravel, firm, fine grained sand, dark gray, trace red grains and white grains, wet, trace shell fragments	-10.77 -11.57					812.2
24	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments - medium grained, negative DNAPL dye test at 24.0ft BGS	-13.37					
26	ML-SILT, with fine grained sand, stiff, dark gray, moist, trace shell fragments						574.3
			-007/ 001				
	- negative DNAPL dye test at 27.5ft BGS		6RS		5.0		
28							245.6
30							
	SP-SAND, trace fine gravel, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-19.07					906.7
32	- negative DNAPL dye test at 31.5ft BGS		7RS				
	- no gravel, negative DNAPL dye test at 33.5ft BGS						1093.0
34							
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments	-22.57 -22.97	-008				
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments						1638.0
36	- negative DNAPL dye test at 35.5ft BGS						
			8RS -009		5.0		
38							
	- with silt at 38.7ft BGS						461.3
	- no silt at 39.4ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-10
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SANDY SILT, firm, fine grained, dark gray, wet	-28.07						484.0
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, wet	-29.47						
42	ML-SILT, trace fine grained sand, stiff, dark gray, wet	-29.97		-010 9RS		4.0		
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-30.47						512.3
44	- negative DNAPL dye test at 42.5ft BGS - 1/4" silt seam at 42.6ft BGS - negative DNAPL dye test at 45.0ft BGS							
46								623.7
	- negative DNAPL dye test at 47.0ft BGS			10RS		5.0		
48	- trace fine gravel at 48.5ft BGS - no gravel at 49.0ft BGS							816.2
50	- negative DNAPL dye test at 50.0ft BGS	-38.07		-011				
	END OF BOREHOLE @ 50.0ft BGS							
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-11
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.42						
	ASPHALT							
	SM-SILTY SAND (FILL), with fine to coarse grained gravel, compact, fine to coarse grained sand, poorly sorted, light brown, moist	11.42						5.6
2				1RS		4.0		
	SP-SAND, trace fine gravel, trace medium and coarse sand, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments	8.82						8.1
4			BACKFILLED WITH CEMENT/ BENTONITE GROUT					
	- wet at 5.8ft BGS							
6								10.8
				-001				
				2RS		2.8		
	NO RECOVERY (7.8 TO 10.0ft BGS)	4.62						14.0
8								
	SP-SAND, trace fine gravel, trace medium and coarse sand, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments	2.42						
10	- dark gray at 10.3ft BGS							13.1
12	NO RECOVERY (12.5 TO 15.0ft BGS)	-0.08		3RS		2.5		
14								
		-2.58						
	SP-SAND, trace fine gravel, trace medium and coarse sand, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments	-2.78						
16		-3.68						2059.0
	CL-SILTY CLAY, firm, medium plasticity, dark gray, wet							
	- negative DNAPL dye test at 16.0ft BGS							
		-4.98		4RS		5.0		
18	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, some medium grained							1566.0
	- negative DNAPL dye test at 18.0ft BGS	-7.48		-002				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001, -002)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-11
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- negative DNAPL dye test at 20.0ft BGS	-7.78					
	ML-SANDY SILT, soft, fine grained sand, dark gray, wet						187.9
22	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments						
	- negative DNAPL dye test at 21.5ft BGS	-10.08	5RS		2.5		
	NO RECOVERY (22.5 TO 25.0ft BGS)						
24							
		-12.58					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-12.88					
26	ML-CLAYEY SILT, some fine grained sand, firm, low plasticity, dark gray, wet, trace shell fragments						2113.0
	- negative DNAPL dye test at 27.0ft BGS		6RS -003		3.0		
28							
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-16.18					
30							90.7
32	SM-SILTY SAND, trace fine gravel, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-19.58	-004 7RS		5.0		
	SP-SAND, trace silt, trace fine grained gravel, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-20.78					373
34	- trace wood at 35.4ft BGS						
36	- with silt at 36.0ft BGS						132.6
	ML-SILT, trace fine grained sand, firm, dark gray, wet, trace wood	-24.28					
			8RS		5.0		
38	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-25.48					195.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-11
DATE COMPLETED: July 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-27.78						160.0
42	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood - trace wood at 42.7ft BGS	-29.28		9RS		5.0		
44	- silt, trace wood at 44.1ft BGS	-31.88						342.3
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-32.58						
46	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-34.18						189.6
	ML-CLAYEY SILT, trace sand, firm, low plasticity, dark gray, wet			10RS		5.0		
48	- some sand at 49.0ft BGS			-005				352.0
50	- negative DNAPL dye test at 50.0ft BGS	-37.58						
	END OF BOREHOLE @ 50.0ft BGS							
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-005)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/23/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-12
DATE COMPLETED: August 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	12.04						
2	SAND/FILL DEBRIS			1RS				
4								
		7.04	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SM-SILTY SAND, trace fine to medium gravel, compact, fine grained, well sorted, brownish gray, wet, odor			-001				
	- negative DNAPL dye test at 7.0ft BGS							
	- negative DNAPL dye test at 7.5ft BGS			2RS		3.0		1317
		4.24						
8	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, odor	4.04						
	NO RECOVERY (8 TO 10ft BGS)							
10	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, odor	2.04						10350
12	- positive DNAPL dye test at 12.5ft BGS - trace wood, trace silt seams at 12.8ft BGS			3RS -002		5.0		
14	- no wood at 14.1ft BGS							7917
	- negative DNAPL dye test at 15.0ft BGS							
	- positive DNAPL dye test at 15.5ft BGS							
16								6390
	- positive DNAPL dye test at 17.5ft BGS			4RS -003		5.0		
		-5.66						
18	CL-SILTY CLAY, firm, low plasticity, dark gray, wet	-6.36						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet			-004				923.8
	- negative DNAPL dye test at 18.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-12
DATE COMPLETED: August 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- negative DNAPL dye test at 21.5ft BGS - becoming medium grained at 21.6ft BGS		-005				2502
22	NO RECOVERY (22.5 TO 25ft BGS)	-10.46	5RS		2.5		
24							--
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-12.96 -13.16					
26	SC-CLAYEY SAND, compact, fine to medium grained, well sorted, low plasticity, dark gray, trace red grains and white grains, wet						1425
			6RS -006		5.0		
28	- trace shell fragments at 28.3ft BGS						
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-16.56					658.0
30	- no silt at 30.0ft BGS - trace interbedded silt layers < 1/4" thick at 30.2ft BGS - negative DNAPL dye test at 31.0ft BGS						
							1835
32			7RS		4.5		
			-007				
34		-21.86					843.3
	ML-SILT, firm, dark gray, wet - negative DNAPL dye test at 34.0ft BGS	-22.16					
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						
36	- some silt at 35.1ft BGS - no silt, trace wood at 36.0ft BGS						2011
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood, trace shell fragments	-25.16					
			8RS		5.0		
38	- negative DNAPL dye test at 37.5ft BGS - elevated pH (9.0) at 38.0ft BGS						337.6
		-27.76					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-12
DATE COMPLETED: August 17, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-28.76						
	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet, trace wood, trace shell fragments	-30.16						1320
42	SP-SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-30.76		9RS		5.0		
	- negative DNAPL dye test at 42.5ft BGS			(008/ 001)				
44	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							2662
	- negative DNAPL dye test at 45.0ft BGS							
46	- elevated pH (10) at 46.0ft BGS							708.0
	- negative DNAPL dye test at 47.5ft BGS			10RS				
48								1110
50	- negative DNAPL dye test at 50.0ft BGS	-37.96						
	END OF BOREHOLE @ 50.0ft BGS							
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-13
DATE COMPLETED: September 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.62						
2	FILL/CONCRETE			1RS				
4								
		5.62	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown, moist							
8				2RS				
				-001				0.5
10	- white grains and red grains throughout, trace sand size and larger shell fragments, wet at 10.0ft BGS							0.4
12				3RS				
14	- neutral pH (7.0), 1" silt seam at 13.7ft BGS - 1" silt seam at 14.1ft BGS - 2" silt seam at 14.4ft BGS							1.0
		-4.88						
16	ML-SILT, with very fine sand, soft, slight plasticity, slow dilatancy, dark brown to gray, wet	-5.48						18.9
	SP-SAND, with silt, very fine to fine sand, compact, well sorted, dark brown-gray, white grains and red grains throughout, trace sand size and larger shell fragments, wet			4RS				
18	- neutral pH (7.0), 2" silt seam, gray, wet at 16.2ft BGS - 2" silt seam, gray, wet at 16.5ft BGS - negative DNAPL dye test, partially intact shell fragments at 18.0ft BGS			-002				27.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-13
DATE COMPLETED: September 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
22	- 4" zone with fine gravel at 22.0ft BGS			5RS				4.2
24	- silt nodule at 24.8ft BGS							1.2
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, wet	-14.58						
26	- sandy, trace fine to medium gravel at 26.4ft BGS							2.2
	- elevated pH (10), wood fragments and small stones at 27.3ft BGS			6RS				
28								
	SP-SANd, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-17.68		-003				3.7
30	- small cobbles at 30.0ft BGS							
	- high pH (11), larger shell fragments at 31.0ft BGS							8.2
32								
	SM-SILTY SAND, very fine grained, compact, well sorted, gray, trace white grains and red grains, trace sand size and larger shell fragments, wet	-21.58		7RS				
34	- high pH (11), trace medium gravel at 32.8ft BGS							1.7
	- partial shell fragments at 33.1ft BGS							
	- partial shell fragments at 34.0ft BGS							
	- small cobbles at 34.8ft BGS							
	- wood fragments at 35.3ft BGS	-24.78						
36	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet							4.3
38				8RS -004				
	- small cobbles at 39.6ft BGS							4.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-13
DATE COMPLETED: September 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- 4" sandy silt lens, gray, wet at 42.2ft BGS			9RS				36.8
44	- 2" sandy silt seam, gray, wet at 43.8ft BGS - partial shell fragments at 44.1ft BGS							1.3
46	- increase in silt content to with silt at 46.0ft BGS							1.7
	- thin (>1") silt seam at 47.3ft BGS			10RS				
48				-005				2.1
50	END OF BOREHOLE @ 50.0ft BGS	-39.38						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-005)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-14
DATE COMPLETED: September 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.99						
0	FILL AND DEBRIS, brick, broken concrete		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS		0.0		
6	NO RECOVERY 6 TO 8.5ft BGS)	4.99		2RS		1.5		
8	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, moist to wet with depth	2.49		-001				0.0
10	- partially complete shell fragments at 9.0ft BGS							0.0
12	- 1" silt seam at 13.2ft BGS			3RS		5.0		
14	- 1" sandy silt seam at 14.5ft BGS							0.0
16	SM/ML-SILTY SAND TO SANDY SILT, very fine grained sand, dense, well sorted, non plastic, dark gray-brown, trace white grains and red grains	-4.51 -5.11		-002				194.2
18	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, moist to wet with depth - negative DNAPL dye test at 16.5ft BGS	-5.91 -6.91		4RS		5.0		177.2
	SM/ML-SILTY SAND TO SANDY SILT, very fine grained sand, dense, well sorted, non plastic, dark gray-brown, trace white grains and red grains, neutral pH (7)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-14
DATE COMPLETED: September 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- wood fragments at 17.2ft BGS - small stones at 17.8ft BGS						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, moist to wet with depth						684
22	- partially complete shell fragments, elevated pH (10) at 18.7ft BGS		5RS		5.0		
	- partially cemented sand nodules at 20.2ft BGS		-003				
24	- fine to medium sand, high pH (12) at 21.3ft BGS						1511
	- 1" silt seam at 22.6ft BGS - very weak positive DNAPL dye test at 23.0ft BGS						
	- increase in silt content at 24.3ft BGS	-14.31	-004				
26	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet, neutral pH (7)						4300
	- partially complete shell fragments, negative DNAPL dye test at 25.5ft BGS		6RS		5.0		
28	- increase in clay content at 26.1ft BGS						
	- increase in sand content at 27.2ft BGS - wood fragments at 27.4ft BGS	-17.21					4600
	SP-SAND, trace silt, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, sand size shell fragments throughout, wet, neutral pH (7)		-005				
30	- partially complete shell fragments at 29.1ft BGS						2600
	- negative DNAPL dye test at 29.5ft BGS						
32	- partially complete shell fragments at 29.6ft BGS						
	- partially complete shell fragments at 29.9ft BGS		7RS		5.0		
	- partially complete shell fragments at 32.5ft BGS						
34	- 2" sandy silt seam at 34.2ft BGS						3100
	- shell fragments, high pH (11) at 35.2ft BGS						
36	- silt nodules at 35.9ft BGS						
	- silt nodules at 36.4ft BGS						6200
	SM-SILTY SAND, very fine grained, dense, well sorted, medium gray, trace white grains and red grains, wet	-25.71	8RS		5.0		
38			-006/ 001				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet, high pH	-27.61					2300

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-14
DATE COMPLETED: September 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	(12)							
	- wood fragments at 41.4ft BGS - negative DNAPL dye test at 41.5ft BGS	-30.51		-007				1350
42	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, wet - wood fragments at 42.0ft BGS	-31.11		9RS		5.0		
44	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet, high pH (12)	-33.01						2150
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, wet - negative DNAPL dye test at 44.0ft BGS	-34.41						
46								400
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, high pH (12)	-36.11		10RS		5.0		
48	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet	-37.51		-008				2510
50	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, high pH (12) - negative DNAPL dye test at 48.5ft BGS	-39.01						
52	END OF BOREHOLE @ 50.0ft BGS							
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUL-01
DATE COMPLETED: June 7, 2012
DRILLING METHOD: 2" GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.86						
	ASPHALT	11.56						
	GM-SILTY GRAVEL, with sand, compact, fine to coarse angular to subrounded gravel, brown, moist	11.06						0.0
2	SP-SAND, trace silt, loose, fine gravel, well sorted, brown, with red grains and white grains, moist, sand size shell fragments			-001				
				1GP		4.1		
4								0.0
			BACKFILLED WITH BENTONITE CHIPS					
				-002				
6	- gray at 6.0ft BGS - wet at 6.7ft BGS							0.0
				2GP		3.6		
8								0.0
10				-003				
								0.0
12				3GP		4.9		
14	- 0.08' silt layer at 14.0ft BGS - 0.1' silt layer at 14.3ft BGS - very fine grained at 14.5ft BGS							0.0
	ML-SILT, loose, slight plasticity, light gray, wet, sand size shell fragments	-3.14		-004				
16								0.0
	SM-SILTY SAND, trace clay, loose, fine sand, light gray, with red grains and white grains, wet, sand size shell fragments, wood fragments	-4.74						
				4GP		3.5		
18								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUL-01
DATE COMPLETED: June 7, 2012
DRILLING METHOD: 2" GEOPROBE
FIELD PERSONNEL: N. EVANS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CL-SILTY CLAY, soft, low plasticity, light gray, very moist, sand size to medium gravel size shell fragments - sandy at 21.3ft BGS	-8.34		-005				0.0
22	SP-SAND, trace silt, loose, fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments	-9.84		5GP		4.8		
24				-006				0.0
	END OF BOREHOLE @ 25.0ft BGS	-13.14						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUL-02
DATE COMPLETED: June 12, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.89						
	ASPHALT							
		10.59						
	GM-SILTY SANDY GRAVEL, loose, fine to coarse grained gravel, brown, dry - 1' silt lens at 1.6ft BGS	10.09						
2	SP-SAND, trace silt, trace fine to medium grained gravel, fine to medium grained, compact, well sorted, grayish brown, moist			1GP -001		4.2		0.0
4	- 1' SW-SAND, fine to coarse grained, poorly sorted at 4.5ft BGS		BACKFILLED WITH BENTONITE CHIPS					
6	- increase in gravel content, sand size to coarse gravel size shell fragments at 6.0ft BGS			-002				
8				2GP		5.0		0.0
10								
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, wet, sand size shell fragments throughout	1.39		-003				
12	SP-SAND, trace silt, compact, fine grained, well sorted, wet, sand size shell fragments throughout - 0.15' silt lens at 12.4ft BGS	0.09		3GP		5.0		11.2
14	- 0.05' silt lens, wood fragments at 13.9ft BGS - 0.01' silt lens at 14.4ft BGS							
	- 0.2' CL-SILTY CLAY lens at 15.6ft BGS	-3.91						
16	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, wet, trace shell fragments - 0.2' CL-SILTY CLAY, compact, dark gray, wet at 16.4ft BGS - 0.8' CL-SILTY CLAY, compact, dark gray, wet at 16.7ft BGS			-004				
18				4GP		5.0		328

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUL-02
DATE COMPLETED: June 12, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- 0.1' ML-SILT, compact, dark gray, wet, fine grained shell fragments at 21.9ft BGS			-005				
	ML-SILT, trace sand, compact, dark gray, wet, fine grained shell shell fragments	-10.41		5GP		5.0		135
24	SP-SAND, compact, fine grained, dark gray, wet	-11.41		-006				
	END OF BOREHOLE @ 25.0ft BGS	-13.11						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUM-01
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.74						
	ASPHALT							
		10.24						
2	ML-SANDY SILT, with gravel, loose, low plasticity, brown, moist							
		9.54						
	SP-SAND, trace silt, loose, fine to medium grained, well sorted, brown, moist, fine grained shell fragments			1GP -001		4.0		0.0
4			BACKFILLED WITH BENTONITE CHIPS					
		6.34						
6	ML-SANDY SILT, with gravel, loose, low plasticity, brown, moist			-002				
		5.44						
	SP-SAND, with silt, loose, fine to medium grained, well sorted, brown, wet, fine grained shell fragments			2GP		5.0		2.3
8								
10				-003				
12	- 0.1' ML-SILT, with sand, compact, low plasticity, dark gray, wet at 12.8ft BGS			3GP		5.0		72.8
14	- 0.1' ML-SILT, with sand, compact, low plasticity, dark gray, wet at 14.2ft BGS							
				-004				
16		-4.36						
	ML-SILT, compact, low plasticity, dark gray, wet			4GP		5.0		4250
18		-6.56						
	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, fine grained shell fragments							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUM-01
DATE COMPLETED: June 13, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22				-005				
				5GP		4.0		1051.5
	ML-SILT, compact, low plasticity, dark gray, moist	-11.46						
24				-006				
	END OF BOREHOLE @ 25.0ft BGS	-13.26						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUM-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.86						
	NO RECOVERY (0-2ft BGS)							
2	ASPHALT	9.86						
	SP-SAND, trace silt, trace gravel, fine to medium sand, fine gravel, well sorted, brown, moist	9.26		1GP -001		3.0		0.0
4			BACKFILLED WITH BENTONITE CHIPS					
6	- 0.2' GP-GRAVEL lens at 6.0ft BGS							
				2GP -002		4.5		0.0
8	- 0.25' ML-SILT lens at 8.4ft BGS							
10	- wet at 10.0ft BGS							
12	- 0.2' ML-SILT lens at 12.5ft BGS			3GP -003		5.0		4.2
14	- 0.1' ML-SILT lens at 14.0ft BGS							
16				-004				
	ML-SILT, trace sand, compact, no plasticity, dark gray, moist	-4.44						
18				4GP		5.0		0.0
	SP-SAND, trace silt, fine to medium grained, loose, well sorted, dark gray, moist, wood chips, fine grained shell fragments	-6.94						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUM-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22				5GP -005		2.8		0.0
24				-006				
	ML-SILT, compact, low plasticity, dark gray, moist, shell fragments	-12.74						
	END OF BOREHOLE @ 25.0ft BGS	-13.14						
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.83						
	AIRKNIFED (0-6ft BGS)		BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark brown, moist to wet, trace sand size and larger shell fragments throughout	5.83		1RS		0.0		26.8
	- small rounded pebbles at 7.2ft BGS			2RS		5.0		
8	- small rounded pebbles at 8.6ft BGS			-001				19.2
10	- wet at 11.0ft BGS							
	- small rounded pebbles at 11.4ft BGS							441.2
12	- small rounded pebbles at 12.6ft BGS			3RS		5.0		
14	- sandy silt clasts, medium gray, wet at 14.4ft BGS			-002				882.4
	- very weak positive DNAPL dye test at 14.5ft BGS							
16	- weak positive DNAPL dye test at 16.0ft BGS	-4.17		-003				10412
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, medium gray, wet	-4.77 -5.07						
	- very weak positive DNAPL dye test at 16.5ft BGS	-5.57		4RS		5.0		
18	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							8943
	CL-CLAY, with silt, soft, slow dilatancy,			-004				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	moderate plasticity, dark gray, wet							
	SP-SAND, with silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments							10412
22	- negative DNAPL dye test at 18.0ft BGS	-9.97						
	- negative DNAPL dye test at 19.0ft BGS	-10.37		-005				
	- weak positive DNAPL dye test, neutral pH (7) at 19.5ft BGS			5RS		5.0		
	CL-CLAY, with silt, soft, moderate plasticity, slow dilatancy, dark gray, wet							6629
24	- weak positive DNAPL dye test at 22.0ft BGS			-006				
	SP-SAND, trace silt, trace fine gravel, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-13.47						
26	- very wet at 22.4ft BGS							698.2
	- very weak positive DNAPL dye test, neutral pH (7) at 23.0ft BGS							
	- wet at 23.3ft BGS							
	- weak positive DNAPL dye test at 23.5ft BGS							
	- weak positive DNAPL dye test at 25.0ft BGS			6RS		5.0		
28	SM-SILTY SAND, very fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size and larger shell fragments	-16.77		-007				1042
	- negative DNAPL dye test, partial shell fragments at 27.5ft BGS			-008				
30	- nearly complete shell fragments at 28.0ft BGS							
	SP-SAND, trace silt, trace fine gravel, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout							1042
	- negative DNAPL dye test at 29.5ft BGS			-009				
32	- 2" sandy silt seam, medium gray, wet at 30.1ft BGS			7RS		5.0		
	- negative DNAPL dye test at 31.5ft BGS							
	- neutral pH (7) at 33.0ft BGS	-21.87						231.6
34	- partial shell fragments at 33.5ft BGS			-010				
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-22.57						
36	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-24.77						133.6
	- partially complete shell fragments at 36.2ft BGS			8RS		5.0		
38	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-26.27						13.7
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	throughout, dark gray, wet, trace sand size and larger shell fragments - silt nodules, medium gray, wet at 39.1ft BGS - 6" zone of partial shell fragments at 40.1ft BGS						64.8
42	- wood fragments at 42.5ft BGS		9RS		5.0		
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-31.17					644.3
44	- wood fragments at 43.4ft BGS - neutral pH (6) at 43.5ft BGS	-32.07 -32.97	-011				
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size and larger shell fragments						1069
46	- negative DNAPL dye test at 44.5ft BGS	-34.27					
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments		10RS		5.0		
48	- negative DNAPL dye test at 46.0ft BGS	-36.47					311.7
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments, neutral pH (7)	-37.87					
50	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments, neutral pH (7)	-38.37					750.1
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-40.17	11RS -012		5.0		
52	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						730.6
54	- negative DNAPL dye test at 52.0ft BGS						
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-43.87					
56	- negative DNAPL dye test at 53.5ft BGS - increase in silt content at 54.0ft BGS - neutral pH (6) at 55.5ft BGS						520.8
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments		12RS		5.0		
58	- negative DNAPL dye test at 56.0ft BGS						498.2
	- sandy silt nodules at 59.5ft BGS - increase in silt content at 59.8ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- neutral pH (6) at 61.0ft BGS							456.1
62	- increase in sand content at 62.5ft BGS			13RS		5.0		
	- negative DNAPL dye test at 63.0ft BGS			-013				
64								774.5
	- trace clay (increase in clay content) at 64.6ft BGS - grading to silt and sand at 64.7ft BGS - negative DNAPL dye test at 65.0ft BGS							
66	- grading to silty very fine sand, trace clay at 65.2ft BGS - negative DNAPL dye test at 66.0ft BGS - very wet at 66.1ft BGS							549.1
	- high pH (10) at 67.5ft BGS			14RS		5.0		
68								838.2
	- high pH (10) at 69.0ft BGS - wet at 69.2ft BGS - increase in sand content at 69.4ft BGS							
70	- negative DNAPL dye test at 70.0ft BGS	-58.17						
	NO RECOVERY (70-71ft BGS)	-59.17						
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							6812
72	- very wet, brown stained pore water at 71.2ft BGS			15RS		4.0		
	- negative DNAPL dye test at 71.5ft BGS - high pH (11) at 73.0ft BGS							
74	- negative DNAPL dye test at 74.0ft BGS			-014				1619
	- wet at 74.5ft BGS - silt nodules at 74.6ft BGS - increase in silt content at 75.2ft BGS							
76	- trace clay (increasing clay content) at 76.1ft BGS							2419
	- negative DNAPL dye test at 77.0ft BGS							
	- neutral pH (8) at 77.5ft BGS			16RS		5.0		
78								978.2
	- negative DNAPL dye test, increase in sand content at 79.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- high pH (10) at 80.5ft BGS - negative DNAPL dye test at 81.0ft BGS - trace clay (increase in clay content) at 81.2ft BGS						603.4
82	- very wet at 81.6ft BGS - high pH (10) at 82.5ft BGS		17RS		5.0		
	- wet at 83.0ft BGS	-71.17					
	SC-CLAYEY SAND, with silt, very fine grained, compact, well sorted, dark gray, wet						1172
84	- negative DNAPL dye test at 84.0ft BGS	-72.37	-015				
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						
86	- very wet at 85.3ft BGS - neutral pH (7) at 85.5ft BGS - negative DNAPL dye test, trace clay (increase in clay content), neutral pH (7) at 86.5ft BGS						761.0
			18RS		5.0		
88	- negative DNAPL dye test at 88.0ft BGS						854.8
	- wet at 89.6ft BGS						
90	- increase in silt content at 90.1ft BGS						426.3
92	CL-SILTY CLAY, trace very fine sand, soft, moderate plasticity, rapid dilatancy, dark gray, wet	-80.47	19RS -016		5.0		
94							278.2
	ML/SM-SILT AND SAND, very fine sand, compact, trace white grains and red grains, dark gray, wet, trace sand size shell fragments	-82.97					
96	- increase in sand content at 95.8ft BGS	-84.37					1707
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						
	- grading to fine sand at 96.6ft BGS		20RS		5.0		
98	- negative DNAPL dye test, neutral pH (7) at 98.0ft BGS - grading to very fine sand at 98.1ft BGS						3372
	- weak positive DNAPL dye test at 99.5ft BGS	-87.77	-017				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML/SM-SILT AND SAND, very fine sand, compact, trace white grains and red grains, dark gray, wet	-88.37						
	- negative DNAPL dye test at 100.0ft BGS							2681
102	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains, dark gray, wet, trace sand size shell fragments			21RS		5.0		
	- neutral pH (7) at 101.5ft BGS			-018				
	- negative DNAPL dye test at 102.5ft BGS							3463
104								
	- neutral pH (7) at 104.5ft BGS			-019				
	- negative DNAPL dye test at 105.0ft BGS							
		-93.97						
106	ML/SM-SILT AND SAND, very fine grained, compact, well sorted, trace white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							827.8
	- negative DNAPL dye test at 107.0ft BGS			22RS		5.0		
108				-020				1148
	- 1" fine sand seam, wet at 109.5ft BGS							
110	- negative DNAPL dye test at 110.0ft BGS	-98.27						
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							408.2
	- grading to silty very fine sand at 111.5ft BGS							
112				23RS		5.0		
	- wood fragments at 112.8ft BGS							
	- grading to very fine sand, with silt at 112.9ft BGS							317.2
114								
	- grading to silty very fine sand at 114.6ft BGS							
116								204.8
	- grading to very fine sand, with silt at 116.3ft BGS							
	- grading to silty very fine sand at 117.5ft BGS			24RS		5.0		
118	- grading to very fine sand, with silt at 117.9ft BGS							
	- high pH (12) at 118.5ft BGS							537.4
	- grading to silty very fine sand at 119.7ft BGS			-021				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-01
DATE COMPLETED: June 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 120.0ft BGS END OF BOREHOLE @ 120.0ft BGS	-108.17						

122
124
126
128
130
132
134
136
138

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.65						
0	AIRKNIFED (0-7.5ft BGS)		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS		0.0		
2								
4								
6								13.4
8	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, moist, white grains and red grains throughout, trace sand size shell fragments throughout - thin beige silt seams at 7.8ft BGS	4.15		2RS		5.0		0.0
10	- wet at 10.2ft BGS							292.4
12				3RS		5.0		
14				-001				390.2
16	- negative DNAPL dye test at 15.5ft BGS CL-CLAY, with silt, soft, moderate plasticity, slow dilatancy, dark gray, wet	-4.15		-002				523.2
18	SP-SAND, with silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-5.05		4RS -003		5.0		405.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- trace fine to medium rounded gravel at 23.1ft BGS			5RS		4.0		243.3
24	- negative DNAPL dye test at 24.0ft BGS			-004				508.6
	CL-CLAY, with silt, firm, moderate plasticity, slow dilatancy, dark gray, wet	-13.65						
26	- partial shell fragments at 25.5ft BGS - partial shell fragments at 26.5ft BGS - partial shell fragments at 27.1ft BGS							160.0
	SM-SILTY SAND, trace clay, very fine to fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-15.75		6RS		5.0		
28	- becoming sandy with depth at 28.7ft BGS							270.1
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-17.85						
30								165.1
32				7RS -005		5.0		
	CL/ML-SILTY CLAY, soft, moderate plasticity, rapid dilatancy, medium gray, wet	-21.65						68.2
34	- 6" zone with wood fragments at 33.9ft BGS - becoming sandy at 34.1ft BGS	-22.75						
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							
36	- partial shell fragments at 36.3ft BGS							0.0
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-24.85						
		-26.15		8RS		5.0		
38	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							0.5
		-28.25						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-28.55						0.0
42	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, trace sand size shell fragments throughout - thin silt seam, medium gray, wet at 42.2ft BGS			9RS -006		5.0		0.0
44	- increase in silt content at 45.0ft BGS							
46	- neutral pH (7) at 46.0ft BGS							32.2
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains, dark gray, wet to very wet, trace sand size shell fragments	-34.65		10RS		4.0		
48	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-36.45						14.3
50	- neutral pH (7) at 50.5ft BGS							
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments throughout	-39.65		-007 11RS		5.0		2.5
52								
54	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-42.05						0.0
56								0.0
58	- partially intact shell fragment at 58.6ft BGS - wood fragments at 59.4ft BGS			12RS		4.0		29.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62				13RS		4.0		134.8
		-51.95						
64	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments - negative DNAPL dye test, neutral pH (8) at 64.0ft BGS			-008				945.2
66	- very wet at 66.0ft BGS - low pH (5) at 66.5ft BGS			-009				1149
	- negative DNAPL dye test at 67.5ft BGS			14RS		5.0		
68	- decrease in clay content at 68.2ft BGS - neutral pH (6) at 68.5ft BGS							810.2
70	- negative DNAPL dye test at 70.0ft BGS							
	- increase in clay content at 70.8ft BGS - elevated pH (10) at 71.0ft BGS							920.2
72	- hydrogen sulfide type odor at 72.5ft BGS			15RS		5.0		
	- elevated pH (10) at 73.0ft BGS - becoming sandy at 73.1ft BGS							
74	- increase in clay content at 73.8ft BGS - negative DNAPL dye test at 74.0ft BGS							1158.7
	- becoming sandy at 74.6ft BGS							
76	- elevated pH (10) at 75.5ft BGS - increase in clay content at 75.9ft BGS							
	- negative DNAPL dye test at 76.5ft BGS	-64.95		-010				1662
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-65.75		16RS		5.0		
78	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments - negative DNAPL dye test, elevated pH (10) at							717.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	78.0ft BGS - increase in clay content at 79.0ft BGS							641.2
82	- very wet at 82.3ft BGS - negative DNAPL dye test, grading to silty very fine sand, neutral pH (7) at 82.5ft BGS			17RS		5.0		1980
84	- neutral pH (6) at 84.0ft BGS - wet at 84.5ft BGS - negative DNAPL dye test at 85.0ft BGS - grading to silty very fine sand, trace clay at 85.3ft BGS							946.7
86				-011				
	- negative DNAPL dye test at 87.5ft BGS			18RS		5.0		584.8
88								
	- increase in clay content at 89.7ft BGS							
90	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-78.45						526.2
	- partially intact shell fragments at 90.6ft BGS	-79.55						
92	ML-SANDY SILT, trace clay, slight plasticity, slow dilatancy, firm, medium gray, wet - negative DNAPL dye test at 92.0ft BGS			19RS		5.0		793.9
94	- negative DNAPL dye test at 94.0ft BGS	-82.45						
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-83.55						228.2
96	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size and larger shell fragments throughout							
	- partially complete shell fragments at 97.6ft BGS			20RS		5.0		1060
98	- increase in silt content at 98.3ft BGS - thin sandy silt seam at 98.6ft BGS - decrease in silt content at 98.8ft BGS - negative DNAPL dye test at 99.5ft BGS			-012				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-89.15					
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						1434
102							
	- negative DNAPL dye test at 102.5ft BGS	-90.85	21RS		5.0		
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, trace sand size shell fragments throughout	-91.75					784.2
104							
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						
	- negative DNAPL dye test, elevated pH (10) at 104.0ft BGS		-013				
106							696.7
	- negative DNAPL dye test, elevated pH (11) at 105.5ft BGS	-95.15					
	ML-SILT, and very fine sand, dense, slow dilatancy, trace white grains and red grains, dark gray, wet	-95.85	22RS		5.0		
108							
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-96.75					128.2
	ML-SILT, and very fine sand, dense, slow dilatancy, well sorted, trace white grains and red grains throughout, dark gray, wet						
110							
112							
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-101.05	23RS		4.0		257.0
114							
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-102.45					
		-103.55					332.5
	ML/SM-SILT AND SAND, very fine grained, dense, well sorted, slow dilatancy, trace white grains and red grains throughout, dark gray, wet	-104.35					
116		-104.95					
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-105.85	-014 24RS		5.0		71.2
118							
	ML-SILT, and very fine sand, dense, slow dilatancy, well sorted, trace white grains and red grains throughout, dark gray, wet						
	- elevated pH (12) at 117.0ft BGS						
	- wood fragments at 117.5ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-02
DATE COMPLETED: June 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-108.35						193.4
	END OF BOREHOLE @ 120.0ft BGS							
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	9.78						
	AIRKNIFED (0-6ft BGS)							
2				1RS		0.0		
4			BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark brown, moist to wet, trace sand size shell fragments throughout	3.78						0.0
8				2RS		5.0		57.8
10	- thin brown sandy silt seam, moist at 9.4ft BGS - thin brown sandy silt seam, moist to wet at 9.7ft BGS			-001				37.9
12	- becoming medium brown at 12.3ft BGS - becoming dark brown at 12.9ft BGS			3RS		5.0		238.1
14	- thin sandy silt seam, gray, wet at 14.2ft BGS - silt nodules at 14.8ft BGS			-002				
16	- very wet at 16.5ft BGS							298.7
18				4RS		5.0		120.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
							55.0
22	NO RECOVERY (22.5-25ft BGS)	-12.72	5RS		2.5		
24							
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark brown, moist to wet, trace sand size shell fragments throughout	-15.22					
26			-003				101.2
	SC-CLAYEY SAND, with silt, fine grained, loose, well sorted, white grains and red grains throughout, medium gray, very wet, trace sand size shell fragments	-17.42	6RS		5.0		
28							52.6
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, wet, trace sand size shell fragments	-18.92					
30	- partial shell fragments at 30.2ft BGS						0.0
	SM-SILTY SAND, very fine to fine grained, loose, well sorted, white grains and red grains throughout, dark gray, very wet, trace sand size shell fragments, neutral pH (7)	-21.72					
32	- silt nodules, medium gray, wet at 32.2ft BGS	-23.12	7RS		5.0		
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						0.0
34	- silt nodules, medium gray, wet at 34.4ft BGS - increase in silt content at 34.7ft BGS	-25.12					
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments throughout		-004				0.0
36							
			8RS		5.0		
38	- trace clay at 38.4ft BGS						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- very wet at 41.8ft BGS			9RS		5.0		0.0
44								91.2
46								87.2
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, white grains and red grains throughout, trace sand size shell fragments throughout	-37.02		10RS		55.0		
48	- wood fragment at 48.4ft BGS							227.4
	- 1" sandy silt seam, medium gray, wet at 48.6ft BGS							
50	- increase in silt content at 49.6ft BGS			-005				
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-41.12						604.3
52	- neutral pH (6) at 51.5ft BGS			11RS		5.0		
	- negative DNAPL dye test at 52.0ft BGS							
	- grading to silty very fine sand at 52.5ft BGS							
	- neutral pH (6) at 53.5ft BGS							1397
54	- negative DNAPL dye test at 54.5ft BGS			-006				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-45.42						
56	- partial shell fragments at 55.7ft BGS	-46.52						704.3
	- partial shell fragments at 56.4ft BGS							
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments			12RS		5.0		
58	- negative DNAPL dye test at 57.5ft BGS							630.8
	- grading to very fine silty sand at 58.2ft BGS							
	- neutral pH (7) at 58.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 59.5ft BGS - becoming very fine to fine sand at 59.7ft BGS	-50.32						
62	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout - becoming dense at 60.9ft BGS - partial shell fragments at 62.7ft BGS							34.2
				13RS		5.0		
				-007				20.1
64								
66								0.0
	NO RECOVERY (66.5-70ft BGS)	-56.72						
68				14RS		1.5		
70	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments throughout	-60.22						616.4
72	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - negative DNAPL dye test at 72.0ft BGS - silt nodules and partial shell fragments at 72.3ft BGS - increase in silt content at 73.1ft BGS	-62.02		-008				
		-63.72		15RS		3.5		61.6
74	NO RECOVERY (73.5-75ft BGS)	-65.22						
76	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - sandy to fine sand, with partial shell fragments at 75.1ft BGS - grading to very fine silty sand at 75.8ft BGS - elevated pH (9) at 76.0ft BGS							355.1
				16RS		5.0		
78	- very silty at 78.1ft BGS - elevated pH (9) at 78.5ft BGS - increase in sand content at 78.9ft BGS - elevated pH (9) at 79.5ft BGS							487.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- silty very fine sand, loose, very wet at 80.2ft BGS							
								483.4
82								
	- elevated pH (9) at 82.5ft BGS			17RS		5.0		
				-009				254.5
84								
	- elevated pH (9) at 84.5ft BGS							
86								
	- elevated pH (9) at 86.5ft BGS							440.7
	SC-CLAYEY SAND, with silt, very fine grained, firm, well sorted, limited plasticity, trace white grains and red grains throughout, dark gray, wet	-77.62		18RS		5.0		
88	- increase in sand content at 89.1ft BGS							599.7
	SM-SILTY SAND, compact, very fine grained, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments	-80.02						
90								417.4
	- negative DNAPL dye test at 90.0ft BGS							
92				19RS		5.0		
								495.7
94				-010				
	ML/SM-SILT AND SAND, very fine grained, compact, slight plasticity, slow dilatancy, trace white grains and red grains, dark gray, wet, trace sand size shell fragments	-85.42						
96								284.1
				20RS		5.0		
98								
	- partial shell fragment at 98.6ft BGS							479.3
		-90.02						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-009, -010)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray,wet, trace sand size shell fragments						1078
102	- negative DNAPL dye test at 102.0ft BGS		21RS		5.0		
	- negative DNAPL dye test at 103.0ft BGS - increase in silt content at 103.4ft BGS		-011				
104	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments, neutral pH (7)	-94.02					302.9
	- increase in silt content at 104.7ft BGS - grading to very fine sand, with silt at 105.3ft BGS						
106	- neutral pH (7) at 106.5ft BGS						451.5
	- neutral pH (7) at 107.5ft BGS		22RS		5.0		
108	- grading to silty very fine sand at 108.4ft BGS						1403
	- weak positive DNAPL dye test at 109.5ft BGS		-012				
110	- weak positive DNAPL dye test at 110.0ft BGS						238.4
112	- elevated pH (12) at 112.0ft BGS						
	- negative DNAPL dye test at 112.5ft BGS - brown stained pore water at 112.6ft BGS		23RS		5.0		
	- weak positive DNAPL dye test at 113.0ft BGS	-103.32	-013				
114	ML/SM-SILT AND SAND, very fine grained, dense, slow dilatancy, well sorted, dark gray, wet	-104.42					3612
	- weak positive DNAPL dye test at 113.5ft BGS - negative DNAPL dye test at 114.0ft BGS						
116	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-106.52	-014				68.3
	- grading to silty fine sand at 115.3ft BGS						
118	ML/SM-SILT AND SAND, very fine sand, dense, slow dilatancy, well sorted, dark gray, wet		24RS		5.0		
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, white grains and red grains, dark gray, wet, trace sand size shell	-109.12	-015				85.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-03
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	fragments - negative DNAPL dye test at 120.0ft BGS END OF BOREHOLE @ 120.0ft BGS	-110.22						

122
124
126
128
130
132
134
136
138

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.36						
	AIRKNIFED (0-6ft BGS)		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS		0.0		
6	BACKFILL, including asphalt	4.36						0.0
		2.86		2RS		3.0		
8	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments throughout			-001				0.0
10								184
12	- partial shell fragments at 12.8ft BGS - 5" sandy silt lens, medium gray, wet at 13.2ft BGS			3RS		4.5		
14	- silt nodules at 14.2ft BGS - partial shell fragments at 15.2ft BGS							4.1
	ML-CLAYEY SILT, soft, slight plasticity, rapid dilatancy, medium gray, wet	-5.14		-002				
16		-5.74						58.2
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray brown, wet, trace sand size shell fragments throughout - very wet at 16.4ft BGS			4RS		5.0		
18	- neutral pH (7) at 18.0ft BGS - partial shell fragments at 18.1ft BGS			-003				13.4
	- nearly complete shell fragment at 19.8ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001, -002, -003)

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	NO RECOVERY (20-22ft BGS)	-9.64						9.2
22	- small rounded pebbles at 22.0ft BGS	-11.64						
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray brown, wet, trace sand size shell fragments throughout			5RS		3.0		
	- very wet at 16.4ft BGS							70.2
24	- 4" sandy silt lens, medium gray, wet at 23.2ft BGS	-14.24						
	ML-SILT, with sand, soft, non plastic, slow dilatancy, medium gray, wet to very wet	-15.34						
26	SM-SILTY SAND, very fine to fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments							1385
	- neutral pH (6) at 27.5ft BGS			6RS		5.0		
28	- partially intact shell fragments at 28.4ft BGS	-18.14						
	SP-SAND, trace silt, fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments			-004				2785
30	- partially intact shell fragments at 29.0ft BGS							
	- shell fragments at 30.4ft BGS							97.5
32	SM-SILTY SAND, very fine grained, loose, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-21.34						
		-22.34		7RS		5.0		
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments							148.1
34								
36	- wood fragment at 36.4ft BGS							0.0
		-26.24						
	SM-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)			8RS		5.0		
38								
				-005				1532
	- 4" zone with wood fragments at 39.4ft BGS							
	- negative DNAPL dye test at 39.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- increase in silt content at 39.6ft BGS - negative DNAPL dye test at 40.0ft BGS							
	- 3" sandy silt lens, medium gray, wet at 41.4ft BGS							438.2
42	- increase in sand content at 42.4ft BGS			9RS		5.0		
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-32.34						0.0
44								
46								210.8
	- neutral pH (7) at 47.0ft BGS							
48	- negative DNAPL dye test at 48.0ft BGS	-37.54		10RS-006		5.0		
	SM-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - grading to very fine silty sand at 49.4ft BGS							1092
50	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-39.74						947.7
52	- 3" sandy silt seam, medium gray, wet at 51.4ft BGS - negative DNAPL dye test at 51.5ft BGS - silt nodules at 52.2ft BGS - neutral pH (7) at 52.5ft BGS			11RS		5.0		
	- wood fragments at 53.5ft BGS - shell fragments at 53.6ft BGS							1410
54	- negative DNAPL dye test at 54.0ft BGS	-44.04						
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-44.64						
56	- silt nodules at 54.8ft BGS							1328
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments			-007				
	- negative DNAPL dye test at 57.0ft BGS	-47.44		12RS		5.0		
58	SM-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments							1724
	- negative DNAPL dye test at 59.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- increase in silt content at 60.2ft BGS						321.5
62							
	- increase in silt content at 62.7ft BGS		13RS		5.0		
64							245.6
	- increase in silt content at 65.5ft BGS						
66							50.2
	- neutral pH (7) at 66.5ft BGS						
	- decrease in silt content/increase in sand content at 67.2ft BGS		14RS -008		5.0		
68	- silt nodules at 67.8ft BGS	-57.54					
	SP-SAND, trace silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-57.94					78.9
70	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-59.44					
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-61.14					526.8
72	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments		15RS		5.0		
	- negative DNAPL dye test at 72.5ft BGS						2138.0
74	- grading to very fine silty sand at 73.4ft BGS						
		-64.54	-009				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-64.74					
76	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet to very wet, trace sand size shell fragments						421.2
	- negative DNAPL dye test at 75.0ft BGS		16RS		5.0		
78	- negative DNAPL dye test at 77.0ft BGS						
	- negative DNAPL dye test, elevated pH (10) at 78.5ft BGS		-010				635.4
	SP-SAND, trace silt, very fine to fine grained,	-69.14					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-70.04					
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-71.34					2517
82	- elevated pH (11) at 81.5ft BGS		17RS		5.0		
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-73.54					1055
84	- negative DNAPL dye test at 82.0ft BGS - negative DNAPL dye test at 83.0ft BGS - elevated pH (11) at 83.5ft BGS						
	SM-SILTY SAND, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments						1448
86	- increase in silt content at 86.4ft BGS - neutral pH (7) at 86.5ft BGS		18RS		5.0		
88							334.2
			-011				
90	- negative DNAPL dye test at 90.5ft BGS						815.6
92	- very wet at 92.0ft BGS		19RS		5.0		
94	- negative DNAPL dye test at 94.0ft BGS - neutral pH (7) at 94.5ft BGS - wet at 94.6ft BGS						1529
96		-86.04					928.2
	SM/ML-SILT AND SAND, trace clay, very fine grained, slight plasticity, rapid dilatancy, well sorted, trace white grains and red grains, dark gray, wet, neutral pH (7)		20RS		5.0		
98	- negative DNAPL dye test at 97.0ft BGS						1100
	- increase in clay content at 99.2ft BGS - negative DNAPL dye test at 99.5ft BGS		-012				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments, neutral pH (7)	-89.74						235.4
102	SM/ML-SILT AND SAND, trace clay, very fine grained, soft, slight plasticity, rapid dilatancy, well sorted, trace white grains and red grains, dark gray, wet	-91.34		21RS		5.0		649.8
104	SP-SAND, with silt, very fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments - negative DNAPL dye test at 104.5ft BGS	-93.54 -94.84						
106	SM/ML-SILT AND SAND, trace clay, very fine grained, firm, slight plasticity, slow dilatancy, well sorted, trace white grains and red grains throughout, dark gray, wet - elevated pH (11) at 105.5ft BGS - negative DNAPL dye test at 106.0ft BGS			22RS		5.0		1252
108	- becoming dense at 108.2ft BGS - negative DNAPL dye test at 109.0ft BGS							3984
110	- weak positive DNAPL dye test at 109.5ft BGS - silt nodules, medium gray, wet at 110.8ft BGS			-013				570.4
112	- negative DNAPL dye test at 112.0ft BGS - silt nodules at 112.3ft BGS - thin sand seam at 113.2ft BGS			-014 23RS		5.0		166.2
114	SP-SAND, with silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, dark gray, wet, trace sand size shell fragments	-104.44						
116	- elevated pH (11) at 115.5ft BGS - elevated pH (11) at 116.5ft BGS							1793
118	- elevated pH (12) at 117.5ft BGS			24RS -015		5.0		181.2
	SM/ML-SILT AND SAND, very fine grained, dense, slow dilatancy, well sorted, trace white	-108.94						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-04
DATE COMPLETED: June 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains and red grains throughout, dark gray, wet, trace sand size shell fragments - negative DNAPL dye test at 120.0ft BGS	-109.64						
	END OF BOREHOLE @ 120.0ft BGS							
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMUA & 94C-89C-83C-21C.GPJ CRA_CORP.GDT 7/31/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.86						
	ASPHALT							
		9.86						
2	SP-SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet							
		7.86						
	CONCRETE RUBBLE, and wire (metal), slight odor							
4		6.86						
	SOLID CONCRETE, trace metal (rebar)		BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6			6" BOREHOLE					
8								
		1.86						
10	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							
12				1RS		3.0		
		-2.14						
14	NO RECOVERY (13 TO 15ft BGS)							
		-4.14						6.2
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, negative DNAPL dye test	-4.94						
16	ML-SILT, some fine grained sand, soft, dark gray, wet - no sand at 16.4ft BGS							8.4
				2RS		5.0		
18		-7.24						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet			-001				18.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								6.5
				3RS		3.8		
24	NO RECOVERY (23.8 TO 25ft BGS)	-12.94						10.3
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-14.14						
26								12.4
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-16.14						
		-17.04		4RS		5.0		
28	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet							16.2
				-002				
30								35.0
32	- with silt at 32.3ft BGS - no silt at 32.6ft BGS			5RS		5.0		
34								9.6
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-23.64						
36	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-25.24						1.7
				6RS		5.0		
38								2.3
		-27.94		-003				
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-28.44						
		-28.94						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet						2.6
42	- trace wood fibers at 40.8ft BGS - 0.3' seam only wood fibers at 41.4ft BGS		7RS		5.0		
							5.7
44	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet, trace wood	-33.14					
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-34.34					
46							14.3
			-004				
			8RS		5.0		
48							
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-37.74					7.5
50							
							7.7
52							
		-41.74	9RS		5.0		
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-42.14					
54	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet		-005				17.1
56		-45.24					9.6
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-46.04					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-46.64	10RS		5.0		
58		-47.14					
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						22.2
		-48.44					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white	-48.74					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains, wet							
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							175.2
62	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet			11RS		5.0		
								990.4
64	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet	-53.14		-006				
	- negative DNAPL dye test at 65.0ft BGS	-54.34						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							
66								620.2
	- negative DNAPL dye test at 67.5ft BGS			12RS		5.0		
68								1423
		-58.04						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-58.84						
70	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-60.04						
	- negative DNAPL dye test at 70.0ft BGS	-60.34						809.7
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet							
72				13RS		5.0		
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet			-007				
		-62.44						
	- neutral pH (7.0) at 72.0ft BGS							912.9
74	- negative DNAPL dye test at 72.5ft BGS	-63.34						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace roots							
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace roots							
76								235.8
	- negative DNAPL dye test at 75.0ft BGS							
	- negative DNAPL dye test at 77.5ft BGS			14RS		5.0		
78								947.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- negative DNAPL dye test at 80.0ft BGS	-69.24					
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-70.34					479.3
82	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet - 1" SP-SAND seam at 82.3ft BGS - negative DNAPL dye test, neutral pH (6.0) at 82.5ft BGS		15RS		5.0		
84							2610
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-73.84					
86	- negative DNAPL dye test at 85.0ft BGS	-74.94					
	ML-SILT, firm, no plasticity, dark gray, wet		-008				762.8
	- negative DNAPL dye test at 87.5ft BGS		16RS		5.0		
88							
	- with fine grained sand at 88.7ft BGS						572.2
	- no sand at 89.8ft BGS						
90	- negative DNAPL dye test at 90.0ft BGS	-79.24					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-80.44	-009/ 001				1222
92	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-81.24					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet - negative DNAPL dye test at 92.5ft BGS		17RS		5.0		
94							897.0
	- negative DNAPL dye test at 95.0ft BGS	-84.24					
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						
96							468.2
	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet	-86.04					
	- negative DNAPL dye test at 97.5ft BGS		18RS		4.0		
98	- neutral pH (6.0) at 98.0ft BGS	-87.34	-010				
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet						13082

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	- negative DNAPL dye test at 100.0ft BGS						1590
102	- negative DNAPL dye test at 102.0ft BGS	-91.14					
	NO RECOVERY (102 TO 105ft BGS)		19RS		2.0		
104							--
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-94.14					
106							271.3
			-011				
			20RS		5.0		
108	ML-SILT, trace sand, firm, fine grained sand, dark gray, wet	-97.34					336.1
110	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-99.24					
			-012				832.7
112	- negative DNAPL dye test at 112.5ft BGS		21RS -016		5.0		
114							703.2
	- negative DNAPL dye test at 115.0ft BGS						
	- trace wood at 115.6ft BGS						
116	CL-SILTY CLAY, firm, low plasticity, brownish gray, moist	-104.94					159.1
	SP-SANd, compact, fine grained, well sorted, brownish gray, wet	-105.94					
	- negative DNAPL dye test at 117.5ft BGS		22RS		5.0		
118	ML-SANDY SILT, firm, fine grained sand, brownish gray, wet	-106.94					
	- becoming ML-SILT, no sand at 118.6ft BGS		-013				1796
	- negative DNAPL dye test at 119.0ft BGS						
	- some fine grained sand at 119.1ft BGS		-014				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-07
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
122	- becoming sandy silt, firm at 119.5ft BGS - positive DNAPL dye test at 120.0ft BGS - negative DNAPL dye test at 120.5ft BGS - negative DNAPL dye test at 121.0ft BGS - becoming silt, stiff at 121.7ft BGS - negative DNAPL dye test at 122.0ft BGS - negative DNAPL dye test at 122.5ft BGS			-015				1891
	- positive DNAPL dye test at 123.0ft BGS	-112.04		23RS		5.0		
124	SM-SILTY SAND, compact, fine grained, well sorted, brownish gray, wet	-112.34		-017				7348
	ML-SILT, stiff, brownish gray, moist - negative DNAPL dye test at 124.5ft BGS			-018				
126	SP-SAND, trace silt, compact, fine grained, well sorted, brownish gray, trace red grains and white grains, wet - negative DNAPL dye test at 125.0ft BGS	-113.94						
	- trace wood at 126.1ft BGS	-115.34						254.0
128	ML-SILT, trace fine gravel, trace fine to medium sand, stiff, grayish brown, moist, trace wood			24RS		5.0		
	WEATHERED PLANT FIBERS, wet	-118.24						125.9
130	END OF BOREHOLE @ 130.0ft BGS	-119.14						
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.83						
	CONCRETE	10.33						
2	SP-SAND, trace silt, fine grained, compact, well sorted, gray-brown, white grains and red grains throughout, sand size and larger shell fragments throughout, moist - silt nodules at 2.1ft BGS			1RS		4.0		3.6
4	NO RECOVERY (4 TO 5ft BGS)	6.83						4.0
6	SP-SAND, trace silt, fine grained, compact, well sorted, gray-brown, white grains and red grains throughout, sand size and larger shell fragments throughout, moist	5.83	BACKFILLED WITH CEMENT/ BENTONITE GROUT 6" BOREHOLE					4.3
8	- intact shells at 7.5ft BGS			2RS		4.5		4.5
10	- wet at 9.1ft BGS - wood fragment at 9.8ft BGS - neutral pH (7.0) at 10.0ft BGS							11.9
12				3RS		4.5		
14	ML-SILT, trace very fine sand, soft, slow dilatancy, dark gray, wet - wood fragments at 13.7ft BGS	-2.57 -3.17						24.8
16	SP-SAND, trace silt, compact, well sorted, dark gray, white grains and red grains throughout, sand size shell fragments throughout, wet, neutral pH (7.0)							10.5
18	- increase in silt content, very wet at 17.0ft BGS - intact shells at 17.3ft BGS - neutral pH (7.0) at 18.5ft BGS - decrease in silt content, wet at 19.0ft BGS			4RS		5.0		16.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- 1" silt seam, gray, wet at 21.6ft BGS						72.4
	- neutral pH (8.0) at 22.5ft BGS		5RS		5.0		
	- 3" silt seam, gray, wet at 23.0ft BGS						
24	- partially intact shell fragments at 24.0ft BGS						255
	- negative DNAPL dye test at 25.0ft BGS						
26	- partial/complete shell zone from 26.4 to 27.8ft BGS		-001				532
	- negative DNAPL dye test at 27.5ft BGS		6RS		5.0		
28	- silt nodules at 28.7ft BGS						368
	- 1" silt seam, gray, wet at 29.4ft BGS						
	- silt nodules at 29.8ft BGS						
30	- neutral pH (8.0) at 30.0ft BGS						
							83.0
32	- 2" sandy silt seam, gray, wet, neutral pH (8.0) at 32.0ft BGS		7RS		5.0		
	- 1" silt seam, gray, wet at 33.3ft BGS						
34							74.4
36	ML-SILT, with very fine sand, soft, slow dilatancy, medium gray, wet	-25.57					31.3
	- 2" fine sand seam, wet at 36.8ft BGS		8RS		5.0		
38	- 2" fine sand seam, wet, neutral pH (8.0) at 37.5ft BGS	-27.17					
	SP-SAND, trace silt, very fine to fine sand, well sorted, dark gray, white grains and red grains throughout, sand size and larger shell fragments throughout, wet						36.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- elevated pH (9.0) at 41.5ft BGS		9RS		5.0		79.8
44	- 3" silty sand lens, medium gray, wet at 43.6ft BGS - 1" silty sand seam, medium gray, wet at 44.3ft BGS		-002				135.2
46	- 3" silty sand lens, medium gray, wet at 46.1ft BGS						351
48	SM-SILTY SAND, very fine sand, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet - neutral pH (8.0) at 47.5ft BGS - negative DNAPL dye test at 48.5ft BGS	-36.27	10RS		5.0		712
50	- neutral pH (7.0) at 50.5ft BGS						
52	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-39.97 -40.67					335
54	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet - negative DNAPL dye test at 53.0ft BGS		11RS -003		5.0		362
56	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-43.17					
58	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet - negative DNAPL dye test at 57.0ft BGS - elevated pH (9.0) at 58.0ft BGS - small pebbles at 58.1ft BGS	-44.87	12RS		5.0		286 578

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- elevated pH (10.0) at 62.5ft BGS - negative DNAPL dye test at 63.0ft BGS			13RS		5.0		276
64	- elevated pH (9.0) at 65.0ft BGS							809
66	- neutral pH (7.0) at 67.0ft BGS - 4" sandy clay lens, soft, gray, wet at 67.1ft BGS							526
68	CL-CLAY, with sand, soft, low plasticity, slow dilatancy, dark gray, wet - negative DNAPL dye test at 68.5ft BGS	-57.17		14RS -004		5.0		801
70	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet - shell fragments at 68.5ft BGS - neutral pH (7.0) at 70.5ft BGS - negative DNAPL dye test at 71.0ft BGS	-58.27		-005				772
72				15RS		5.0		
74	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-63.47						793
76	- neutral pH (7.0) at 77.0ft BGS							748
78	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-66.37		16RS -006		5.0		1260

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-69.37					
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet		-007				2209
82	- negative DNAPL dye test at 80.5ft BGS						
	- thin silt seam, neutral pH (7.0) at 82.5ft BGS		17RS		5.0		
	- becoming silty at 83.0ft BGS						
84	- becoming sandy at 83.9ft BGS						879
	- neutral pH (7.0) at 85.0ft BGS	-74.17					
	NO RECOVERY (85 TO 87ft BGS)						
86							
		-76.17					
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet		18RS		3.0		
88							1782
90							
							671
92							
	- neutral pH (8.0) at 93.0ft BGS		19RS		5.0		
							741
94	- negative DNAPL dye test at 94.5ft BGS		-008				
		-84.57					
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet						
96	- 1" sand seam at 95.8ft BGS						97.5
		-85.97					
	SP-SAND, trace silt, very fine grained, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-86.77	20RS		5.0		
98							
	SM-SILTY SAND, very fine grained, compact, well sorted, medium to dark gray, white grains and red grains, trace sand size shell fragments, wet						385
	- high pH (12.0) at 98.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-007)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- high pH (11.0) at 100.0ft BGS	-89.47						
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-90.27						254
102	SM-SILTY SAND, very fine grained, compact, well sorted, medium gray, white grains and red grains, trace sand size shell fragments, wet	-91.37		21RS		5.0		
	- wood fragments, faint laminations at 101.8ft BGS							
104	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							256
	- high pH (12.0) at 102.5ft BGS							
	- high pH (13.0) at 105.0ft BGS							
106								246
				22RS		5.0		
108								
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet	-97.37						3770
110	- positive DNAPL dye test, high pH (13.0 to 14.0) at 110.0ft BGS			-009				
	- high pH (13.0) at 111.5ft BGS							24.6
112	- increase in clay content at 111.8ft BGS							
	- decrease in clay content at 112.7ft BGS			23RS		5.0		
								24.5
114	- dense at 114.4ft BGS							
	- high pH (12.0) at 115.0ft BGS							
116	- trace clay at 116.2ft BGS							122
				24RS		4.0		
118				-010/ 001				
	- wood fragments at 118.3ft BGS	-107.47						
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-108.17						2.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-08
DATE COMPLETED: August 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- high pH (11.0) at 119.0ft BGS	-109.17						
	NO RECOVERY (119 TO 120ft BGS)	-109.37						
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							7.1
122	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, very dense, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet			25RS		0.0		
	- wood fragments at 120.7ft BGS							12.4
124	- wood fragments and small pebbles and or concretions from 121.6 to 121.9ft BGS							
	- wood fragments at 123.0ft BGS							
	- wood fragments at 123.7ft BGS	-114.17		-011				
	- elevated pH (10.0) at 125.0ft BGS							
126	END OF BOREHOLE @ 125.0ft BGS							
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-011)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	11.88						
	HAND AUGERED (0 to 5ft BGS)							
2								
	- wood at 3.0ft BGS							
4								
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, moist	6.88	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	- silty partings at 6.3ft BGS							7.3
	- silty partings at 6.7ft BGS							
	- partial shell fragments at 7.0ft BGS							
	- partial shell fragments at 7.7ft BGS			1RS		5.0		
8								
	- 1" silt seam, brown at 8.9ft BGS		6" BOREHOLE	-001				474
	- wet at 9.8ft BGS							
10	- positive DNAPL dye test at 10.0ft BGS			-002				
								590
12	- positive DNAPL dye test at 12.0ft BGS			-003				
				2RS		5.0		
	- positive DNAPL dye test at 13.0ft BGS			-004				
14								1001
	NO RECOVERY (15 TO 17ft BGS)	-3.12						
16								370
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, moist	-5.12		3RS		3.0		
18								6100
	- thin clay stringers at 18.9ft BGS							
	- weak positive DNAPL dye test at 19.0ft BGS							
	- weak positive DNAPL dye test at 19.5ft BGS			-005				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- thin clay seam at 19.7ft BGS - increase in silt content at 20.4ft BGS							
	- positive DNAPL dye test at 21.5ft BGS			-006				9100
22	- increase in silt content at 22.0ft BGS			4RS		5.0		
	- trace fine gravel, fine to medium sand at 23.0ft BGS - fine sand at 23.6ft BGS							4300
24	- fine to medium sand at 24.1ft BGS - positive DNAPL dye test at 24.5ft BGS - fine to coarse sand at 24.6ft BGS	-12.82		-007				
	ML-SILT, soft, slight plasticity, slow dilatancy, medium gray, wet	-13.82						
26	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet - negative DNAPL dye test at 26.5ft BGS							2800
	- partial shell fragments at 27.2ft BGS			5RS		5.0		
28								7700
	- positive DNAPL dye test at 29.5ft BGS			-008				
30								
		-18.92		-009				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, sand size and larger shell fragments throughout, wet	-19.32						3700
32	- negative DNAPL dye test at 31.0ft BGS	-20.42		6RS		5.0		
	SM-SILTY SAND, very fine grained, compact, well sorted, gray, white grains and red grains throughout, trace sand size and larger shell fragments, wet, neutral pH (7)							1700
34	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet			-010				
	- partial shell fragments at 32.6ft BGS	-23.52						
36	- thin (>1") silt seam at 34.8ft BGS							1300
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet, neutral pH (7)			7RS		5.0		
38	- wood fragments at 37.7ft BGS							
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-26.72						2250

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- partial shell fragments at 41.7ft BGS							200
	- thin silty partings at 43.0ft BGS			8RS		5.0		
44				-011				900
46	- wood and shell fragments at 46.7ft BGS - silty, very wet at 46.8ft BGS							1575
				9RS		5.0		
48								1960
50	- wood fragments at 49.8ft BGS							
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet	-38.52						1600
52	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-40.42		10RS		5.0		
				-012/ 001				1600
54	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-42.72						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-43.82						1885
56				11RS		5.0		
58	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-46.62 -47.32						1550

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							3000
				-013				
		-50.42		12RS		5.0		
64	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet							1700
66								1070
		-54.92						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet			13RS		5.0		
68		-56.02						
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet							1060
70								1100
72	- loose at 72.0ft BGS			-014				
				14RS		5.0		
	- compact at 73.0ft BGS							580
74								
76								3100
		-65.62		15RS		5.0		
78	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							1600

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-013)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-68.92						
82	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet - small stones at 81.6ft BGS			16RS		5.0		1800
84				-015				1140
		-73.22						
86	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-74.22		-016				4000
88	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet - faint laminations, thinly bedded sand and silty sand at 86.8ft BGS			17RS -017		5.0		
				-018				3150
90								
	- positive DNAPL dye test at 91.5ft BGS			-019				8450
92				18RS		5.0		
94	- positive DNAPL dye test at 94.0ft BGS			-020				22000
96				-021				5022
		-85.12						
98	SC/CL-SILTY CLAYEY SAND TO SILTY SANDY CLAY, very fine grained sand, low plasticity, slow dilatancy, well sorted, dark gray-brown, trace white grains and red grains, wet, neutral pH (8)			19RS		5.0		10000
		-87.72						
	SM-SILTY SAND, very fine grained, compact,							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-015)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
102	well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - thinly bedded/interbedded fine sand seams at 100.4ft BGS - faint laminations at 101.6ft BGS						250
			20RS		5.0		
104							150
106	- elevated pH (9), dense at 106.2ft BGS - silt and sand, dense from 107.0 to 109.0ft BGS		-022				132
			21RS		5.0		
108							73
110	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-97.92					
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, high pH (11)	-99.22					12.6
112			22RS		5.0		
	SP-SAND, trace to with silt, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - 2" thinly bedded dense silty sand at 114.2ft BGS - increase in silt content at 114.9ft BGS	-100.92					1.7
114			-023				
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet, elevated pH (10) - very wet from 116.2 to 117.1ft BGS	-103.82 -104.42					6.0
116			23RS		5.0		
	SP-SAND, trace to with silt, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (10) - thin silt stringers at 117.5ft BGS						6.1
118							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-022, -023)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-09
DATE COMPLETED: September 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
122				24RS		5.0		11.0
124	- wood fragments at 124.1ft BGS - 1" silt seam at 124.3ft BGS			-024				5.3
	END OF BOREHOLE @ 125.0ft BGS	-113.12						
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	GROUND SURFACE	10.39						
	HAND AUGERED TO 5.0ft BGS, NO RECOVERY (0 TO 5ft BGS)							
		5.39	BACKFILLED WITH CEMENT/ BENTONITE GROUT					
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to gray-brown, white grains and red grains throughout, trace sand size shell fragments, moist to wet							4.1
	- trace fine gravel at 6.5ft BGS							
				-001				7.2
	- partially complete shell fragment, neutral pH (8) at 10.6ft BGS							35.1
	- partially complete shell fragment at 12.3ft BGS							
	- thin (3-1/2") gravel seam at 14.4ft BGS - wood fragments at 14.6ft BGS							21.9
								24.5
	SC-CLAYEY SAND, trace silt, very fine grained, compact, slight plasticity, slow dilatancy, well sorted, medium gray, trace white grains and red grains, wet	-7.21		-002				12.5
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to gray-brown,	-8.81						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	white grains and red grains throughout, trace sand size shell fragments, moist to wet							5.9
22								
	ML-SILT, soft, non plastic, slow dilatancy, medium gray, wet	-13.01						0.0
24								
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to gray-brown, white grains and red grains throughout, trace sand size shell fragments, moist to wet	-14.81						76.1
26								
	SC-CLAYEY SAND, trace silt, very fine grained, compact, slight plasticity, slow dilatancy, well sorted, medium gray, trace white grains and red grains, wet	-16.51						
28								
	SM-SILTY SAND, trace clay, very fine grained sand, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-18.31		-003				278
30								
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, brown to gray-brown, white grains and red grains throughout, trace sand size shell fragments, moist to wet, neutral pH (8)	-20.31						30.4
32	- partial shell fragments at 31.3ft BGS							
	- thin silt seams at 33.7ft BGS							8.9
34	- thin silt seam at 34.4ft BGS							
36								0.0
38	- partial shell fragments at 38.6ft BGS			-004				12.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-003, -004)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
42	- silt nodules at 41.6ft BGS - silt nodules at 42.0ft BGS							28.6
44	- thin silt seams at 43.2ft BGS - grading to very fine sand at 43.5ft BGS - thin silt seams at 43.9ft BGS - intact shells at 44.6ft BGS - increase silt content at 44.8ft BGS - grading to very fine to fine sand, trace silt at 45.1ft BGS							25.2
46	- partial shell fragments at 46.4ft BGS - 2" silty sand zone, with wood fragments at 47.2ft BGS							173.2
48	- wood fragment at 48.3ft BGS - thin (>1/2") seam with shell fragments at 48.5ft BGS			-005				47.6
50	- wood fragments at 50.7ft BGS							239.6
52								
54	SM-SILTY SAND, trace clay, very fine sand, compact, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-42.71						92.2
56								74.5
58	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (7)	-46.01		-006				
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-48.01 -49.11						27.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-50.41						16.7
62	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (7)	-52.71						20.6
64	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							3.2
66								
68				-007				7.9
70								0.0
72								0.0
74	SM-SILTY SAND, trace clay, very fine grained, well sorted, non plastic, low dilatancy, dark gray, trace white grains and red grains, wet	-64.41						36.2
76	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (7) - partial shell fragments at 77.4ft BGS - silt nodules at 77.6ft BGS - silt stringers at 78.5ft BGS	-66.91		-008				67.5
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-007)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
		-70.31						
82	SM-SILTY SAND, very fine grained, compact, well sorted, medium to dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (7)							94.5
84								46.4
		-74.41						
86	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet							209.9
88	- partial shell fragments at 87.9ft BGS							160.2
		-78.61		-009/ 001				
90	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet, neutral pH (8)							
92	- wood fragments at 91.3ft BGS							240.3
94	- 3" sand lens, very fine to fine grained, trace silt at 93.6ft BGS							364.4
		-84.11						
96	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet							1163
98	- 3" silty sand lens at 96.6ft BGS							
		-88.31						852.5
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet, elevated pH (10)			-010				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-89.81						1435
102	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-91.51						
	- 2" sand seam, very fine to fine grained, trace silt at 103.3ft BGS			-011				1810
104	- 3" sand seam, very fine to fine grained, trace silt, negative DNAPL dye test at 104.5ft BGS			-012				
	- faintly laminated, thin sand partings at 104.7ft BGS	-94.81						
106	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet							1379
	- silt nodules at 107.5ft BGS							
108	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (10)	-97.51		-013				925
110								
								497
112								
	- wood fragments at 113.3ft BGS							692.8
114								
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-105.11						1964
116								
	SM-SILTY SAND, very fine grained, compact to dense, well sorted, dark gray, trace white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (10)	-107.11		-014				
118	- positive DNAPL dye test at 118.7ft BGS			-015				2298

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
122	- 4" sand lens, very fine to fine grained, trace silt at 121.0ft BGS - becoming dense, grading to sandy silt/silty sand at 121.5ft BGS			-016				520.8
124	- increase in sand content, grading to silty sand at 124.4ft BGS - positive DNAPL dye test at 125.0ft BGS	-114.71		-017				9630
126	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-116.31		-018				605
128	SM-SILTY SAND, very fine grained, compact to dense, well sorted, medium to dark gray, trace white grains and red grains, trace sand size shell fragments, wet, elevated pH (10)	-117.11						
	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-118.21						114
130	SM-SILTY SAND, very fine grained, compact to dense, well sorted, medium to dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-118.91						
132	SP-SAND, trace silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-121.01						436
134	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet, high pH (11) - 2" sand seam, very fine grained, trace silt, negative DNAPL dye test at 133.5ft BGS - 2" zone, small pebbles at 134.4ft BGS - very dense, dessicated at 135.0ft BGS			-019				637
136	- positive DNAPL dye test at 136.5ft BGS			-020				5376
138	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray brown, white grains and red grains throughout, trace sand size shell fragments, wet, high pH (11)	-126.81						397

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- wood fragments at 139.9ft BGS	-129.61						
	ML/SM-SILTY SAND TO SANDY SILT, very fine grained sand, compact to dense, well sorted, non plastic, dark gray, trace white grains and red grains, wet, elevated pH (10)							535
142	- negative DNAPL dye test at 142.0ft BGS - very dense, dessicated, cemented at 142.2ft BGS							
	- compact at 143.8ft BGS			-021				350
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, trace white grains and red grains throughout, trace sand size shell fragments, wet	-134.31						
146	- very dense, dessicated/cemented at 145.4ft BGS	-136.01		-022				NR
	- weak positive DNAPL dye test at 146.0ft BGS - 2" sand seam, very fine to fine grained, trace silt at 146.2ft BGS							
148	SC-CLAYEY SAND, with silt, very fine sand, compact, low to moderate plasticity, slow dilatancy, dark gray-brown, trace white grains and red grains, wet, neutral pH (7)			-023				NR
	- weak positive DNAPL dye test at 146.5ft BGS - partial shell fragments at 148.6ft BGS							
150	- increase in silt content, grading to silty sand at 149.8ft BGS - clayey sand to clay and sand, soft, faintly laminated, with thin sandy partings at 150.0ft BGS							337
152								
154								196
	SP-SAND, with silt, very fine to fine grained, compact, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-143.91		-024				
156	- wood fragments at 155.3ft BGS - interbedded sand silt seams at 155.6ft BGS							
	- sandy silt nodules at 157.3ft BGS	-147.01						
158	SM/ML-SILTY SAND TO SANDY SILT, very fine sand, compact, non plastic, slow dilatancy, brown, partial shell fragments throughout, wet	-148.11						
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-148.81						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUR-10
DATE COMPLETED: September 21, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- sandy silt nodules at 158.7ft BGS - partial shell fragments at 159.1ft BGS	-149.61						
162	CL-CLAY, with silt, trace very fine sand, firm, low to medium plasticity, slow dilatancy, faintly laminated, gray-brown, wet - sandy partings at 159.5ft BGS							
	END OF BOREHOLE @ 160.0ft BGS							
164								
166								
168								
170								
172								
174								
176								
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

Extraction and Injections Wells

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-1
DATE COMPLETED: SEPTEMBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.4* *7.74*					
20.0	SW-SAND (FILL), little silt, fine to medium grained, black, wet	*-8.6*	CONCRETE CHAMBER; BENTONITE GROUT; 12" Ø BOREHOLE; STAINLESS STEEL CASING	1SS		8	0
	ML-SILT, trace fine sand, soft, dark gray, wet	*-9.8* *-10.2*					
22.5	SW-SAND, some silt, fine grained, black, wet						
30.0	ML-SILT, some clay, medium soft, dark gray, wet	*-18.6* *-19.4*	BENTONITE CHIPS; SAND PACK	2SS		10	0
32.5	SW-SAND, little to some silt, fine to medium grained, black, wet	*-20.5*					
	SW-SAND (NATIVE), little to some silt, some shells, fine to medium grained, black, wet						
35.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - **TACOMA**
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-1
DATE COMPLETED: SEPTEMBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	- some silt, fine grained			3SS		8	0
42.5							
45.0							
47.5			SAND PACK				
50.0	- medium grained						
	SM-SAND, some silt, fine grained, dark gray, wet	-39.9		4SS		15	0
52.5							
55.0			WELL SCREEN				
57.5							
60.0	SW-SAND, little silt, fine grained, black, wet	-48.6		5SS		16	0
62.5			12" Ø BOREHOLE				
65.0							
67.5							
70.0	END OF HOLE @ 70.0ft BGS	-58.6	STAINLESS STEEL TAILPIPE	6SS		8	0
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-1
DATE COMPLETED: SEPTEMBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-77.5			SCREEN DETAILS Screened interval: 38.3 to 68.3ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

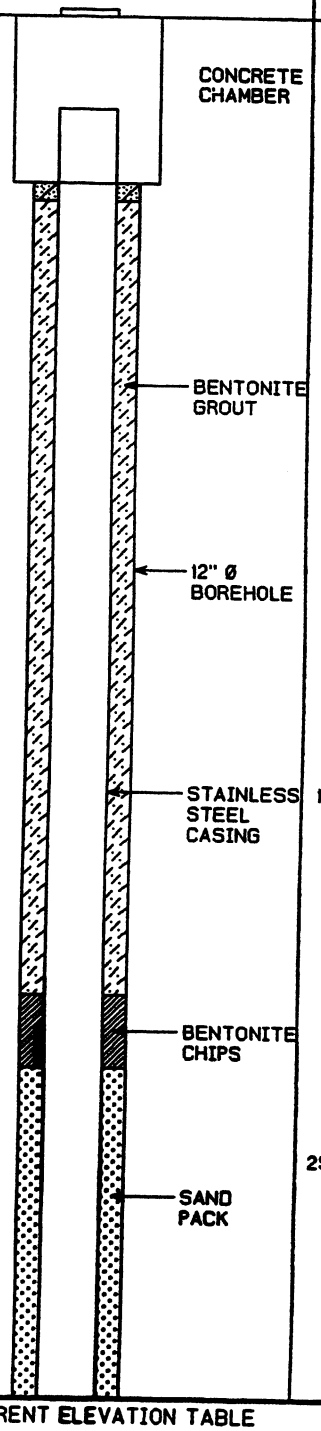
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-2
DATE COMPLETED: SEPTEMBER 7, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.5* *8.83*					
20.0	SW-SAND (NATIVE), little silt, fine to medium grained, black, wet	*-7.5*		1SS			
30.0	ML-SILT, little fine sand, medium soft, dark gray, wet	*-17.5*		2SS			



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-2
DATE COMPLETED: SEPTEMBER 7, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SW-SAND, trace silt, fine to medium grained, black, wet	-27.5		3SS			
-42.5							
-45.0							
-47.5			SAND PACK				
-50.0	- some silt, fine grained			4SS			
-52.5							
-55.0			WELL SCREEN				
-57.5							
-60.0	- little silt, trace vegetation			5SS			
-62.5			12" Ø BOREHOLE				
-65.0							
-67.5	- fine to medium grained			6SS			
-70.0	END OF HOLE @ 70.0ft BGS	-57.5	STAINLESS STEEL TAILPIPE				
-72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-2
DATE COMPLETED: SEPTEMBER 7, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: A-2A
DATE COMPLETED: November 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang, C. Dunnigan

NORTHING: 1063.17
EASTING: 442.44

GROUND SURFACE ELEV. ft NGVD: 12.30
TOP OF RISER ELEV. ft NGVD: 8.55

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
0	Not Sampled						
10	SP-SAND, fine grained, trace silt, dark gray	2.80	6"Ø STAINLESS STEEL CASING	SS1		0.7	22
			CEMENT/ BENTONITE GROUT				
20			12"Ø BOREHOLE	SS2		0.3	13
30				SS3		0.2	3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: A-2A
DATE COMPLETED: November 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang, C. Dunnigan

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40	- trace shell fragments		6"Ø STAINLESS STEEL CASING	SS4		0.5	12
42							
44							
46			CEMENT/ BENTONITE GROUT				
48							
50	ML-SILT, some fine grained sand, dark gray	-37.20	12"Ø BOREHOLE	SS5		1.3	8
52							
54							
56							
58							
60	SM-SILTY SAND, fine grained, dark gray	-47.20		SS6			
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: A-2A
DATE COMPLETED: November 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang, C. Dunnigan

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72	SW-SAND, fine to medium grained, trace silt, trace shell fragments, dark gray, heaving sands	-57.70	6"Ø STAINLESS STEEL CASING CEMENT/ BENTONITE GROUT	SS7			
74							
76							
78			BENTONITE				
80				SS8		0.9	54
82			SAND PACK				
84							
86							
88			WELL SCREEN				
90				SS9		0.7	
92			12"Ø BOREHOLE				
94							
96							
98							
100				SS10		1.0	39
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: A-2A
DATE COMPLETED: November 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang, C. Dunnigan

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
106							
108							
110	- no shell fragments		WELL SCREEN	SS11		0.7	
112							
114			SAND PACK				
116							
118							
120	SP-SAND, fine grained, some silt, dark gray	-107.20	12"Ø BOREHOLE	SS12		1.0	
122							
124							
126							
128							
130	- density increasing			SS13		1.0	
132							
134			6"ØSTAINLESS STEEL TAILPIPE				
136	ML-SILT, some fine grained sand, dark gray	-122.70	PEA GRAVEL	SS14			
	END OF BOREHOLE @ 136.5ft BGS	-124.20					
138							

WELL DETAILS
Screened interval:
-71.20 to -121.20ft NGVD
83.50 to 133.50ft BGS
Length: 50ft

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: A-2A
DATE COMPLETED: November 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang, C. Dunnigan

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	
142			Diameter: 6in Slot Size: 10 Material: Stainless Steel Seal: -65.70 to -67.70ft NGVD 78.00 to 80.00ft BGS Material: Bentonite Sand Pack: -67.70 to -122.70ft NGVD 80.00 to 135.00ft BGS Material: 1/20 Monterey Sand					
144								
146								
148								
150								
152								
154								
156								
158								
160								
162								
164								
166								
168								
170								
172								
174								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-3
DATE COMPLETED: SEPTEMBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.1* *7.65*					
20.0	SM-SAND (FILL), some silt, fine to medium grained, black, wet	*-7.9* *-8.8*	STAINLESS STEEL CASING	1SS		-	0
	ML-SILT (NATIVE), some clay, trace vegetation, stiff, dark gray, wet	*-9.0*					
22.5	SW-SAND, little silt, fine grained, black, wet						
30.0	- fine to medium grained	*-18.6*		2SS		15	0
	ML-SILT, some clay, little fine sand, medium soft, dark gray, wet						

CONCRETE CHAMBER
BENTONITE GROUT
12" Ø BOREHOLE
BENTONITE CHIPS
SAND PACK

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-3
DATE COMPLETED: SEPTEMBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, little silt, trace wood, fine to medium grained, black, wet	-27.9		3SS		18	0
42.5							
45.0							
47.5			SAND PACK				
50.0	- fine grained			4SS		11	0
52.5							
55.0			WELL SCREEN				
57.5							
60.0				5SS		10	0
62.5			12" Ø BOREHOLE				
65.0							
67.5							
70.0	END OF HOLE @ 70.0ft BGS	-57.9	STAINLESS STEEL TAILPIPE	6SS		8	0
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-3
DATE COMPLETED: SEPTEMBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.4 to 68.4ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

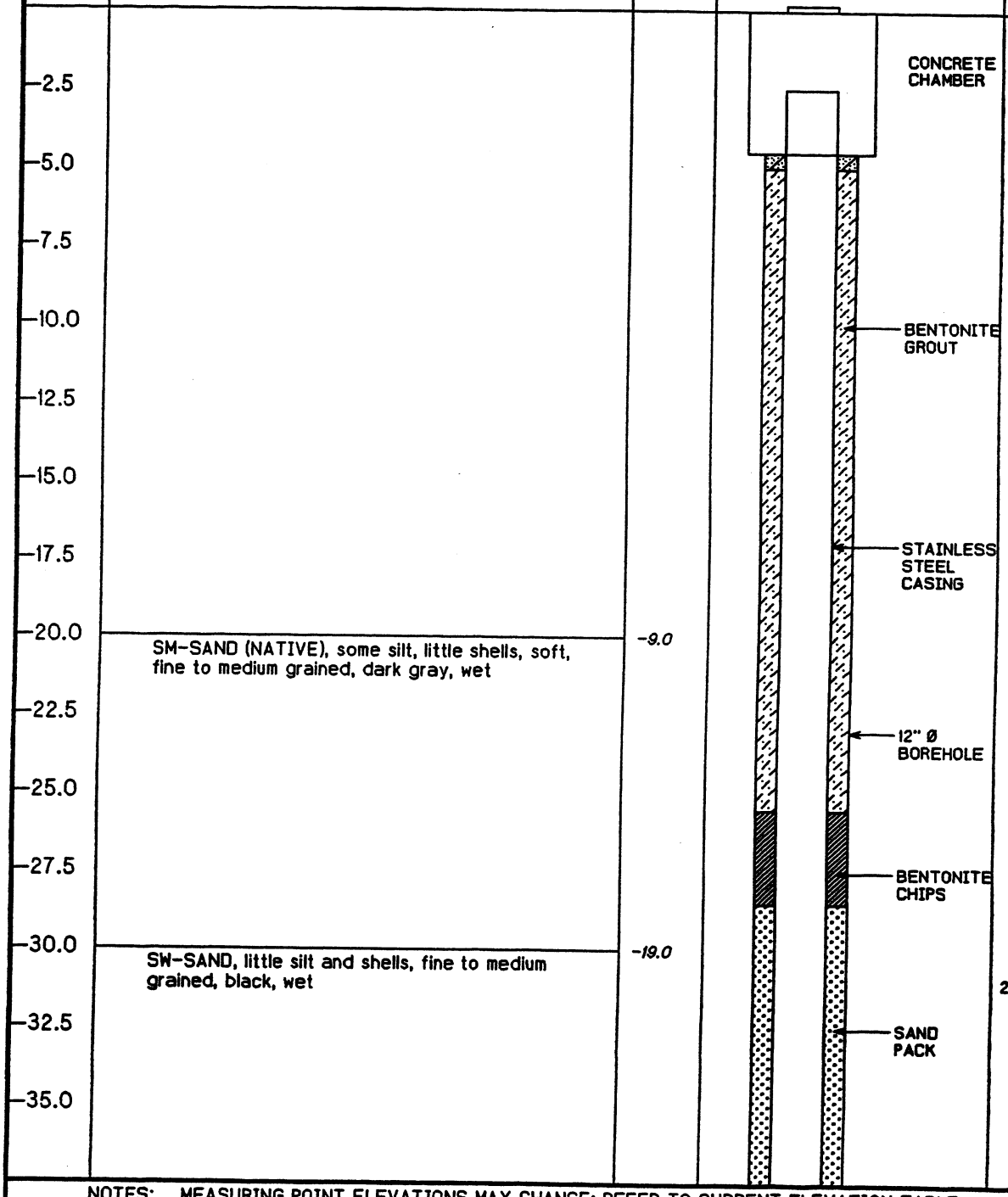
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.0* *7.34*					
20.0	SM-SAND (NATIVE), some silt, little shells, soft, fine to medium grained, dark gray, wet	*-9.0*		1SS		8	
30.0	SW-SAND, little silt and shells, fine to medium grained, black, wet	*-19.0*		2SS		14	



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	- fine grained			3SS		8	
42.5			SAND PACK				
45.0							
47.5							
50.0	SM-SAND, some silt, fine grained, dark gray, wet	-39.0	WELL SCREEN	4SS		8	
52.5							
55.0							
57.5							
60.0	SW-SAND, little silt, trace shells, fine grained, black, wet	-49.0	12" Ø BOREHOLE	5SS		8	
62.5							
65.0							
67.5	- trace silt			6SS		10	
70.0	END OF HOLE @ 70.0ft BGS	-59.0	STAINLESS STEEL TAILPIPE				
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-5
DATE COMPLETED: SEPTEMBER 13, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.7* *8.14*					
-2.5			CONCRETE CHAMBER				
-5.0							
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0			12" Ø BOREHOLE				
-17.5							
-20.0	SM-SAND (NATIVE), some silt, little shells, fine to medium grained, black, wet	*-8.3*	STAINLESS STEEL CASING	1SS		7	0
-22.5							
-25.0							
-27.5			BENTONITE CHIPS				
-30.0	SW-SAND, little silt, trace shells, fine to medium grained, black, wet	*-18.3* *-19.3*		2SS		9	0
-32.5	ML-SILT, some clay, trace shells, soft, dark gray, wet	*-20.0*	SAND PACK				
-35.0	SM-SAND, some silt, fine grained, black, wet						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

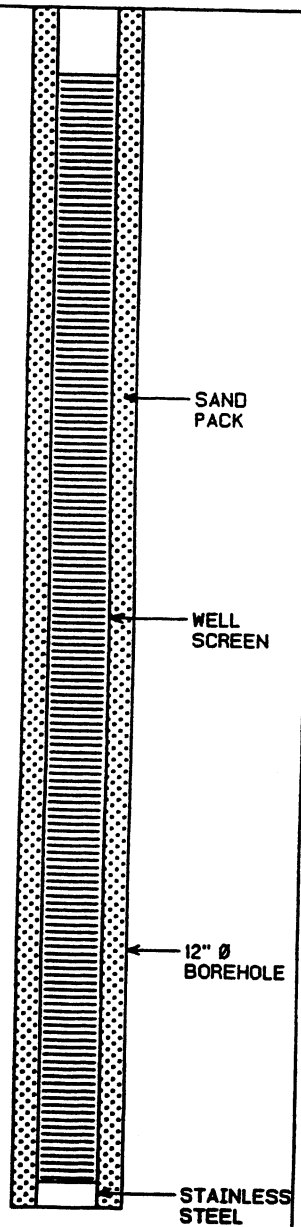
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-5
DATE COMPLETED: SEPTEMBER 13, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS
40.0	SW-SAND, trace shells, fine grained, black, wet	-28.3
42.5		
45.0		
47.5		
50.0	SM-SAND, some silt, little shells, fine grained, black, wet	-38.3
52.5		
55.0		
57.5		
60.0	SW-SAND, fine grained, black, wet	-48.3
62.5		
65.0		
67.5	- little to some silt, trace shells	
70.0	ML-SILT, stiff, black, wet	-57.9
	END OF HOLE @ 70.0ft BGS	-58.3
72.5		

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
3SS		8	0
4SS		8	0
5SS		8	0
6SS		10	NM

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-5
DATE COMPLETED: SEPTEMBER 13, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened interval: 39.3 to 69.3ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-6
DATE COMPLETED: SEPTEMBER 14, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.8* *9.28*					
-2.5			CONCRETE CHAMBER				
-5.0							
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0			12" Ø BOREHOLE				
-17.5							
-20.0	SP/GP-SAND and GRAVEL (FILL), little to some silt, hard, fine to coarse grained, subrounded, tan to black, wet, fuel oil odor	*-7.2* *-7.9*	STAINLESS STEEL CASING	1SS		14	NM
-22.5	SW-SAND, some silt, hard, fine to medium grained, black, wet						
-25.0							
-27.5			BENTONITE CHIPS				
-30.0	SW-SAND (NATIVE), trace shells, medium grained, black, wet	*-17.2*					
-32.5	ML-SILT, some clay, trace shells, medium soft, gray, wet	*-18.7*	SAND PACK	2SS		11	NM
-35.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-6
DATE COMPLETED: SEPTEMBER 14, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SM-SAND, some silt, trace shells, fine grained, black, wet	-27.2		3SS		10	0
42.5							
45.0							
47.5			SAND PACK				
50.0	SW-SAND, trace silt, fine to medium grained, black, wet	-37.2		4SS		9	0
		-38.4					
52.5	SM-SAND, some silt, trace wood, fine grained, black, wet		WELL SCREEN				
55.0							
57.5							
60.0	SW-SAND, little to some silt, fine grained, black, wet	-47.2		5SS		11	0
62.5			12" Ø BOREHOLE				
65.0							
67.5	SM-SAND, some silt, dense, fine grained, dark gray, wet	-55.2		6SS		8	0
70.0	END OF HOLE @ 70.0ft BGS	-57.2	STAINLESS STEEL TAILPIPE				
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: A-6
DATE COMPLETED: SEPTEMBER 14, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.2 to 68.2ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-1
DATE COMPLETED: SEPTEMBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.1* *8.49*					
20.0	SM-SAND (NATIVE), some silt, medium dense, fine to medium grained, poorly graded, dark gray, red sand grains, wet	-7.9		1SS			0
30.0	SW-SAND, trace to little silt, loose to dense, fine to medium grained, well graded, dark gray, black, red sand grains, wet	-17.9		2SS			0

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
12" Ø BOREHOLE
BENTONITE CHIPS
SAND PACK

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-1
DATE COMPLETED: SEPTEMBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0							
42.5				3SS			0
45.0			SAND PACK				
47.5							
50.0			WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	- silt layer		12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0	ML/SM-SILT and SAND, very dense, fine grained, poorly graded, dark brown to dark gray, wet	-57.2 -57.9	STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 70.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-1
DATE COMPLETED: SEPTEMBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 40.0 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 30.0 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

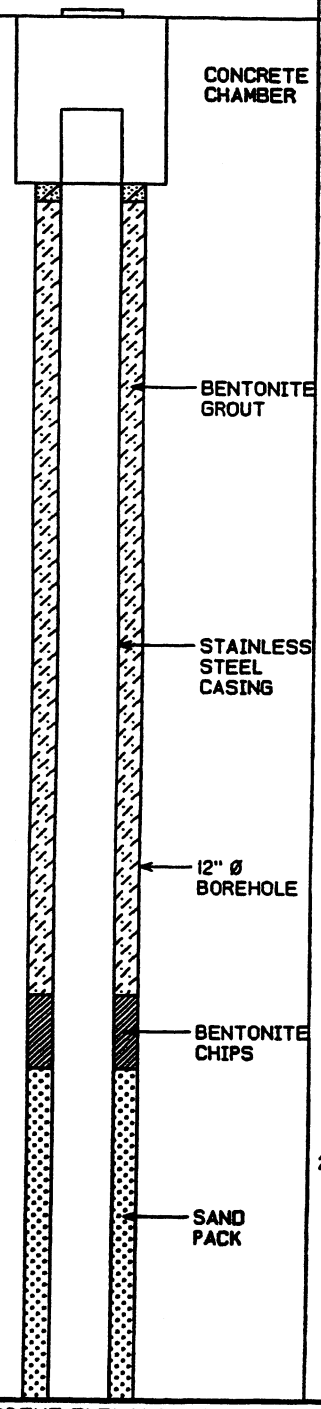
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - **TACOMA**
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-2
DATE COMPLETED: SEPTEMBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.1* *8.45*					
20.0	SM-SAND (NATIVE), some silt, fine grained, dark gray, wet	*-7.9*		1SS			
30.0	SP-SAND, little fine sand and silt, medium to coarse grained, black, wet	*-17.9*		2SS			



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-2
DATE COMPLETED: SEPTEMBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, little silt, fine grained, black, wet	-27.9		3SS			
		-29.8					
42.5	ML-SILT, hard, brown gray, wet		SAND PACK				
45.0							
47.5							
50.0	SW-SAND, little to some silt, trace shells and wood, fine grained, black, wet	-37.9	WELL SCREEN	4SS			
52.5							
55.0							
57.5							
60.0	SW-SAND, little silt, fine grained, black, wet	-47.9	12" Ø BOREHOLE	5SS			
62.5							
65.0							
67.5	SW-SAND, little silt, trace shells, fine grained, black, wet	-55.9		6SS			
70.0	END OF HOLE @ 70.0ft BGS	-57.9	STAINLESS STEEL TAILPIPE				
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-2
DATE COMPLETED: SEPTEMBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

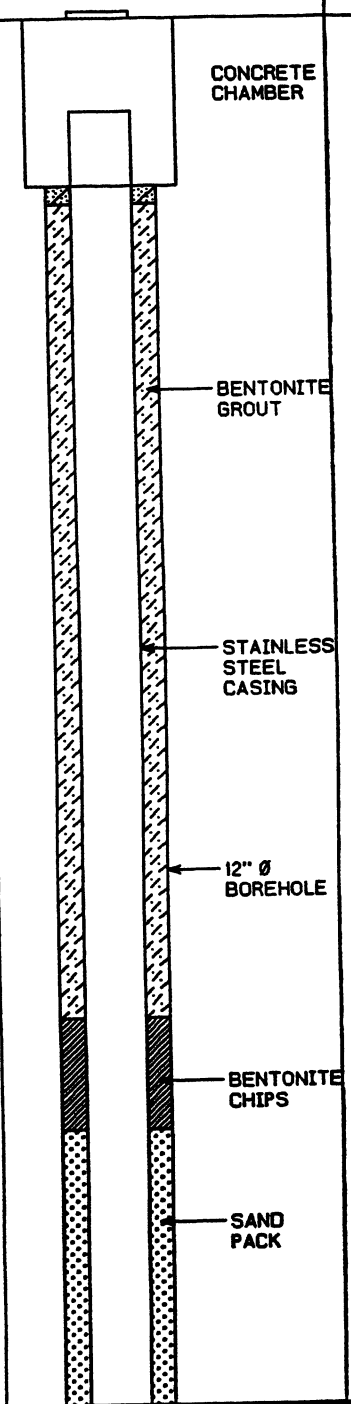
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-3
DATE COMPLETED: SEPTEMBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.8 8.25*					
20.0	SW-SAND (NATIVE), loose to medium dense, fine to medium grained, well graded, dark gray to black, red sand grains, wet	-8.2		1SS			0
30.0				2SS			0



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-3
DATE COMPLETED: SEPTEMBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0				3SS			1.0
42.5			SAND PACK				
45.0							
47.5							
50.0			WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0			12" Ø BOREHOLE				
		-49.2		5SS			1.0
	SM/ML-SILT, trace to some sand, trace clay, dense, very fine grained, dark gray, wet	-50.2					
62.5	SW-SAND, loose, fine grained, well graded, dark gray to black, red sand grains, wet						
65.0							
67.5							
				6SS			0
70.0	END OF HOLE @ 70.0ft BGS	-58.2	STAINLESS STEEL TAILPIPE				
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-3
DATE COMPLETED: SEPTEMBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
77.5			**SCREEN DETAILS** Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 30.0 to 70.0ft BGS Material: 1/20 Monterey Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

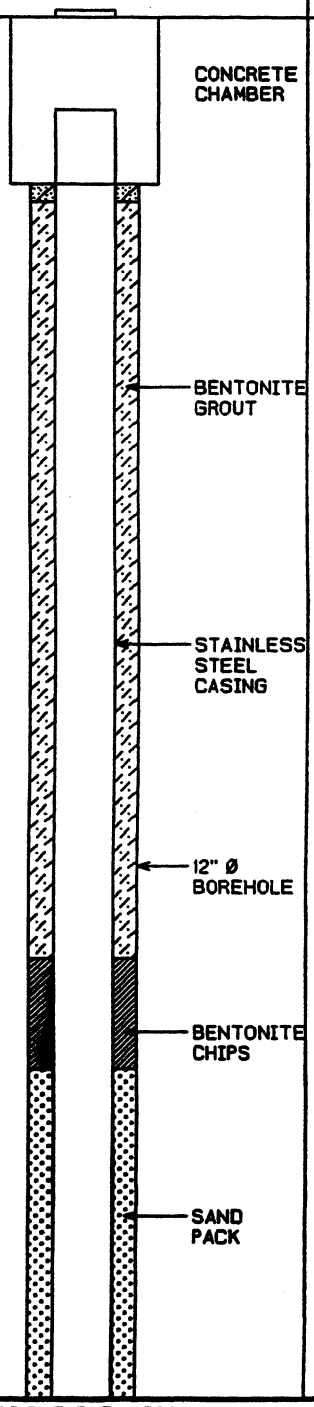
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-88)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.2* *8.67*					
20.0	SM-SAND (FILL), some silt and wood, fine to medium grained, dark gray, wet	*-7.8*		1SS			
30.0	SM-SAND (NATIVE), some fine sand and silt, medium grained, black, wet	*-17.8*		2SS			



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SM-SAND, some silt, fine grained, black, wet			3SS			
-42.5			SAND PACK				
-45.0							
-47.5							
-50.0			WELL SCREEN	4SS			
-52.5							
-55.0							
-57.5							
-60.0			12" Ø BOREHOLE	5SS			
-62.5							
-65.0							
-67.5	ML/SM-SILT and SAND, little shells, dense, fine grained, dark gray, wet	-55.8		6SS			
-70.0	END OF HOLE @ 70.0ft BGS	-57.8	STAINLESS STEEL TAILPIPE				
-72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: B-4
DATE COMPLETED: SEPTEMBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

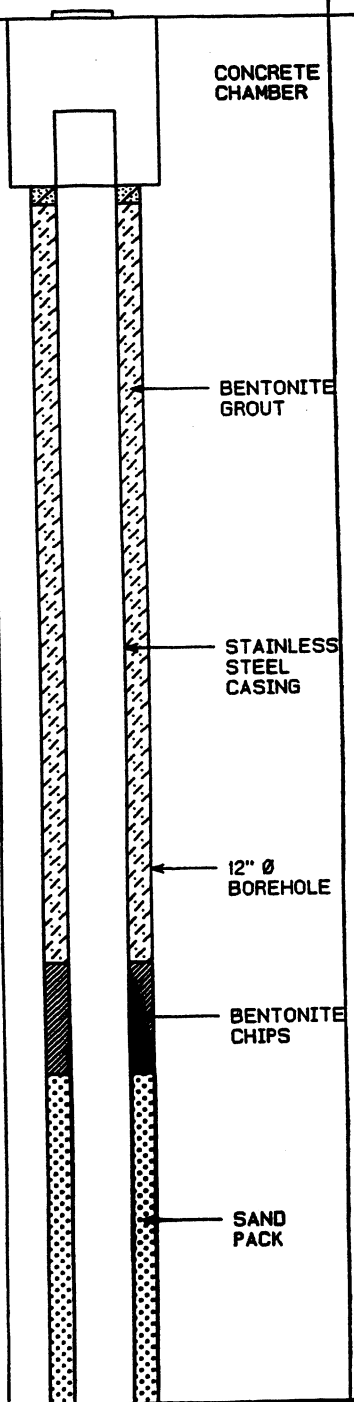
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-1
DATE COMPLETED: OCTOBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	12.8 9.18					
20.0	SM/ML-SILT (FILL), trace clay, trace sand, dense, fine to medium to fine grained, poorly graded, dark gray, wet, slight chemical odor	-7.2		1SS			0
30.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, strong chemical odor	-17.2		2SS			0



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-1
DATE COMPLETED: OCTOBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW/SM-SAND, some silt, dense, fine to medium to fine grained, poorly graded, dark gray, wet, decaying vegetation odor	-27.2	SAND PACK	3SS			0
50.0	SM-SILT, some sand, dense, fine to medium to fine grained, poorly graded, dark gray, wet, decaying vegetation odor	-37.2	WELL SCREEN	4SS			0
60.0			12" Ø BOREHOLE	5SS			0
70.0			STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.2	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-1
DATE COMPLETED: OCTOBER 22, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

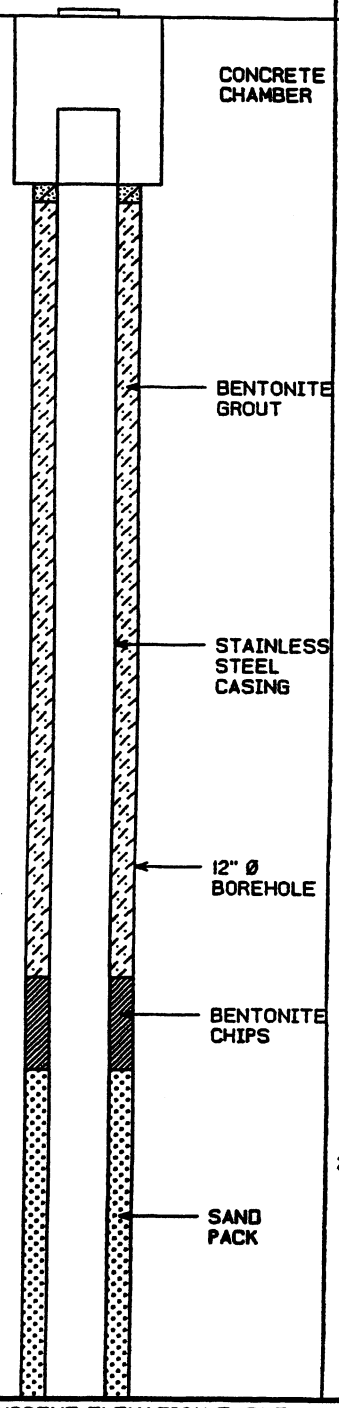
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-2
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.7* *9.05*					
20.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, dark gray/black, wet, strong chemical odor	-7.3		1SS			75.0
30.0	- chemical odor			2SS			4.5



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-2
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SM-SILT, some sand, dense, fine to medium to fine grained, well graded, dark gray/black and red, wet, no odor	-27.3		3SS			0
-42.5			SAND PACK				
-45.0							
-47.5							
-50.0			WELL SCREEN	4SS			0
-52.5							
-55.0							
-57.5							
-60.0			12" Ø BOREHOLE	5SS			0
-62.5							
-65.0							
-67.5							
-70.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, no odor	-57.3	STAINLESS STEEL TAILPIPE	6SS			0
-72.5	END OF HOLE @ 72.0ft BGS	-59.3	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-2
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

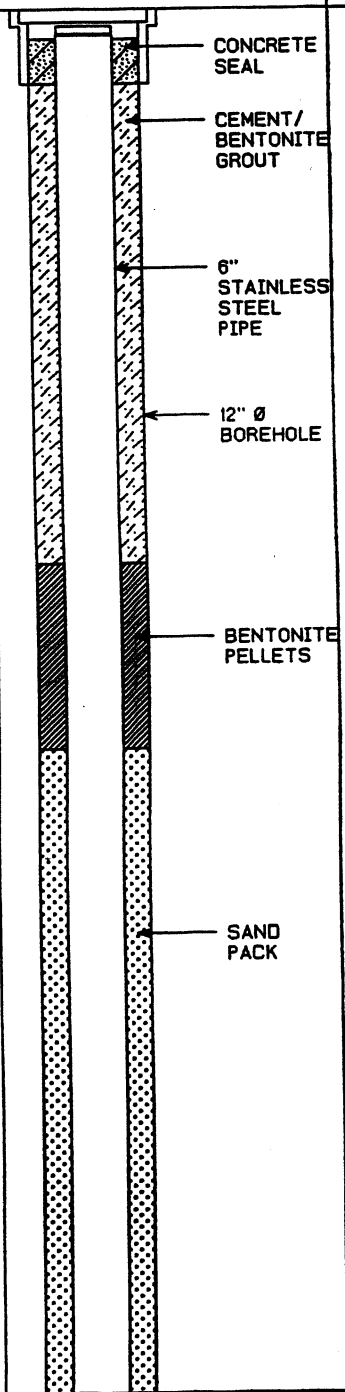
DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			**SCREEN DETAILS** Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SW CORNER EMPLOYEE PARKING LOT

HOLE DESIGNATION: C-3
DATE COMPLETED: JUNE 16, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*13.0* *9.23*					
10.0	SW-SAND (NATIVE), fine grained, trace silt, black, moist – medium grained, little fine sand and shells, brown	*3.0*		1SS		11	NM
20.0	SW-SAND, medium grained, some fine sand and shells, trace silt, brown, wet	*-7.0*		2SS		7	12.0
30.0	SM-SILT, some fine sand and shells, dark gray, wet – decayed wood – occasional medium sand seams	*-17.0*		3SS		58	>20.0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SW CORNER EMPLOYEE PARKING LOT

HOLE DESIGNATION: C-3
DATE COMPLETED: JUNE 16, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, medium grained, some fine sand, little silt, black, wet	-27.0	WELL SCREEN	4SS		40	NM
42.5							
45.0							
47.5							
50.0	SW-SAND, fine grained, little medium sand and silt, trace shells, black, wet - ML-SILT seam - ML-SILT seam	-37.0	12" Ø BOREHOLE	5SS		34	0.2
52.5							
55.0							
57.5							
60.0	SW-SAND, medium grained, little fine sand, trace silt and shells, black, wet - coarse grained, some medium to fine sand, little shells - medium grained, some fine to coarse sand, little shells - fine grained, some silt and shells	-47.0	SAND PACK	6SS		39	0
62.5							
65.0							
67.5							
70.0	SW-SAND, medium grained, some fine to coarse sand and shells, black, wet	-57.0	TAILPIPE				
72.5	END OF HOLE @ 72.0ft BGS	-59.0	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SW CORNER EMPLOYEE PARKING LOT

HOLE DESIGNATION: C-3
DATE COMPLETED: JUNE 16, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
77.5			SCREEN DETAILS Screened Interval: 37.5 to 68.5ft BGS Length: 31ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 20 to 70ft BGS Material: 20-40 Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

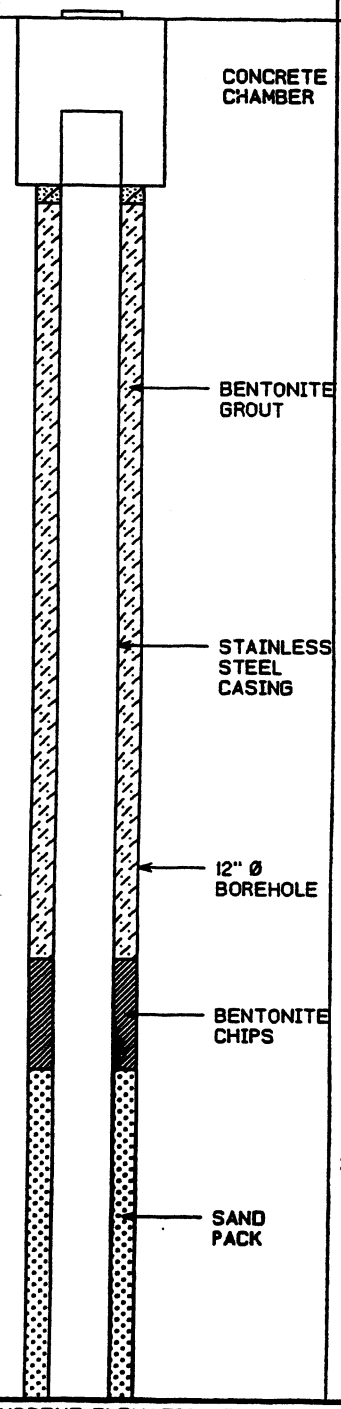
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-4
DATE COMPLETED: OCTOBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.9* *9.28*					
20.0	SW/SM-SAND (NATIVE), some silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, sulfur-like odor - dense	*-7.1*		1SS			0
30.0	SM-SILT, some sand, dense, fine grained, poorly graded, dark gray/black and red, wet, no odor	*-17.6*		2SS			0



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-4
DATE COMPLETED: OCTOBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, no odor	-27.1	SAND PACK	3SS			0
42.5							
45.0							
47.5							
50.0	SM-SILT, some sand, dense, fine grained, poorly graded, brown/dark gray and black, wet, sulfur-like odor	-37.1	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	SM/ML-SILT, little fine sand, trace clay, dense, fine grained, poorly graded, brown and dark gray, wet, sulfur-like odor	-47.1	12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, no odor	-57.1	STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.1	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-4
DATE COMPLETED: OCTOBER 20, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-5
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	12.8 9.17					
20.0	SM-SILT (NATIVE), some sand, moderately dense, fine to medium to fine grained, well graded, dark gray/black and red, wet, no odor	-7.2		1SS			0
30.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, no odor	-17.2		2SS			0

2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
12" Ø BOREHOLE
BENTONITE CHIPS
SAND PACK

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-5
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0							
42.5				3SS			0
45.0			SAND PACK				
47.5							
50.0	SW/SM-SAND, some silt, loose to moderately dense, fine to medium to fine grained, well graded, dark gray, wet, no odor	-37.2	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	SM/ML-SILT, trace clay, trace sand, dense, fine to medium grained, poorly graded, dark gray, wet, no odor	-47.2	12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, no odor	-57.2	STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.2	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-5
DATE COMPLETED: OCTOBER 21, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

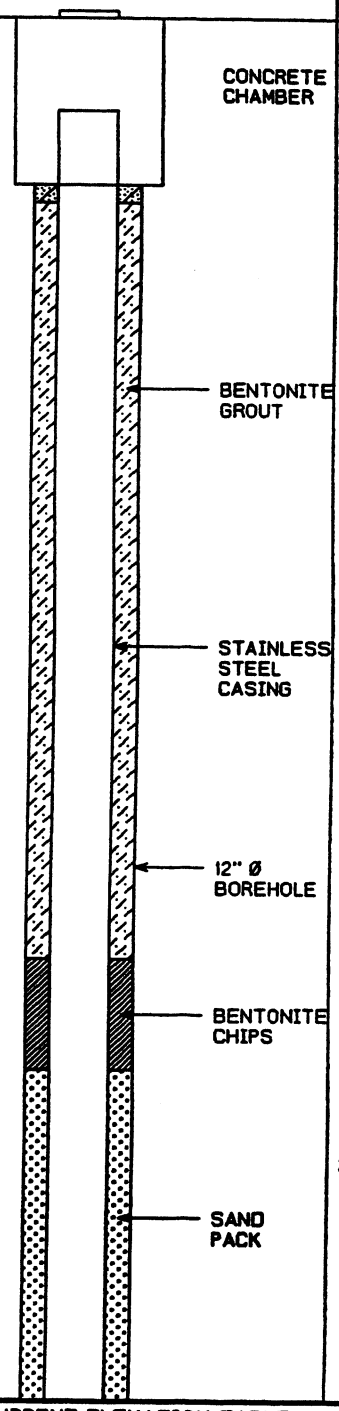
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-6
DATE COMPLETED: OCTOBER 19, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.7* *9.07*					
20.0	SW-SAND (NATIVE), some silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, strong sulfur-like odor	*-7.3*		1SS			0
				2SS			0



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-6
DATE COMPLETED: OCTOBER 19, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	- trace silt, moderately dense, wood pieces present, slight sulfur-like odor			3SS			0
42.5			SAND PACK				
45.0							
47.5							
50.0	SM/ML-SILT, little fine sand, trace clay, dense, fine grained, poorly graded, dark gray/black, wet, shell pieces present, slight sulfur-like odor	-37.3	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, slight sulfur-like odor	-47.3	12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0			STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.3	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-6
DATE COMPLETED: OCTOBER 19, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

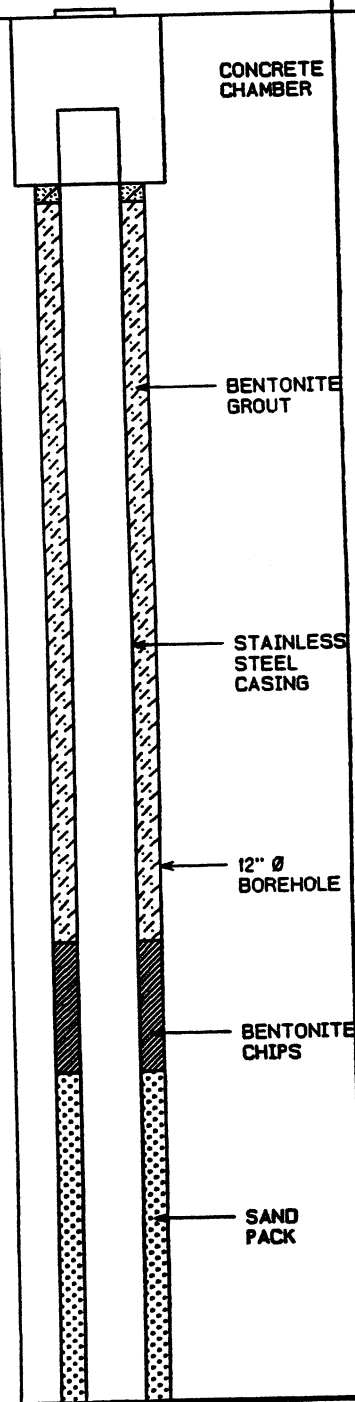
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-7
DATE COMPLETED: OCTOBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.6* *8.96*					
20.0	SW-SAND (FILL), some silt, loose, medium to fine grained, well graded, dark gray/black, wet, no odor	*-7.4*		1SS			0
22.5	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, shells, dark gray/black and red, sulfur-like odor	*-7.7*					
30.0				2SS			0



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5
35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-7
DATE COMPLETED: OCTOBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0							
	SW/ML-SAND and SILT, trace clay, dense, fine to medium grained, well graded sand, poorly graded silt, dark gray/black, wet, sulfur-like odor	-27.4		3SS			0
42.5			SAND PACK				
45.0							
47.5							
50.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, sulfur-like odor	-37.4	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0			12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0			STAINLESS STEEL TAILPIPE				
	ML-SILT, some sand, trace clay, dense, fine grained, poorly graded, dark gray/black, moist, sulfur-like odor	-58.4		6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.4	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-7
DATE COMPLETED: OCTOBER 11, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

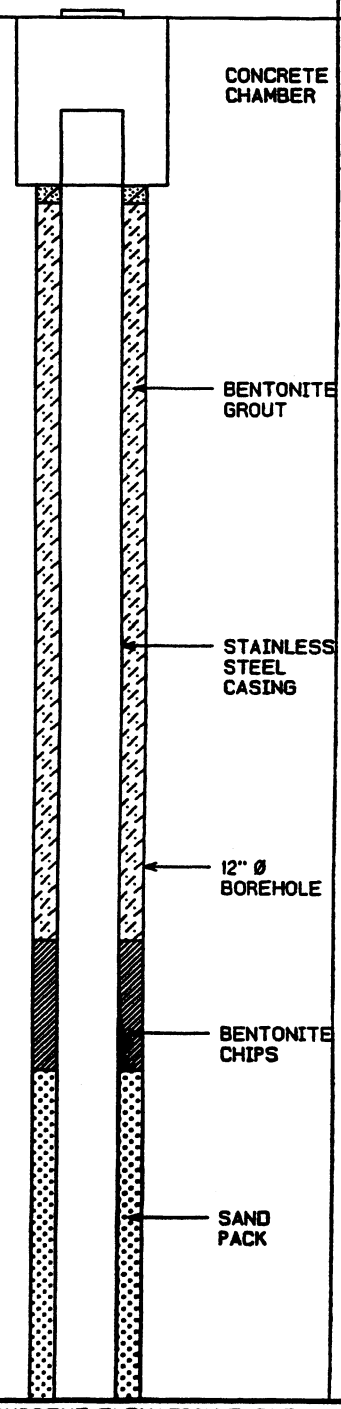
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-8
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.5* *8.85*					
-20.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, gray/black and red, wet, no odor	*-7.5*		1SS			0
-30.0	- shell pieces present			2SS			0



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-8
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SM-SILT, some sand, dense, fine to medium grained, well graded, dark gray/black, wet, sulfur-like odor	-27.5		3SS			0
-42.5			SAND PACK				
-45.0							
-47.5							
-50.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, sulfur-like odor	-37.5	WELL SCREEN	4SS			0
-52.5							
-55.0							
-57.5							
-60.0			12" Ø BOREHOLE	5SS			0
-62.5							
-65.0							
-67.5							
-70.0			STAINLESS STEEL TAILPIPE	6SS			0
-72.5	END OF HOLE @ 72.0ft BGS	-59.5	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊻

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-8
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 1/20 Monterey Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

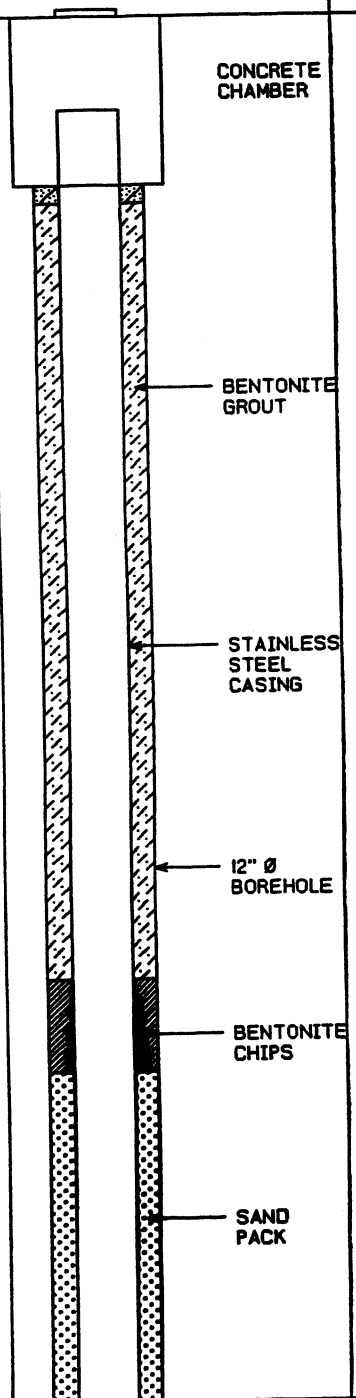
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-9
DATE COMPLETED: OCTOBER 18, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.3* *8.67*					
20.0	SM-SAND (NATIVE), some silt, loose, fine to medium to fine grained, well graded, brown/gray, wet, no odor	*-7.7*		1SS			0
30.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, gray/black and red, wet, some shell pieces, no odor	*-17.7*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-9
DATE COMPLETED: OCTOBER 18, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0							
	SM/ML-SILT, trace sand, trace clay, dense, fine to medium to fine grained, poorly graded, gray/black, wet, trace shell pieces, no odor	-27.7		3SS			0
42.5			SAND PACK				
45.0							
47.5							
50.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, gray/black and red, wet, some shell pieces, no odor	-37.7	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0			12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0			STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.7	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: C-9
DATE COMPLETED: OCTOBER 18, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

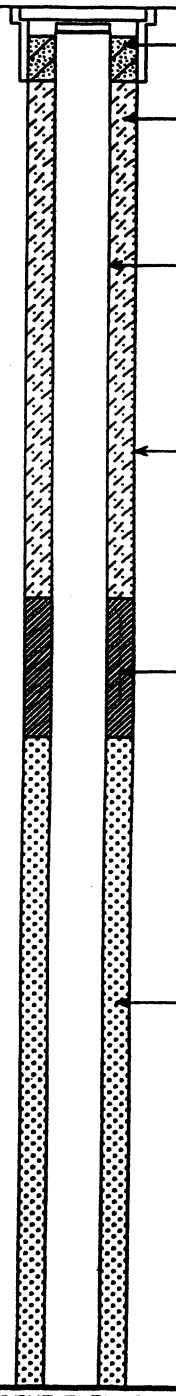
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN 8-25 AND 46-50

HOLE DESIGNATION: C-10
DATE COMPLETED: JUNE 12, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cap)	*12.0* *8.28*					
10.0	SW-SAND (NATIVE), medium grained, little fine sand and shells, dark gray, wet	*2.0*		1SS		8	0
20.0	SW-SAND, medium grained, some fine sand and silt, trace bi-valve shells, dark gray, wet - SILT seam - SILT seam	*-8.0*		2SS		2	0
30.0	SW-SAND, medium grained, little fine and coarse sand, trace silt and shells, dark gray to black, wet	*-18.0*		3SS		20	0
32.5	SM-SILT, some fine sand, dark gray, wet	*-19.8*					
35.0							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN 8-25 AND 46-50

HOLE DESIGNATION: C-10
DATE COMPLETED: JUNE 12, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, medium grained, some fine sand, little silt and shells, dark gray, wet	-28.0	WELL SCREEN	4SS		14	0
42.5							
45.0							
47.5							
50.0	SW-SAND, fine grained, little silt and shells, dark gray, wet - medium grained, little fine sand, silt and shells - with rounded gravel	-38.0	12" Ø BOREHOLE	5SS		50	0
52.5							
55.0							
57.5							
60.0	SW-SAND, medium grained, little fine sand, silt and shells, dark gray, wet - SILT seam, dark brown - fine grained, little medium sand	-48.0	SAND PACK	6SS		98	0
62.5							
65.0							
67.5			TAILPIPE				
70.0	SW-SAND, medium grained, little fine sand, silt and shells, dark gray, wet	-58.0		7SS		95	0
72.5	END OF HOLE @ 70.0ft BGS	-60.0					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN 8-25 AND 46-50

HOLE DESIGNATION: C-10
DATE COMPLETED: JUNE 12, 1995
DRILLING METHOD: 12" Ø CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			**SCREEN DETAILS** Screened interval: 38.1 to 68.0ft BGS Length: 29.9ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 19.8 to 70ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

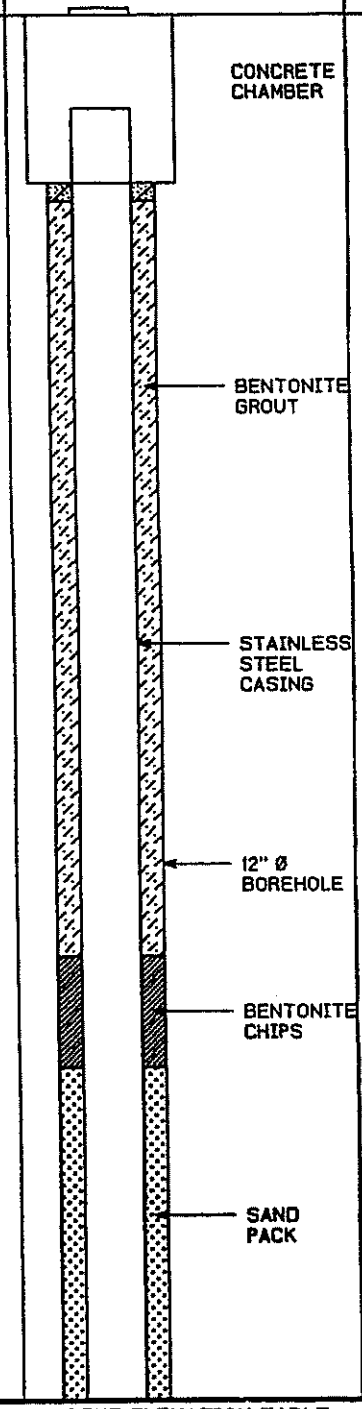
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-2
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*12.1* *8.60*					
-20.0	SW/SM-SAND (FILL), some silt, moderately dense, medium to fine grained, well graded, dark gray/brown, wet, chemical odor	*-7.9*		1SS			0
-30.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, dark gray/brown and red, wet, slight chemical odor	*-17.9*		2SS			0



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-2
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	– some silt, no odor			3SS			0
42.5			SAND PACK				
45.0							
47.5							
50.0	SM/SW-SAND, some silt, moderately dense, medium to fine grained, well graded, dark gray/brown and red, wet, wood pieces, no odor	-37.9	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	SM-SILT, some sand, loose, fine to medium to fine grained, well graded, dark gray/brown and red, wet, wood pieces, no odor	-47.9	12" Ø BOREHOLE	5SS			0
62.5							
65.0							
67.5							
70.0	– trace clay, dense, fine grained, poorly graded, dark gray/brown		STAINLESS STEEL TAILPIPE	6SS			0
72.5	END OF HOLE @ 72.0ft BGS	-59.9	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-2
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
77.5			SCREEN DETAILS Screened interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
80.0							
82.5							
85.0							
87.5							
90.0							
92.5							
95.0							
97.5							
100.0							
102.5							
105.0							
107.5							
110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-3
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.9* *8.68*					
-20.0	SW/SM-SAND (NATIVE), some silt, loose, medium to fine grained, well graded, dark gray/brown and red, wet, chemical odor	*-8.1*		1SS			3.0
-30.0	SW-SAND, trace silt, loose, medium to fine grained, well graded, dark gray/black and red, wet, chemical odor	*-18.1*		2SS			9.1

-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-22.5
-25.0
-27.5
-32.5
-35.0

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
12" Ø BOREHOLE
BENTONITE CHIPS
SAND PACK

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-3
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	– some silt, loose to moderately dense, no chemical odor			3SS			0
42.5			SAND PACK				
45.0							
47.5							
50.0	SM/SW-SAND, some silt, moderately dense, medium to fine grained, well graded, dark gray and brown, wet, no odor	-38.1	WELL SCREEN	4SS			0
52.5							
55.0							
57.5							
60.0	SW-SAND, some silt, loose to moderately dense, medium to fine grained, well graded, dark gray/brown and red, wet, chemical odor	-48.1	12" Ø BOREHOLE	5SS			17.0
62.5							
65.0							
67.5							
70.0	– trace silt, loose, dark gray/black and red		STAINLESS STEEL TAILPIPE	6SS			NA
72.5	END OF HOLE @ 72.0ft BGS	-60.1	2" Ø SPLIT SPOON				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-3
DATE COMPLETED: OCTOBER 23, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 38.5 to 68.5ft BGS Length: 30ft Diameter: 6" Slot Size: #10 Material: Stainless Steel Sand Pack: 28.5 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

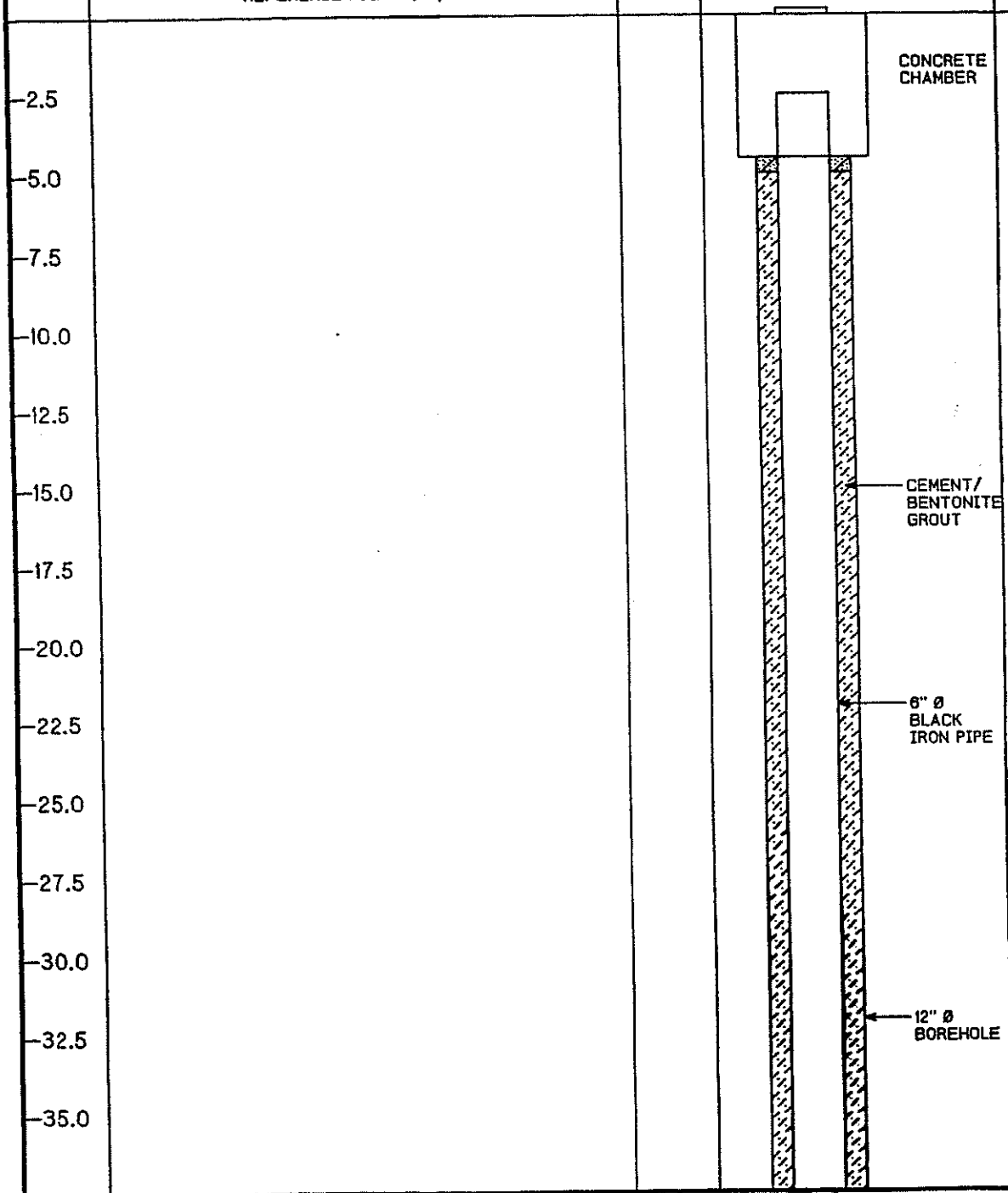
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-4
DATE COMPLETED: JULY 7, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.6* *8.32*					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-4
DATE COMPLETED: JULY 7, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0							
-42.5							
-45.0			CEMENT/ BENTONITE GROUT				
-47.5							
-50.0				1ST			
	SM-SAND, some silt, very dense, fine grained, dark olive, moist, chemical odor	-39.4		1SS		48	
-52.5							
-55.0			6" Ø BLACK IRON PIPE	2SS		19	
-57.5							
-60.0							
-62.5							
-65.0			12" Ø BOREHOLE				
-67.5							
-70.0							
-72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: D-4
DATE COMPLETED: JULY 7, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
77.5			CEMENT/ BENTONITE GROUT				
80.0			6" Ø BLACK IRON PIPE				
82.5			BENTONITE PELLET SEAL				
85.0							
87.5							
90.0			12" Ø BOREHOLE	3SS		31	
92.5							
95.0			SAND PACK				
97.5	ML-SILT, some sand, dense, dark olive, dry to moist	-85.4		4SS		17	
100.0							
102.5	SM-SAND, some silt, medium dense, fine grained, dark olive, moist	-90.4	WELL SCREEN	5SS		12	
105.0				2ST			
	END OF HOLE @ 106.0ft BGS	-94.4					
107.5							
110.0							

SCREEN DETAILS
Screened Interval:
94.9 to 104.9ft BGS
Length: 10ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
84.7 to 106.0ft BGS
Material: #10-20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: D-5
DATE COMPLETED: December 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang

NORTHING: 668.05
EASTING: 474.46

GROUND SURFACE ELEV. ft NGVD: 12.32
TOP OF RISER ELEV. ft NGVD: 8.81

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
0	Not Sampled		CONCRETE CHAMBER				
10	SW-SAND, trace silt, medium to fine grained, dark gray-brown	2.82	6"Ø STAINLESS STEEL CASING	SS1			30
14			CEMENT/ BENTONITE GROUT				
20			12"Ø BOREHOLE	SS2			30
30	- trace shell fragments below 30 ft BGS			SS3		1.0	28
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: D-5
DATE COMPLETED: December 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
40	SW-SAND, some silt, trace shell fragments, trace wood fragments, medium to fine grained, dark gray-brown	-27.68	6"Ø STAINLESS STEEL CASING	SS4		5.8	29
50	SM-SILTY SAND, fine grained, dark gray-brown	-37.68	CEMENT/ BENTONITE GROUT; 12"Ø BOREHOLE	SS5		1.0	32
60	SP-SAND, some silt, fine grained, dark gray-brown	-47.68		SS6		1.0	24
			BENTONITE				
			SAND PACK				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: D-5
DATE COMPLETED: December 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72	- trace silt below 70 ft BGS			SS7			27
74			WELL SCREEN				
76							
78							
80	- some silt below 80 ft BGS		SAND PACK	SS8			25
82							
84			12"Ø BOREHOLE				
86							
88							
90	SM-SILT and SAND, fine grained, dark gray-brown	-77.68		SS9			34
92							
94							
96							
98							
100				SS10			26
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: D-5
DATE COMPLETED: December 1, 2001
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: D. Chang

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
106							
108							
110			WELL SCREEN	SS11			
112							
114			SAND PACK				
116							
118			12"Ø BOREHOLE				
120	ML-SILT, dark gray	-107.68	6"ØSTAINLESS STEEL TAILPIPE	SS12			17
122							
124			PEA GRAVEL				
126							
128	- stiff below 127 ft BGS END OF BOREHOLE @ 127.0ft BGS	-116.18		SS13			
130							
132							
134							
136							
138							

WELL DETAILS
Screened interval:
-57.68 to -107.68ft NGVD
70.00 to 120.00ft BGS
Length: 50ft
Diameter: 6in
Slot Size: 10
Material: Stainless Steel
Seal:
-52.18 to -54.18ft NGVD
64.50 to 66.50ft BGS
Material: Bentonite
Sand Pack:
-54.18 to -109.18ft NGVD
66.50 to 121.50ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-1
DATE COMPLETED: AUGUST 25, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.9* *7.34*					
20.0	SW-SAND (NATIVE), little fine sand and vegetation, trace silt, medium to coarse grained, black, wet	*-9.1*		1SS			0
30.0	- coarse grained						
	ML-SILT, high plasticity, gray brown, wet	*-19.8*					
32.5	SW-SAND, little silt, trace shell fragments, fine to medium grained, black, wet	*-20.3*		2SS			0

MH if high plasticity

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
BENTONITE CHIPS
SAND PACK
WELL SCREEN
12" Ø BOREHOLE

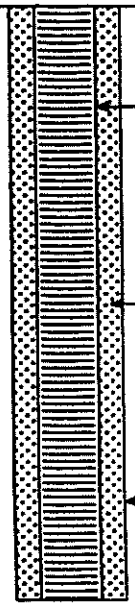
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-1
DATE COMPLETED: AUGUST 25, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0	- trace silt			3SS			0
-42.5							
-45.0							
-47.5	- little silt and shell fragments, medium grained						
	ML-SILT, dark gray, wet	-38.1					
-50.0	SW-SAND, some silt, little shell fragments, medium grained, black,	-38.2		4SS			
	END OF HOLE @ 50.0ft BGS	-39.1					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							



SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

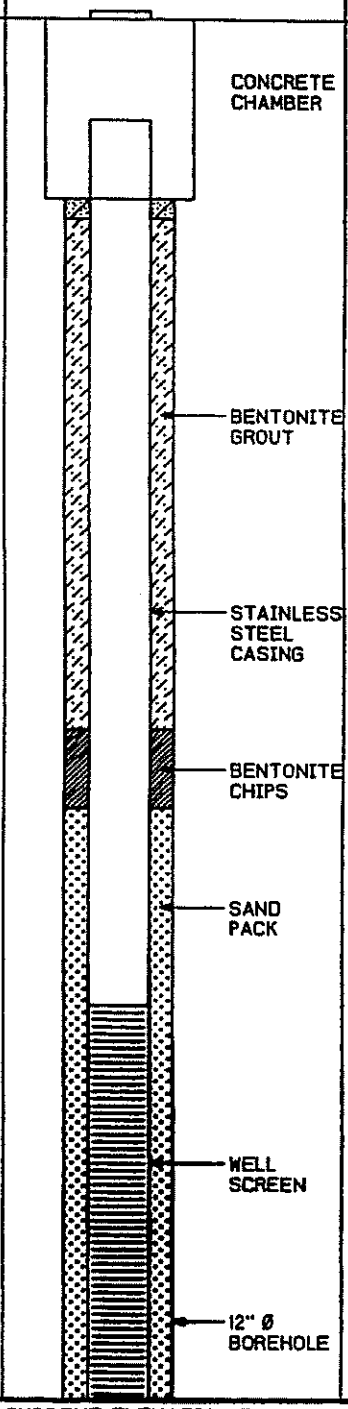
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-2
DATE COMPLETED: AUGUST 29, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.1* *7.58*
-20.0	SM-SAND (NATIVE), some silt, little decayed vegetation, fine grained, black, wet, sulfur odor	*-8.9*
-30.0	SW-SAND, little fine sand and silt, medium grained, black, wet	*-18.9*
-32.5	SM-SAND, some silt, little shell fragments, fine grained	*-20.6*



SAMPLE NUMBER	SAMPLE STATE	'N' VALUE	PID (ppm)
1SS		9	
2SS		5	

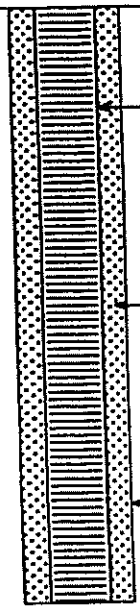
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-2
DATE COMPLETED: AUGUST 29, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5							
40.0	SW-SAND, little silt, fine grained, black, wet	-28.9		3SS			
		-30.7					
42.5	SM/ML-SAND and SILT, dense, fine grained, gray brown, wet						
45.0							
47.5		-36.9		4SS			
	SM-SAND, some silt, medium dense, fine grained, black, wet						
50.0	END OF HOLE @ 50.0ft BGS	-38.9					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							



SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-3
DATE COMPLETED: AUGUST 26, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.8* *7.17*					
-20.0	SM-SAND (FILL), some silt, little vegetation, fine to medium grained, black, wet	*-9.2*		1SS		4	
-30.0	SM/ML-SAND and SILT (NATIVE), little shell fragments, fine grained, low plasticity, gray brown, wet	*-19.2*		2SS		9	
-32.5	SW-SAND, some silt, fine to medium grained, black, wet	*-20.8*					

-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
BENTONITE CHIPS
SAND PACK
WELL SCREEN
12" Ø BOREHOLE

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-3
DATE COMPLETED: AUGUST 26, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			WELL SCREEN				
-40.0	- fine grained			3SS		11	
-42.5			SAND PACK				
-45.0							
-47.5	- trace silt		12" Ø BOREHOLE	4SS		12	
-50.0	END OF HOLE @ 50.0ft BGS	-39.2					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

SCREEN DETAILS
Screened Interval:
24.9 to 49.9ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

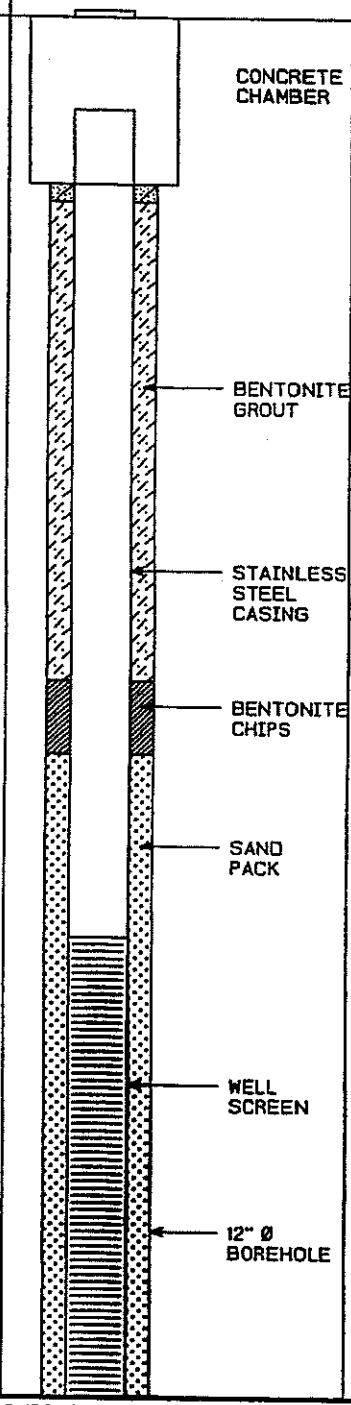
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-3A
DATE COMPLETED: SEPTEMBER 24, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.9* *7.40*					
20.0	SW-SAND (NATIVE), loose, fine to medium grained, well graded, dark gray, red sand grains, wet, shells	-9.1		1SS			0
30.0	SM-SAND, some silt, dense, fine grained, poorly graded, dark gray to black, red sand grains, shells, wet	-19.1		2SS			0



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-3A
DATE COMPLETED: SEPTEMBER 24, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, dense, fine grained, well graded, dark gray to black, red sand grains, wet	-29.1	WELL SCREEN	3SS			0
42.5	ML-SILT, trace sand, dense, very fine grained, dark gray, wet	-30.9	SAND PACK				
45.0							
47.5			12" Ø BOREHOLE				
50.0	SW-SAND, dense, fine grained, well graded, dark gray/black, red sand grains, wet	-39.1		4SS			0
52.5	END OF HOLE @ 52.0ft BGS	-41.1	3" Ø SPLIT SPOON				
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							
70.0							
72.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

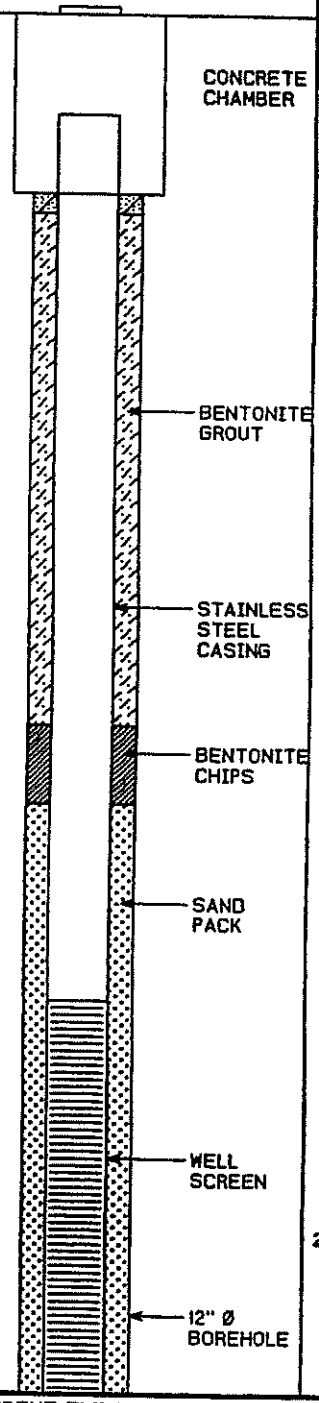
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-71)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-4
DATE COMPLETED: SEPTEMBER 6, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	11.0 7.46					
20.0	SW-SAND (NATIVE), some silt, fine to medium grained, black, wet	-9.0		1SS		11	
30.0	– fine grained						
32.5	SM/ML-SAND and SILT, medium soft, fine grained, dark brown, wet – some shells	-19.4		2SS		7	



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-4
DATE COMPLETED: SEPTEMBER 6, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0	SW-SAND, little silt, fine to medium grained, black, wet	-29.0	WELL SCREEN	3SS		8	
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE	4SS		10	
-50.0	END OF HOLE @ 50.0ft BGS	-39.0					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

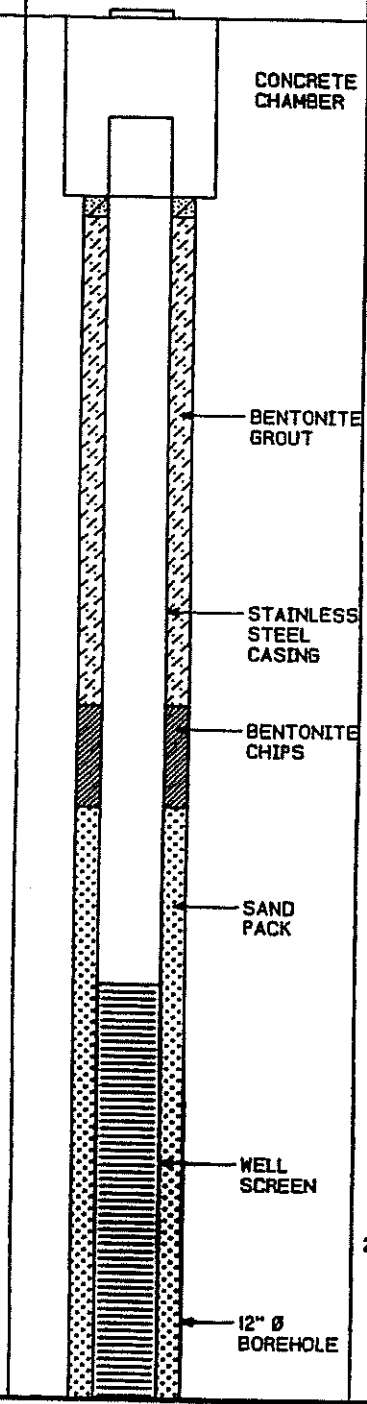
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-5
DATE COMPLETED: AUGUST 30, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.8* *7.03*					
20.0	SW-SAND (NATIVE), little silt, trace shells and vegetation, fine to medium grained, black, wet	*-9.4*		ISS		11	0
30.0	– some silt, fine grained			2SS		6	



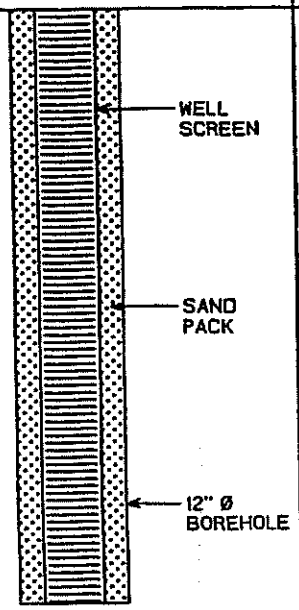
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-5
DATE COMPLETED: AUGUST 30, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0	- trace silt, fine to medium grained			3SS		9	
-42.5							
-45.0							
-47.5	- little silt			4SS		6	
-50.0	END OF HOLE @ 50.0ft BGS	-39.4					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							



SCREEN DETAILS
Screened Interval:
24.5 to 49.5ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

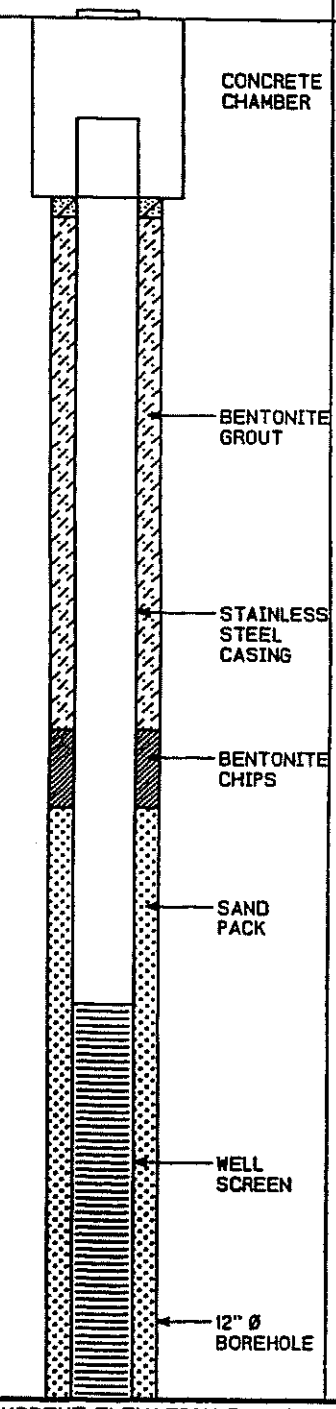
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-6
DATE COMPLETED: AUGUST 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.7* *7.13*					
20.0	SW-SAND (NATIVE), little silt, fine grained, black, wet	*-9.3*		1SS		8	0
30.0	– some shell fragments, medium grained			2SS		7	0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-6
DATE COMPLETED: AUGUST 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			WELL SCREEN				
40.0				3SS		5	0
42.5			SAND PACK				
45.0							
47.5	– some silt, fine grained		12" Ø BOREHOLE	4SS		5	NM
50.0	END OF HOLE @ 50.0ft BGS	-39.3					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-70)
Page 1 of 2

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-7
DATE COMPLETED: AUGUST 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.8* *7.27*					
-20.0	SM-SAND (FILL), some silt, soft, dark gray, wet	*-9.2*		1SS		4	
-22.5	SM-SAND (NATIVE), some silt, little vegetation, soft, medium grained, dark gray, wet	*-10.9*					
-30.0	SW-SAND, little silt, trace shell fragments, fine grained, black, wet	*-19.2*		2SS		4	

-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
BENTONITE CHIPS
SAND PACK
WELL SCREEN
12" Ø BOREHOLE

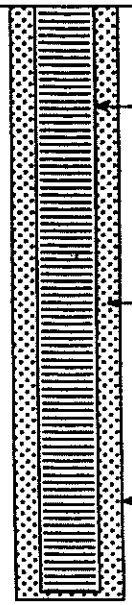
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-7
DATE COMPLETED: AUGUST 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0	– some shell fragments, trace silt, medium grained			3SS		6	
-42.5							
-45.0							
-47.5	– some silt, little shell fragments			4SS		11	
-50.0	END OF HOLE @ 50.0ft BGS	-39.2					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							



SCREEN DETAILS
Screened interval:
24.8 to 49.8ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
19.9 to 50.0ft BGS
Material: 1/20 Monterey Sand

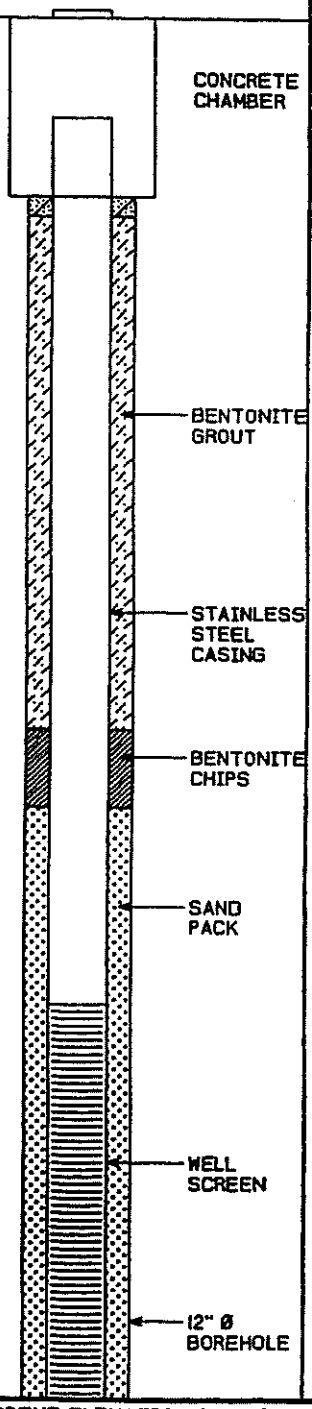
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-8
DATE COMPLETED: SEPTEMBER 5, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.3* *8.75*					
20.0	SM/ML-SAND and SILT (NATIVE), very soft, fine grained, dark gray, wet	*-9.7*		1SS		18	
30.0	SW-SAND, some silt, trace shells, fine grained, black, wet	*-19.7*		2SS		13	



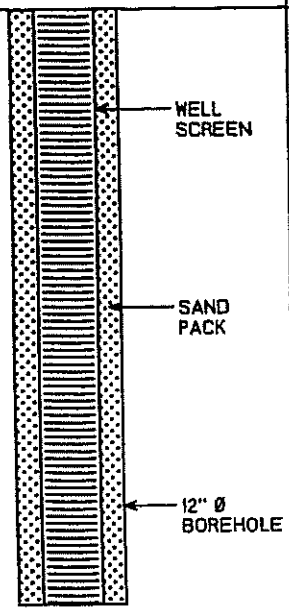
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-8
DATE COMPLETED: SEPTEMBER 5, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5							
40.0	- little silt, fine to medium grained			3SS		18	
42.5							
45.0							
47.5							
	SM-SAND, some silt, fine grained, black, wet	-37.7		4SS		15	
50.0		-39.7					
	END OF HOLE @ 50.0ft BGS						
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							



SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 8"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

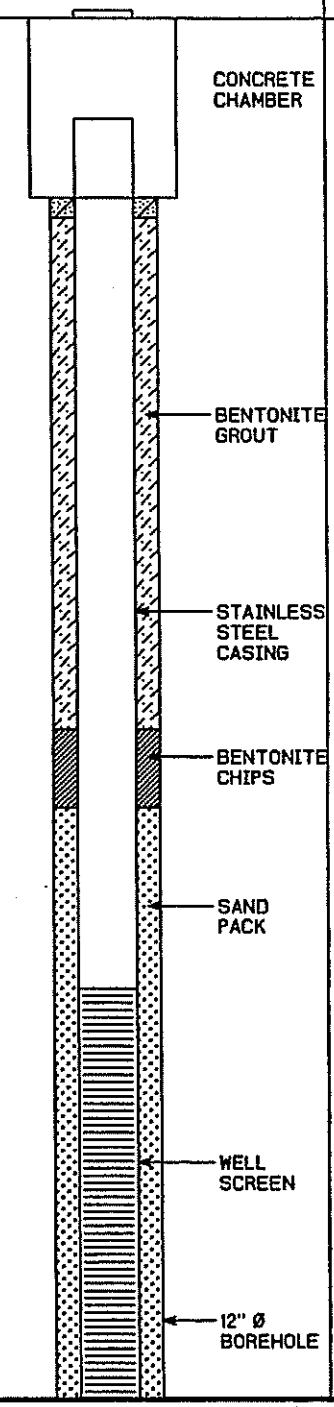
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-9
DATE COMPLETED: SEPTEMBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.6* *7.07*					
-20.0	SM-SAND (NATIVE), some silt and shells, fine to medium grained, black, wet	*-9.4*		1SS		14	
-22.5	SW-SAND, little silt and shells, fine to medium grained, black, wet	*-10.6*					
-30.0				2SS		13	



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-9
DATE COMPLETED: SEPTEMBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			WELL SCREEN				
40.0	- some silt, fine grained			3SS		10	
42.5	SM/ML-SAND and SILT, medium soft, fine grained, dark gray, wet	-31.1	SAND PACK				
45.0							
47.5	SW-SAND, some silt, fine grained, black, wet	-37.4	12" Ø BOREHOLE	4SS		11	
50.0	END OF HOLE @ 50.0ft BGS	-39.4					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
24.6 to 49.6ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

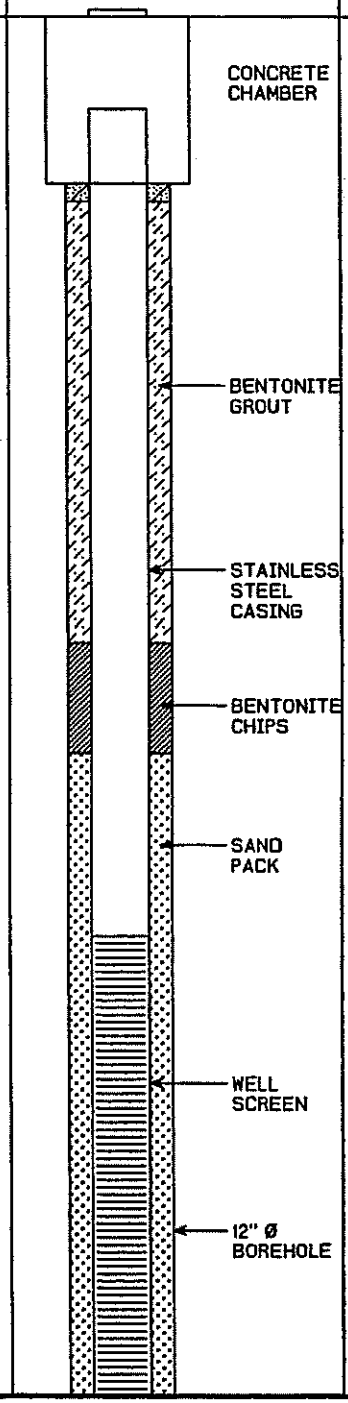
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-10
DATE COMPLETED: SEPTEMBER 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.4* *7.82*					
20.0	SW-SAND (NATIVE), loose, fine to medium grained, well graded, dark gray to black, red sand grains, wet	*-8.6*		1SS			0
30.0	ML-SILT, trace clay, dense, very fine grained, olive/dark gray, wet	*-19.6*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: E-10
DATE COMPLETED: SEPTEMBER 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SW-SAND, trace silt, loose to medium dense, fine grained, well graded, dark gray/black, red sand grains, wet	-28.6	WELL SCREEN	3SS			0
42.5			SAND PACK				
45.0							
47.5			12" Ø BOREHOLE				
50.0	SM/ML-SAND and SILT, dense, very fine grained, poorly graded, dark gray, wet, chemical odor	-38.6		4SS			0
52.5	END OF HOLE @ 52.0ft BGS	-40.6					
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							
70.0							
72.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 8"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 52.0ft BGS
Material: 1/20 Monterey Sand

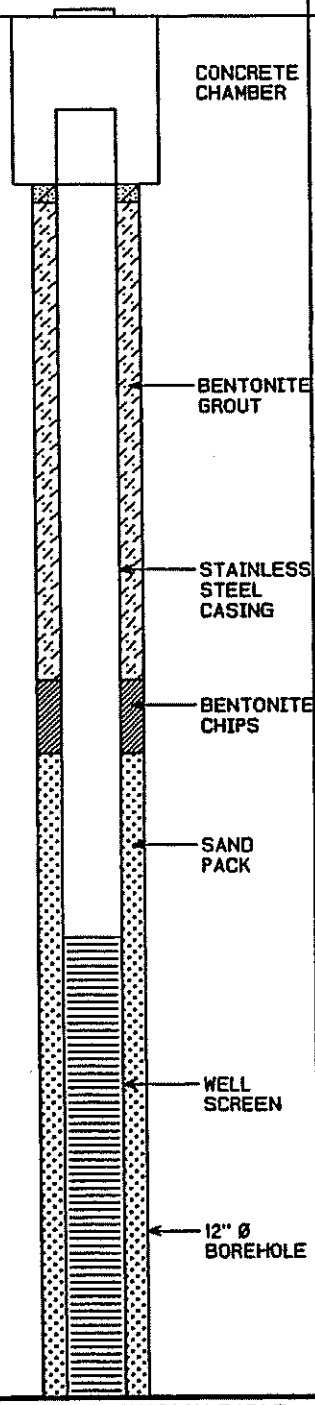
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-2
DATE COMPLETED: SEPTEMBER 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.1* *7.59*					
20.0	SW-SAND (NATIVE), trace silt, loose to medium dense, fine to very fine grained, dark gray, red sand grains, wet, some shells	*-8.9*		1SS			0
30.0				2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-84)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-2
DATE COMPLETED: SEPTEMBER 27, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SM-SAND, some silt, dense, very fine grained, poorly graded, dark gray to black, red sand grains	-28.9	WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0	SM/ML-SILT, trace to some sand, very fine grained, poorly graded, olive to dark gray, red sand grains, wet	-38.9		4SS			0
-52.5	END OF HOLE @ 52.0ft BGS	-40.9					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 52.0ft BGS
Material: 1/20 Monterey Sand

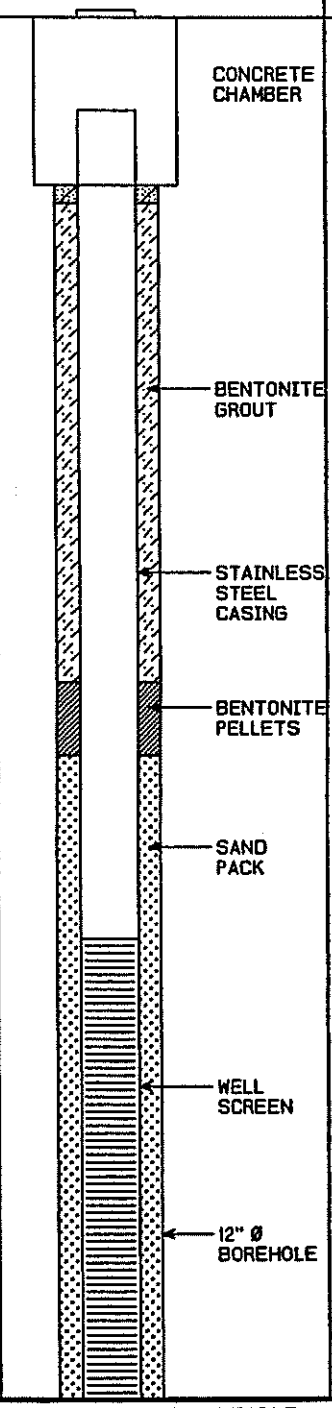
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-3
DATE COMPLETED: OCTOBER 6, 1995
DRILLING METHOD: 12" RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.4* *7.89*					
20.0	SW-SAND (NATIVE), trace silt, loose to medium dense, fine to very fine grained, dark gray, red sand grains, wet	*-8.6*		ICC			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-3
DATE COMPLETED: OCTOBER 6, 1995
DRILLING METHOD: 12" RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SM-SAND, some silt, medium dense, fine to medium grained, poorly graded, dark gray, wet	-28.6	WELL SCREEN; SAND PACK; 12" Ø BOREHOLE	2CC			0
-42.5							
-45.0							
-47.5							
-50.0	ML-SILT, trace fine sand, dense, very fine grained, dark gray, dry	-38.6					0
-52.5	END OF HOLE @ 52.0ft BGS	-40.6					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

<u>SCREEN DETAILS</u>
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 52.0ft BGS
Material: 20-40 Sand

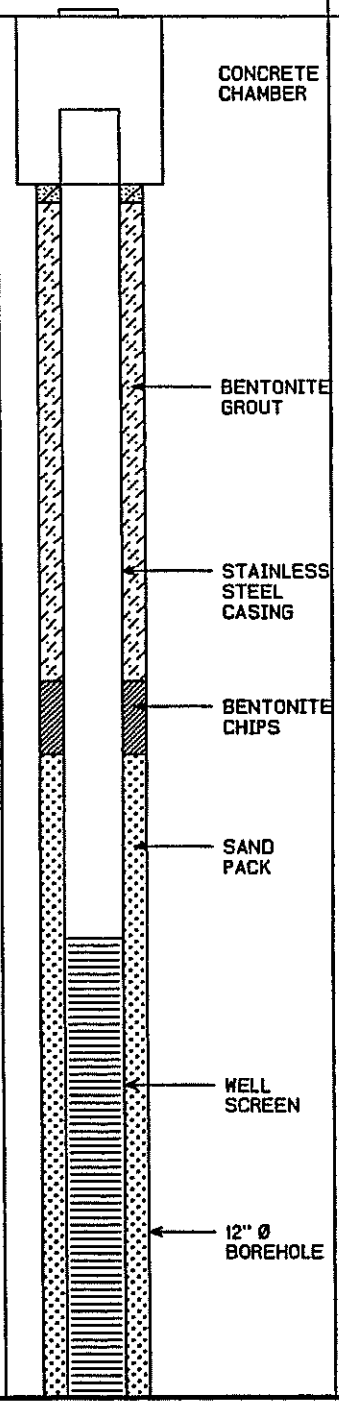
<u>NOTES:</u> MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-4
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.5* *7.84*					
-20.0	SW-SAND (FILL), loose, medium to fine grained, well graded, dark gray and black, wet, no odor	*-8.5*		1SS			0
-30.0	SM-SAND (NATIVE), some silt, loose, medium to fine grained, well graded, dark gray, black and red grains, wet, sulfur-like odor	*-18.5*		2SS			0



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-4
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	- trace clay, dense		WELL SCREEN	3SS			0
42.5			SAND PACK				
45.0							
47.5			12" Ø BOREHOLE				
50.0	SW-SAND, dense, well graded, gray black and red grains	-38.5		4SS			0.3
		-39.5	2" Ø BOREHOLE				
52.5	ML-SILT, dense, fine grained, dry, sulfur-like odor	-40.5					
	END OF HOLE @ 52.0ft BGS						
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							
70.0							
72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

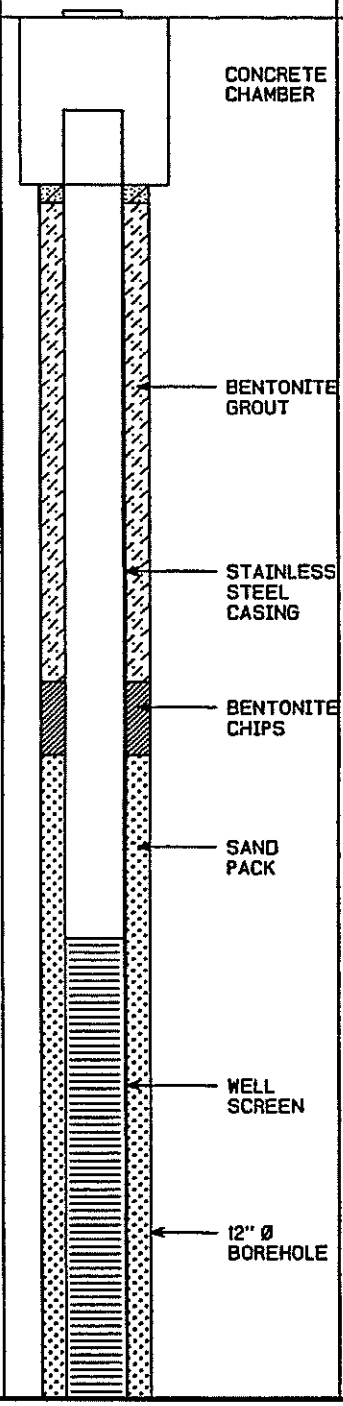
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-4A
DATE COMPLETED: OCTOBER 3, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.7* *8.30*					
-20.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, dark gray/black, red grains, wet, sulfur-like odor	*-8.3*		1SS			0
-30.0	SM-SAND, some silt, dense, medium to fine grained, well graded, dark gray/black, red grains, moist, sulfur-like odor	*-18.3*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-94)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-4A
DATE COMPLETED: OCTOBER 3, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0			WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0	SW-SAND, silt seams, dense, well graded, dark gray/black and red grains, wet, sulfur-like odor	-38.3	2" Ø SPLIT SPOON	4SS			0
-52.5	END OF HOLE @ 52.0ft BGS	-40.3					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-85)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-5
DATE COMPLETED: SEPTEMBER 26, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.5* *8.33*					
-20.0	ML/SM-SILT and SAND (FILL), loose, very fine grained, dark gray, wet - wood, vegetation	*-8.5*		1SS			0
-30.0	- very dense, wood, vegetation, sulfur odor			2SS			0

-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

CONCRETE CHAMBER
BENTONITE GROUT
STAINLESS STEEL CASING
BENTONITE CHIPS
SAND PACK
WELL SCREEN
12" Ø BOREHOLE

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-5
DATE COMPLETED: SEPTEMBER 26, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0	SM-SAND (NATIVE), some silt, loose to medium dense, very fine grained, dark gray/black, red sand grains, wet, sulfur odor	-28.5	WELL SCREEN	3SS			0
42.5			SAND PACK				
45.0							
47.5			12" Ø BOREHOLE				
50.0	SW-SAND, dense, fine to medium grained, well graded, dark gray/black, red sand grains, wet, sulfur odor	-38.5		4SS			0
52.5	END OF HOLE @ 52.0ft BGS	-40.5					
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							
70.0							
72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 52.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

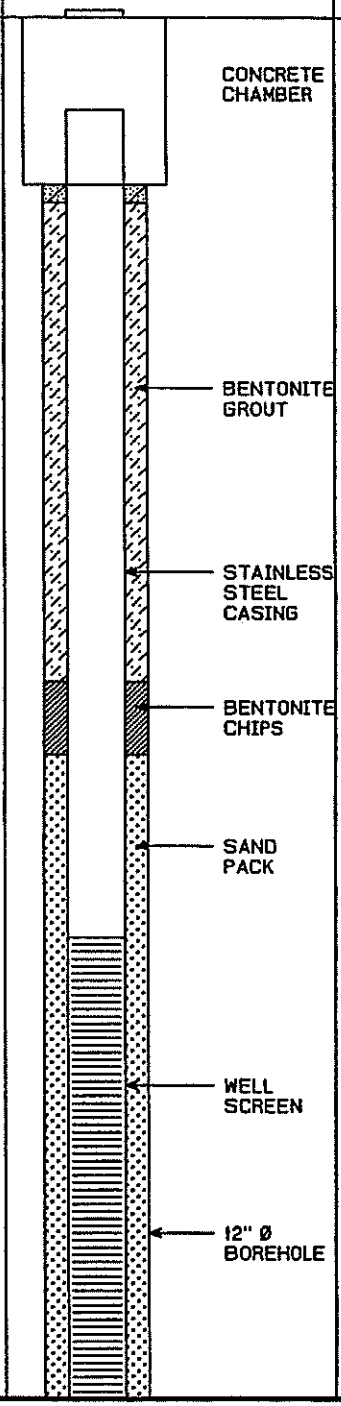
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-93)
Page 1 of 2

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-6
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.4* *6.80*					
20.0	SM-SAND (FILL), some silt, wood pieces, loose, medium to fine grained, well graded, gray/black, red grains, wet, sulfur-like odor	*-9.6*		1SS			0
30.0	ML-SILT (NATIVE), some sand, some shell pieces, dense, fine grained, well graded, dark gray/black, moist, sulfur-like odor	*-19.6*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-6
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SW-SAND, some shell pieces, trace silt, loose, medium to fine grained, well graded, gray/black and red, wet, sulfur-like odor	-29.6	WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0	– sand, trace silt			4SS			0
-52.5	SM-SILT, some sand, dense, fine grained, well graded, dark gray/black and red, wet, sulfur-like odor	-41.0 -41.6	2" Ø SPLIT SPOON				
	END OF HOLE @ 52.0ft BGS						
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

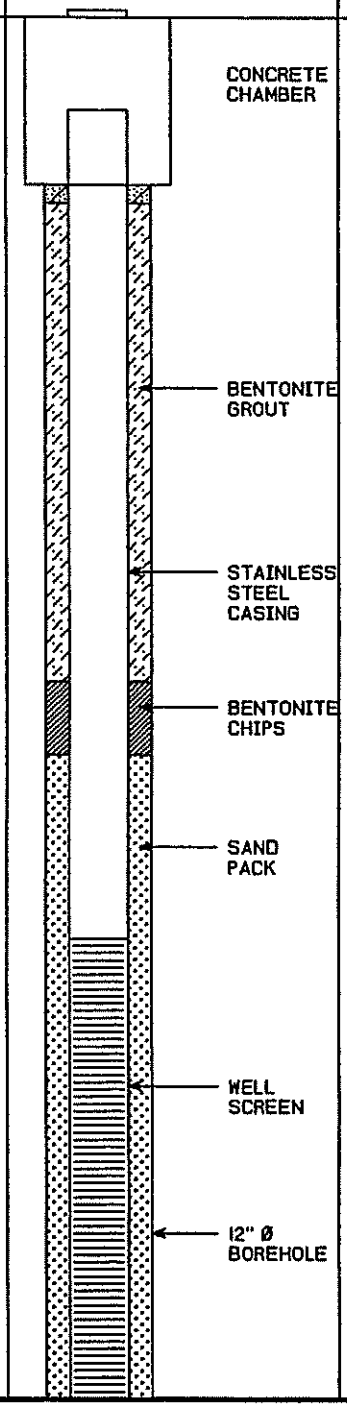
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-7
DATE COMPLETED: OCTOBER 5, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.5* *7.28*					
20.0	SW-SAND (NATIVE), trace silt, loose, medium to fine grained, well graded, gray/black, red sand grains, moist, sulfur-like odor	*-9.5*		1SS			0
30.0	SM-SAND, some silt, some shells pieces, dense, medium to fine grained, well graded, gray/black, red grains, wet, sulfur-like odor	*-19.5*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-7
DATE COMPLETED: OCTOBER 5, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0			WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0			2" Ø SPLIT SPOON	4SS			0
-52.5	END OF HOLE @ 52.0ft BGS	-41.5					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

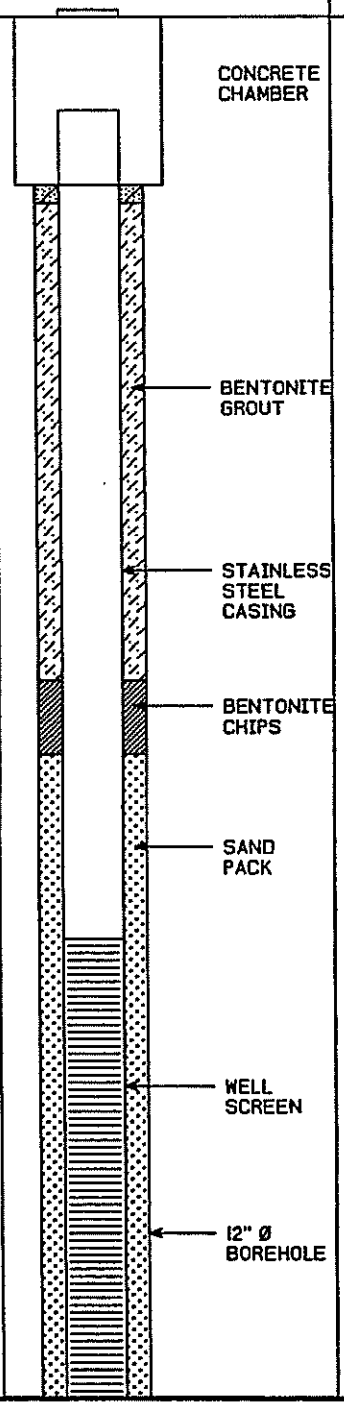
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-91)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-8
DATE COMPLETED: OCTOBER 6, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*10.4* *7.11*					
-20.0	SM-SAND (NATIVE), some silt, trace clay, dense, medium to fine grained, well graded, gray/black, red grains, wet, sulfur-like odor	*-9.6*		1SS			0
-30.0				2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-8
DATE COMPLETED: OCTOBER 6, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SW-SAND, trace silt, dense, medium to fine grained, well graded, gray/black, red sand grains, wet, sulfur-like odor	-29.6	WELL SCREEN; SAND PACK; 12" Ø BOREHOLE	3SS			0
-42.5							
-45.0							
-47.5							
-50.0	SM-SAND, some silt, wood pieces, dense, hard, medium to fine grained, well graded, gray/black, red sand grains, dry, sulfur-like odor	-39.6					
-52.5	END OF HOLE @ 52.0ft BGS	-41.6	2" Ø SPLIT SPOON	4SS			0
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

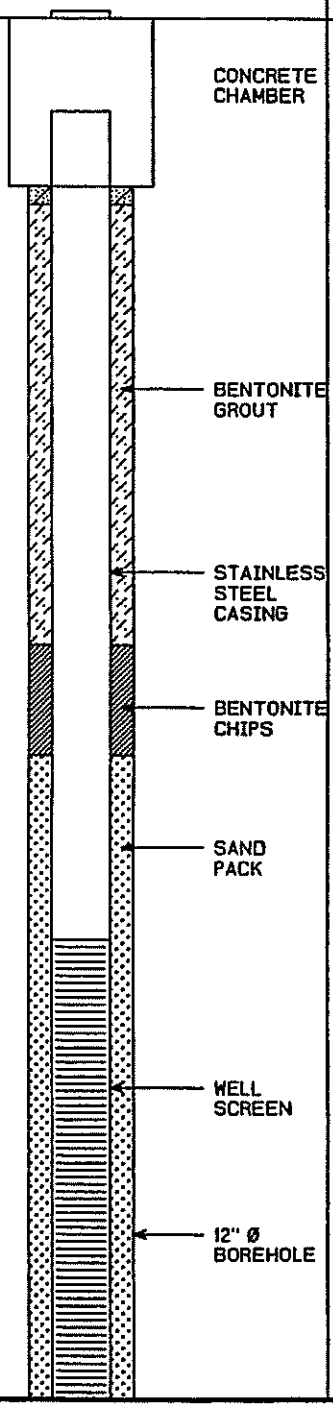
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-9
DATE COMPLETED: OCTOBER 25, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*11.4* *7.83*
20.0	SP-SAND (FILL), little gravel, trace silt, loose to dense, medium to fine to medium grained, poorly graded, dark gray, moist, decaying vegetation odor	*-8.6*
30.0	SW-SAND (NATIVE), loose, medium to fine grained, well graded	*-18.6*
		-19.6
32.5	SM-SILT, some sand, dense, hard, fine grained, poorly graded, dark gray, moist, no odor	



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS			0
2SS			0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-9
DATE COMPLETED: OCTOBER 25, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SW/SM-SILT, some sand, moderately dense, fine grained, poorly graded, dark gray, wet, chemical odor	-28.6	WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0			2" Ø BOREHOLE	4SS			0
-52.5	END OF HOLE @ 52.0ft BGS	-40.6					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 20-40 Sand

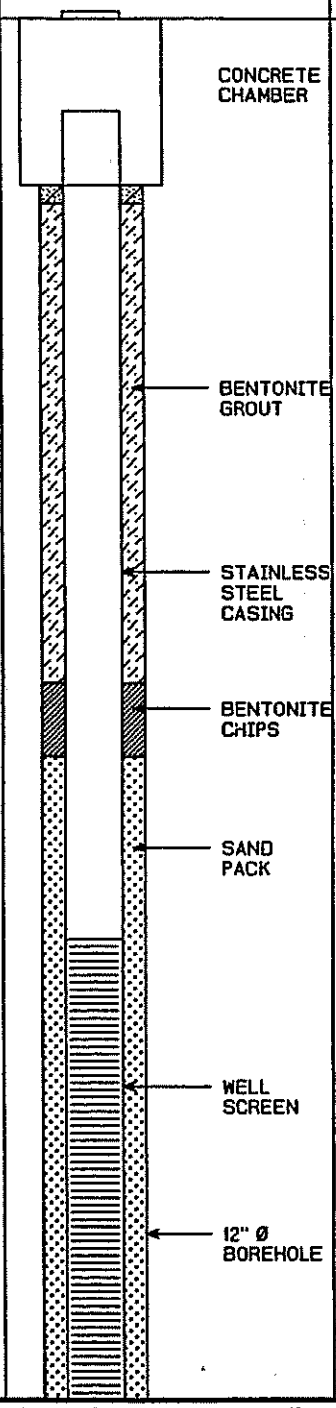
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-10
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Well Cover)	*9.8* *7.84*					
-20.0	SW-SAND (NATIVE), trace gravel, loose, medium to fine grained, well graded, gray/black, red sand grains, wet, sulfur-like odor	*-10.2*		1SS			0
-30.0	SM-SILT, some sand, dense, fine grained, well graded, gray/black, wet, strong sulfur-like odor	*-20.2*		2SS			0



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: F-10
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: 12" AIR ROTARY
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	SW-SAND, trace shell pieces, loose, medium to fine grained, well graded, gray/black and red, wet, sulfur-like odor	-30.2	WELL SCREEN	3SS			0
-42.5			SAND PACK				
-45.0							
-47.5			12" Ø BOREHOLE				
-50.0	SM-SILT, some sand, dense, hard, medium to fine grained, well graded, brown/gray and black, sulfur-like odor	-40.2					
-52.5	END OF HOLE @ 52.0ft BGS	-42.2	2" Ø SPLIT SPOON	4SS			0
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened Interval:
25.0 to 50.0ft BGS
Length: 25ft
Diameter: 6"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
20.0 to 50.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.41 11.15						
	NOT SAMPLED (0.0 TO 10.0ft BGS) - SEE 83C FOR STRATIGRAPHIC INFORMATION		CONCRETE					
10	SP-SAND, trace silt, loose, fine grained, white grains and red grains throughout, brown, moist to wet, trace sand size shell fragments, neutral pH (6.8 to 8.5)	1.41	6" STAINLESS STEEL WELL CASING 10" BOREHOLE					3.5
12	- wet at 13.0ft BGS			-001				
14	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, brown, wet, trace sand size shell fragments	-2.09						7.5
16								8.67
18	SP-SAND, trace silt, loose, fine grained, white grains and red grains throughout, brown, wet, trace sand size and larger shell fragments throughout	-5.89						7.49

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- broken shell fragments at 20.5ft BGS - intact shells at 21.5ft BGS							6.61
24	CL/ML-CLAYEY SILT/SILTY CLAY, trace sand, soft, low to medium plasticity, low to medium dilatancy, brown, wet	-12.09		-002 -004				9.18
26	- increase in clay content at 25.5ft BGS - increase in sand content grading to sandy clay, with shell fragments at 26.0ft BGS	-15.09						74.74
28	SP-SAND, trace silt, loose to compact, fine grained, white grains and red grains throughout, brown, wet, trace sand size and larger shell fragments, continuing neutral pH (7.5 to 8.5)							71.66
30								
32								5.1
34								2.7
36	SM-SILTY SAND, compact, very fine to fine grained sand, trace white grains and red grains, brown to medium brown, wet, trace sand size shell fragments	-24.59		-003				6.03
38	SP-SAND, trace silt, loose to compact, fine grained, white grains and red grains throughout, brown, wet, trace sand size and larger shell fragments	-26.59						6.72

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	SM-SILTY SAND, compact, very fine to fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments, continuing neutral pH (6.9 to 8.5)	-30.59						6.42
44								7.28
46								5.48
48								5.59
50								5.78
52								
54	SP-SAND, trace silt, compact, very fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-43.09						7.01
56	- increase in silt content at 57.0ft BGS							1.61
58	SM-SILTY SAND, compact, very fine grained, white grains and red grains, medium brown, wet, trace sand size shell fragments	-47.09	CEMENT/ BENTONITE GROUT					3.82

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62	- 3" SP-SAND lens, white grains and red grains, continuing neutral pH (7 to 8) at 62.3ft BGS							2.4
64								4.4
66								2.4
		-55.89						
68	SP-SAND, trace silt, compact, fines, white grains and red grains, medium brown, wet, trace sand size shell fragments	-56.39						
	SM-SILTY SAND, compact, fine grained, white grains and red grains, brown, wet, trace sand size shell fragments							13.55
70		-58.69						
	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-59.99						5.78
72	SM-SILTY SAND, compact, very fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments							
74		-62.59						144
	SP-SAND, trace silt, compact, very fine to fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments - elevated pH (9.7 to 10.2) at 75.5ft BGS							
76								60.61
		-65.59						
78	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments			-005				402

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-005)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82	- continuing elevated pH (9.2 to 10.4) at 81.0ft BGS							258
	CL-SILTY CLAY, trace sand, soft, medium plasticity, moderate dilatancy, medium brown, wet	-71.89						90.2
84	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments, neutral pH (7.1 to 8.5)	-73.69						
86	ML-SANDY SILT, firm, low plasticity, medium brown, wet	-75.49						81.1
	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments	-76.69						
88								327
90				-006				
	SP-SAND, trace fine gravel, trace silt, compact, white grains and red grains throughout, medium to dark brown, wet, trace sand size shell fragments	-79.49		-007				442
92	- red brown at 91.5ft BGS							
	ML-SANDY SILT, firm, low plasticity, medium brown, wet	-81.29						
94	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments	-82.49						512
	- elevated pH (9 to 10) at 95.0ft BGS							
96								40.1
98	SP-SAND, trace silt, compact, very fine to fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-86.79						41.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	NO RECOVERY (100.0 to 102.5ft BGS)	-88.59						
102								
	SP-SAND, trace silt, compact, very fine to fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-91.09						
104	- dense, continuing elevated pH (9.5 to 11.1) at 103.0ft BGS - trace coarse gravel grading to fine grained sand at 104.5ft BGS - sandy silt clast at 104.7ft BGS							32.9
				-008				
106								431
108								323
	- interbedded sandy silt lenses (>1" each) from 109.2 to 110.0ft BGS							
110								152
	SM-SILTY SAND, compact, very vine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments	-100.09 -100.79						
112				-009/ 010				
	SP-SAND, trace silt, compact, very fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-101.69						
114	ML-SANDY SILT, firm, low plasticity, medium brown, wet							59.1
116			BENTONITE CHIPS					458
118				-011				
	SM-SILTY SAND, compact, very fine grained, white grains and red grains, medium brown, trace sand size shell fragments, wet	-107.19 -107.89						785
	ML-SANDY SILT, firm, low plasticity, medium							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	brown, wet	-108.59						
	SM-SILTY SAND, very dense/cemented, very fine grained, trace white grains and red grains, medium brown, dry			-012				600
	- negative DNAPL dye test at 121.0ft BGS	-110.29						
122	SP-SAND, trace silt, dense, very fine to fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments, continuing elevated pH (10.6 to 11.2)							340
		-112.09						
124	NO RECOVERY (123.5 to 125.0ft BGS)		6" STAINLESS STEEL WELL SCREEN					
		-113.59						
126	SP-SAND, trace silt, dense, very fine to fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments, continuing elevated pH (10.6 to 11.2)		SAND PACK					303
128								150
		-118.09						
130	SM-SILTY SAND, dense, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments	-118.89						
	SP-SAND, trace to with silt, compact, very fine to fine grained, white grains and red grains, medium to dark brown, wet, trace sand size shell fragments							59.2
132								
		-121.59		-013				
	SM-SILTY SAND, dense, very fine grained, trace white grains and red grains, medium brown, wet, trace sand size shell fragments							131
134								
		-123.59						
	END OF BOREHOLE @ 135.0ft BGS							
136			SUMP					
138			BENTONITE					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-7
DATE COMPLETED: August 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
142			WELL DETAILS Screened interval: -110.59 to -120.59ft 122.00 to 132.00ft BGS Length: 10ft Diameter: 6in Slot Size: 0.010 Material: STAINLESS STEEL Seal: -103.59 to -105.59ft 115.00 to 117.00ft BGS Material: BENTONITE CHIPS Sand Pack: -105.59 to -123.59ft 117.00 to 135.00ft BGS Material: SAND					
144								
146								
148								
150								
152								
154								
156								
158								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	12.57 12.17						
0	ASPHALT		CONCRETE					
	SP-SAND, with silt, loose, fine grained, brown, dry, elevated pH (9.1)	11.07						9.0
4	CONCRETE RUBBLE	8.07	CEMENT/ BENTONITE GROUT					
6	SP-SAND, loose, fine to medium grained, red grains and white grains, dark brown, moist, elevated pH (7.96 to 10.53)	5.57	6" STAINLESS STEEL WELL CASING					2.05
10	- with silt, trace fine to medium gravel at 10.0ft BGS		10" BOREHOLE					1.87
12	- neutral pH (7 to 8.5) at 12.0ft BGS							0.22
	- 0.2' ML-SILT lens at 13.0ft BGS							0.92
14	- wood debris at 14.0ft BGS							
16	- 0.2' ML-SILT lens at 15.5ft BGS							
	CH-CLAY, soft, high plasticity, dark gray, wet	-3.93						
	SM-SILTY SAND, loose, fine to medium grained, dark gray, wet	-4.43						365
18								
20	SP-SAND, loose, fine to medium grained, red grains and white grains, dark gray, wet, shell fragments throughout	-7.43						273

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								732
		-10.93						
24	CL-SILTY CLAY, soft, moderate plasticity, dark gray, wet							
	- 0.2' SC-CLAYEY SAND lens, shell fragments at 25.0ft BGS							117
26	- partially intact shell, 3" gravel piece at 26.5ft BGS							
	- trace sand at 27.0ft BGS							57
28	- increase in sand content at 28.5ft BGS							
30								328
		-17.93						
	SP-SAND, loose, fine grained, red grains and white grains, dark gray, shell fragments throughout							
	- 0.2' SC-CLAYEY SAND lens at 31.5ft BGS							
32								504
	- 0.3' SC-CLAYEY SAND lens at 33.5ft BGS							
34								
	- 0.3' SC-CLAYEY SAND lens at 34.5ft BGS							846
36	- 0.3' SC-CLAYEY SAND lens at 36.0ft BGS							
								6
38	- 0.4' ML-SILT lens at 38.0ft BGS							
								4
40								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, loose, fine grained, with red grains and red grains, dark gray, wet, continuing neutral pH (7 to 8)	-29.43						47
44	- 0.4' ML-SILT lens at 44.0ft BGS							21
46	- 0.2' ML-SILT lens at 47.0ft BGS - decrease in silt content at 47.5ft BGS							12
48								
50	- increase in silt content at 50.0ft BGS							2
52								1
54								0.63
56								
58	- 0.2' ML-SILT lens at 57.0ft BGS							2
	SP-SAND, trace silt, loose, fine grained, with red grains and white grains, dark gray, wet, trace organic debris	-46.43						
60								3
62								2
	ML-SILT, trace sand, stiff, low plasticity, dark	-49.93						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	gray, wet							
	ML-SANDY SILT, loose, dark gray, wet, continuing neutral pH (6.8 to 7.5)	-50.93						
64								2
66								2
68	SM-SILTY SAND, loose, fine grained, with red grains and white grains, dark gray, wet	-55.43						
70								1
72	- decrease in silt content at 72.5ft BGS							3
74								8
76								2
78	SP-SAND, loose, very fine grained, with red grains and white grains, dark gray, wet	-65.93						
80								3
82								6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, loose, very fine grained, dark gray, wet, continuing neutral pH (6.7 to 7.5)	-71.43						3
86	SP-SAND, trace silt, loose, very fine grained, with red grains and white grains, dark gray, wet	-73.43						2
88								
90								8
								18
92	- 0.3' ML-SILT lens, organic debris at 92.5ft BGS							
94								20
	SM-SILTY SAND, loose, very fine grained, with red grains and white grains, dark gray, wet	-82.43						
96	ML-SILT, trace organic debris, stiff, low plasticity, dark gray, wet - organic debris at 96.5ft BGS	-83.43	BENTONITE CHIPS					15
98	SM-SILTY SAND, trace organic debris, loose, very fine grained, with red grains and white grains, dark gray, wet	-85.43						
100	- concentrated layer of organic debris at 100.0ft BGS							126
	SP-SAND, loose, very fine grained, with red grains and white grains, dark gray, wet	-87.93						1961
102								
	ML-SILT, trace sand, stiff, no plasticity, dark gray, wet	-90.93						
104	SM-SILTY SAND, loose, very fine grained, with red grains and white grains, dark gray, wet,	-91.43						379

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
106	continuing pH (6.2 to 6.9) - concentrated layer of organic debris at 106.5ft BGS							525
108								
	ML-SANDY SILT, stiff, no plasticity, dark gray, wet	-96.43						450
110								
								114
112			6" STAINLESS STEEL WELL SCREEN					
114	SP-SAND, trace silt, loose, fine grained, with red grains and white grains, dark gray, wet - 0.5' ML-SILT lens, trace sand, stiff, low plasticity, dark gray, wet at 115.0ft BGS	-101.43	SAND PACK					601
116								
								2120
118								
120								943
								2035
122	- 0.3' ML-SILT lens, shell fragments, continuing neutral pH (6.1 to 6.5) at 122.0ft BGS							
	ML-SANDY SILT, stiff, low plasticity, dark gray, wet, organic debris and shell fragments throughout	-110.93						
124								1991

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: EXT-9
DATE COMPLETED: September 12, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	EXTRACTION WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
128								915
130	SP-SAND, loose, fine grained, with red grains and white grains, dark gray, wet	-116.93						357
132	ML-SANDY SILT, stiff, low plasticity, dark gray, wet, trace shell fragments	-118.93						959
	SP-SAND, trace silt, loose, fine grained, with red grains and white grains, dark gray, wet	-119.93						
134	ML-SANDY SILT, stiff, low plasticity, dark gray, wet, trace shell fragments - increase in sand content at 135.0ft BGS	-120.93	BENTONITE CHIPS SUMP					1463
136								
138	SM-SILTY SAND, loose, fine grained, with red grains and white grains, dark gray, wet	-124.43						1421
	ML-SANDY SILT, stiff, low plasticity, dark gray, wet	-125.93						
140	END OF BOREHOLE @ 140.0ft BGS	-127.43						350
142								
144								
146								

WELL DETAILS
Screened interval:
-97.43 to -117.43ft
110.00 to 130.00ft BGS
Length: 20ft
Diameter: 6in
Slot Size: 0.010
Material: STAINLESS STEEL
Seal:
-81.43 to -87.43ft
94.00 to 100.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-87.43 to -120.43ft
100.00 to 133.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

Monitoring Wells

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast Side of H-25(Shipping & Receiving)

Boring No. 1-25

Surface Elevation 11.07 ft. (Top of 2" steel casing)

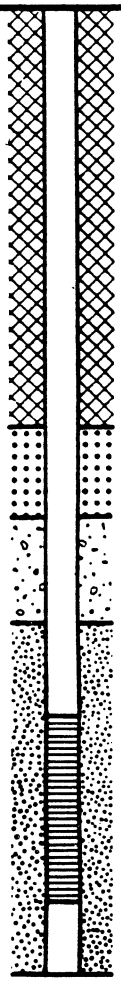
Drilling Method Hollow Stem Auger

Total Depth 25 feet

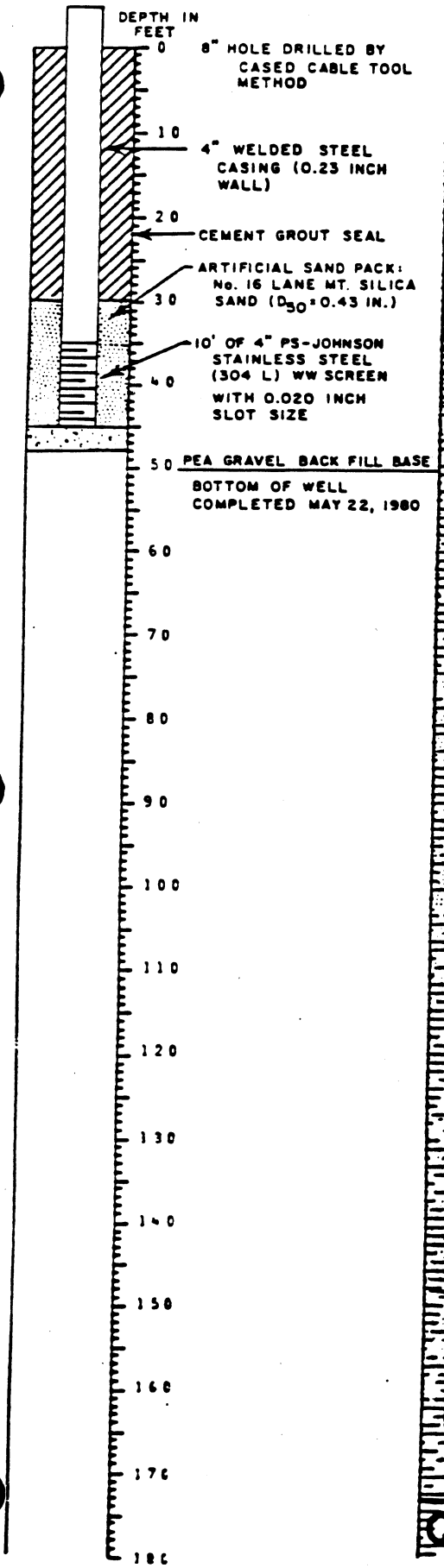
Drilled By Soil Sampling Service, Inc.

Date Completed 12/4/86

Logged By D.E. Mills DEM

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	5-10-18	5 10 15 20 25 30 35	1	Split Spoon		SP SM	This boring was not sampled except for the interval from 22.5-24' It is located 6' northwest of well 1-100, see the log of 1-100 for details of the geology in this vicinity. NOTE: This well was completed prior to 1-100, therefore sample No. 1 was taken to verify the lithology of the projected screened interval for this boring. 22.5-23' SAND, dusky yellowish brown, saturated, medium dense. Medium-coarse. 23-24' Silty SAND, dusky yellowish brown, saturated, medium dense. Bottom at 25 feet	

WELL 1-45



QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T° C	NaOH	NaCl	Cl-Organic
17.5	0	4,400	0
16.5	0	15,200	1.8
18.5	0	85,400	16
19.5	40	99,300	60
16.0	80	119,300	640
16.0	80	110,400	520
19.0	0	93,100	400
18.0	0	91,000	350
18.5	1,500	86,900	170
18.5	1,500	84,800	230
19.5	320	73,400	150
18.5	320	72,200	140
NA	0	57,600	120
20.5	0	58,600	110
19.5	0	53,800	60
20.5	0	50,600	120
20.5	80	46,600	100
20.5	40	45,000	60
19.5	920	42,700	90
20.0	8,600	42,800	90
20.5	11,000	42,800	360
22.0	15,500	51,100	810
22.5	16,800	55,200	570
23.0	22,000	57,000	550
22.5	21,700	59,100	730
21.0	21,600	59,400	840
21.0	21,500	59,800	550
19.5	13,600	48,000	510
20.0	13,300	48,000	520
20.0	11,400	41,800	220
21.0	11,400	43,600	460
21.0	11,100	45,300	110
21.0	10,400	48,000	380
21.0	9,500	40,400	190
20.0	87,100	38,400	340

SURFACE ELEVATION 17.5' MLLW

July 19.

NA = Not Available

TRACE = Detectable but not Measurable

HART-CROWSER & associates I

Figure C-1

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp., Tacoma, WA

Location Southeast of Shipping/Receiving (building H-25)
Boring No. 1-100
Surface Elevation 10.99 ft. (Top of 2" steel casing)
Drilling Method Hollow Stem Auger
Total Depth 100 feet
Drilled By Soil Sampling Service, Inc.
Date Completed 12/9/86
Logged By D.E.Mills Dem

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
						GP	0-2.8' Sandy GRAVEL with cobbles (to 4.in. dia), moderate brown, wet. Gravel to 3-in.dia., rounded. Unsorted. Strong organic chemical odor (TCE?).	
	5-5-7-9	5	1	Split Spoon		SM		
	5-4-5-5		2	"		SP	2.8-4.5' Silty SAND, dark yellowish brown, moist, loose.	
	3-3-4-5		3	"			4.5-10.3' SAND, dusky yellowish brown, saturated, loose. Fine to medium, trace silt. Trace shell fragments. Round clay nodule at 8.8'. (FILL)	
	3-3-4-5	10	4	"		SP-SM		
	6-4-6-6		5	"				
	3-4-5-4	15	6	"		SM	10.3-14.5' SAND, dusky black, saturated, loose. Fine to medium. Disinct beds to 8" thick. Silty sand interbeds (olive black) at 11-11.2', 11.4 11.6'. Silt increases toward base.	
	4-4-4-4		7	"				
	3-3-3-6	20	8	"			14.5-22.5' Silty SAND, brownish black, saturated, loose. Fine to medium. Laminated. Variable sand/ silt ratios. Sandy silt interbeds to 0.5" thick common.	
	5-7-9-9		9	"		SP		
	7-50/6"	25	10	"			22.5-27.5' SAND, brownish black, saturated, medium to coarse. Trace silt and fine sand. Trace fine gravel, subangular.	
	4-7-6 -12		11	"				
	6-9-7 -15	30	12	"		SP	27.5-35.8' Description on following page.	
	7-11 -12-8		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 1-100

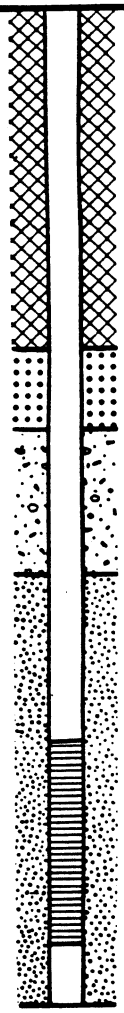
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35				SP	27.5-35.8' SAND, brownish black, saturated, medium dense, very fine to medium. Thin bedding (to 2-in. thick) manifest by silty sand bed tops and interbeds. Unbroken shells between 30 and 30.5'.	
	6-13-14-18		14	Split Spoon				
	8-27-28-24		15	"				
		40						
	6-14-21-24		16	"				
						SM		
	8-29-27-35		17	"			35.8-47' Silty SAND, dusky yellowish brown, saturated, dense to very dense. Very fine to fine. Variable silt/sand ratios. Laminated, with sand and olive gray clay nodules (to 1" dia.) from 43.2-43.7'.	
		45						
	8-10-17-28		18	"				
	9-16-22-27		19	"				
		50						
	8-11-15-21		20	"				
	7-11-10-7		21	"		ML	47-59.3' Sandy SILT, olive black, saturated, very stiff to 54.5', medium stiff below. Thickly laminated, variable silt/sand ratios. Trace to slightly clayey at some zones. Thicker beds toward base.	
		55						
	4-1-3-2		22	"				
	4-5-3-7		23	"				
		60				SM	59.3-64.1' Interbedded Sandy SILT and silty SAND, olive black, saturated, loose/stiff. Fine to medium sand. Laminated to thinly bedded (1-inch thick).	
						ML		
	2-3-5-5		24	"		SM		
	4-3-6-8		25	"		ML		
		65						
	6-5-5-8		26	"				
	3-5-11-12		27	"		SM	64.1-72.8' Silty SAND olive black, saturated, medium dense. Laminated with sandy silt laminae. Variable silt/sand ratios.	
		70						
	5-7-9-13		28	"				
	4-4-6-8		29	"		SP	72.8-81.6' Description on next page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 1-100

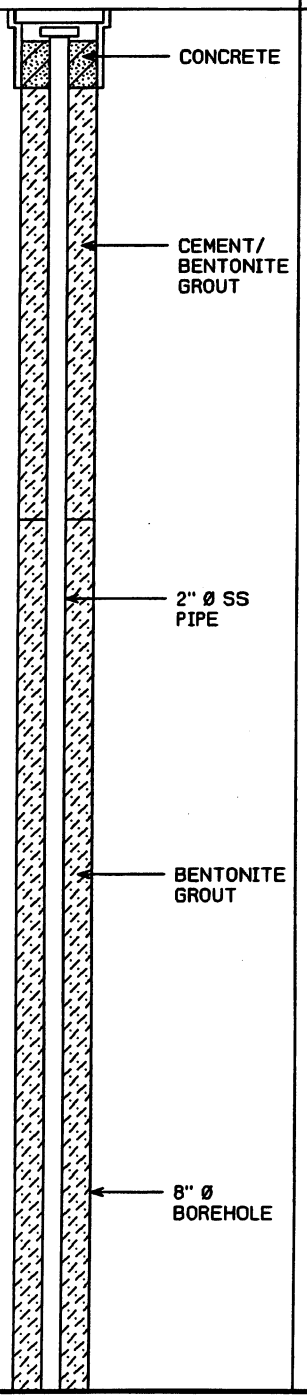
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75						
	7-12-16-17		30	Split Spoon		SP	72.8-81' SAND, olive black to dusky yellowish brown, saturated, dense. Very fine to fine. Interbedded with laminated silty sand at 75-76.3', 77.5-78.1', and 80.7-81.6'; 0.5" layer of sandy silt at 74'.	
	7-15-18-24		31	"				
		80						
	8-11-15-19		32	"				
	3-2-8-9		33	"		ML	81.6-84.5' Sandy SILT, olive grey, saturated, stiff to very stiff. Laminated. Trace clay lower 4". Gravel (coarse, rounded) at 84.3-84.4'.	
		85						
	8-14-22-24		34	"				
	7-7-17-16		35	"		SP	84.5-93.5' SAND, olive black, saturated, dense. Fine to medium. Vague layers to 5" thick indicated by slightly silty zones.	
		90						
	3-8-18-20		36	"				
	13-18-31-45		37	"				
		95						
	7-21-33-50/5"		38	"		ML	93.5-95' Sandy SILT, olive, gray, saturated, very stiff. Very fine sand. Thinly laminated with sand beds occurring from 93.6-93.7', 94-94.2', 95-96.8', and 98.5-98.8'.	
	14-34-54/6"		39	"				
		100					Bottom at 100 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 1-100R
DATE COMPLETED: MAY 30, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	11.1 11.00					
	Refer to 1-100 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 1-100R
DATE COMPLETED: MAY 30, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5							
40.0			BENTONITE GROUT				
42.5							
45.0							
47.5							
50.0			2" Ø SS PIPE				
52.5							
55.0							
57.5							
60.0			8" Ø BOREHOLE				
62.5							
65.0							
67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 1-100R
DATE COMPLETED: MAY 30, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-72.5			BENTONITE GROUT				
-75.0							
-77.5							
-80.0			8" Ø BOREHOLE				
-82.5							
-85.0							
-87.5			2" Ø SS PIPE				
-90.0							
-92.5							
-95.0	SP-SAND (NATIVE), trace silt, fine grained, poorly graded, dark gray to black, trace red sand, wet, chemical odor	-82.9	BENTONITE SEAL	1SS		21	
	ML-SILT, ssome to little very fine sand, dark gray, very moist, chemical odor	-84.8	SAND PACK	2SS		>50	
-97.5	SM-SAND, little silt, fine grained, dark gray, wet	-86.9					
	ML-SILT	-87.9	NATIVE PACK	3SS		55	
-100.0	SP-SAND, trace silt, very fine grained, dark gray, wet - little silt	-88.4		4SS		85	
-102.5			WELL SCREEN	5SS		63	
			SUMP				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

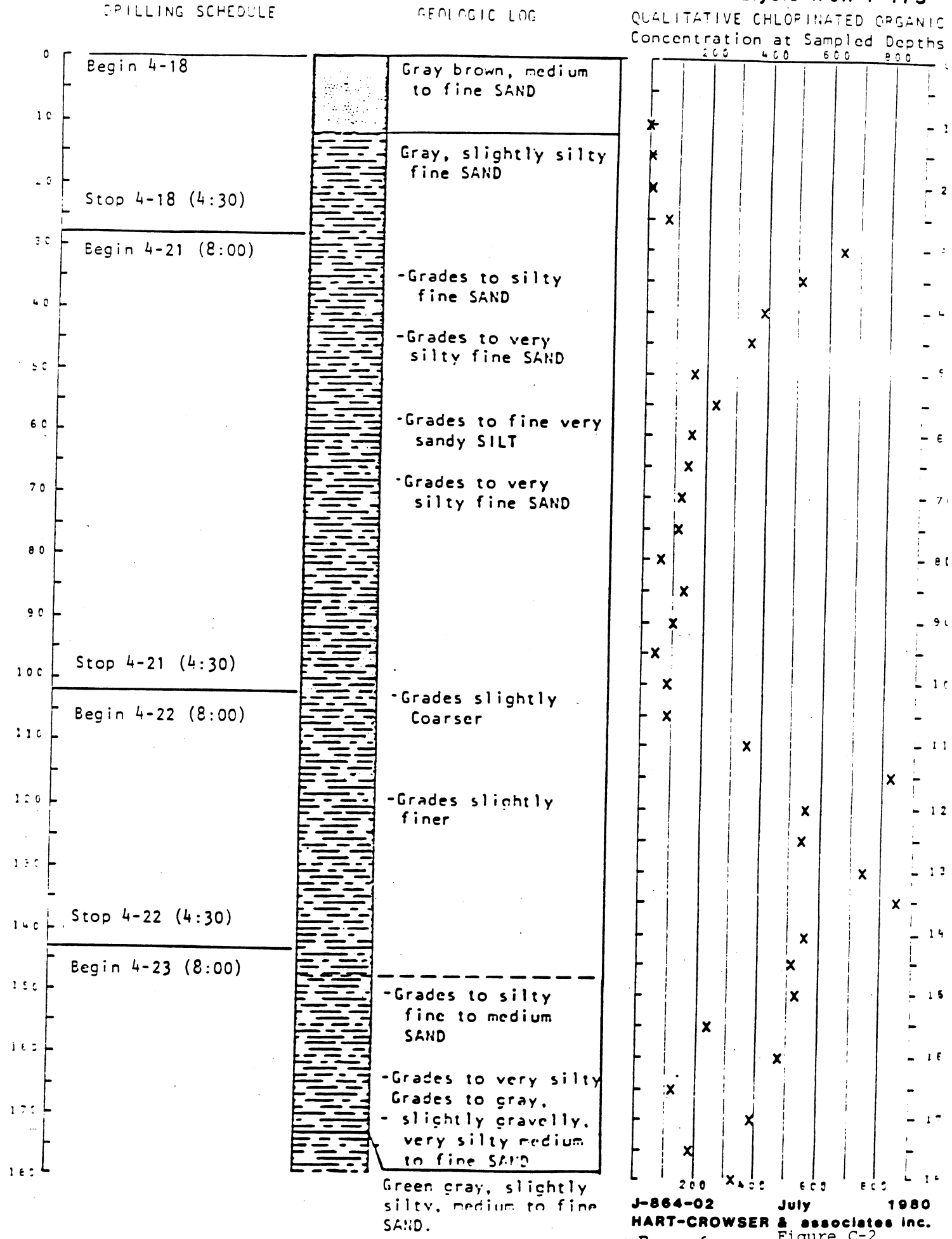
PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 1-100R
DATE COMPLETED: MAY 30, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	END OF HOLE @ 105.5ft BGS	-94.4	SCREEN DETAILS Screened Interval: 99.0 to 104.0ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 96.0 to 98.5ft BGS Material: 10/20 Silica Sand Native Pack: 98.5 to 105.5ft BGS				
107.5							
110.0							
112.5							
115.0							
117.5							
120.0							
122.5							
125.0							
127.5							
130.0							
132.5							
135.0							
137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Carry Down as Delineated by Drilling Schedule and Chemical Analysis Well 1-175

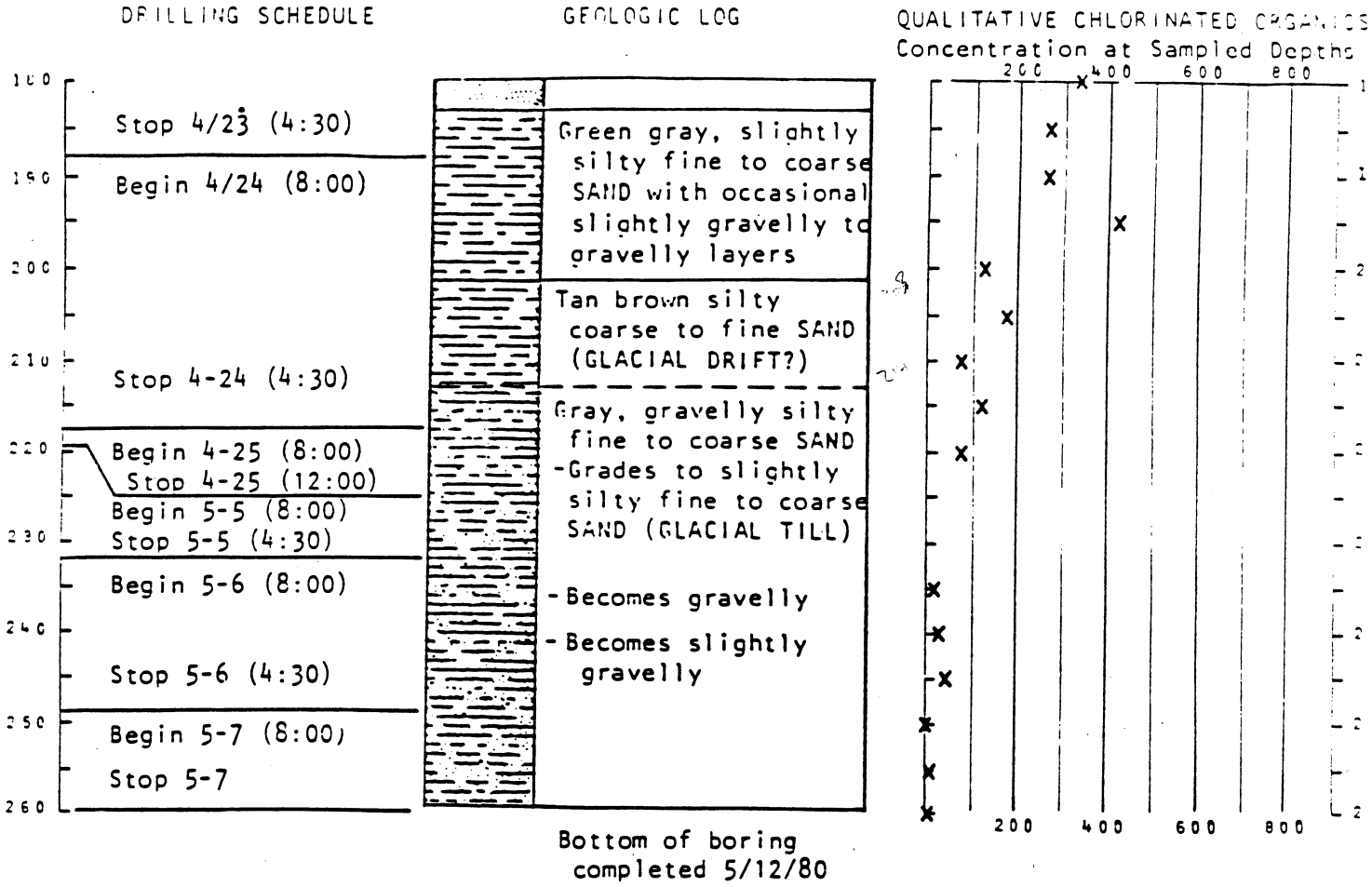


J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-2

Carry Down as Delineated by Drilling Schedule and Chemical Analysis Well 1-175 (Cont



Bottom of boring completed 5/12/80

J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-2 (cont.)

Sweet, Edwards & Associates, Inc.

BORING LOG

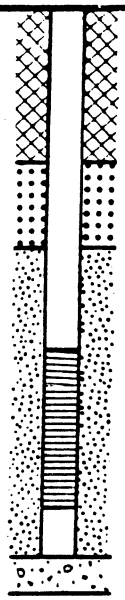
PROJECT Occidental Chemical Corporation - Tacoma, WA.

Location Southeast of Caustic Tank #7 **Boring No.** 2-14

Surface Elevation 13.91 FT. **Drilling Method** Hollow Stem Auger

Total Depth 15 feet **Drilled By** Tacoma Pump & Drilling Co., I

Date Completed 9/21/87 **Logged By** D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled. It is located approx. 12 feet southeast of 2-100. Se the log of that well for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast of Caustic Tank #7

Boring No. 2-25

Surface Elevation 14.24 ft. (Top of 2" steel casing)

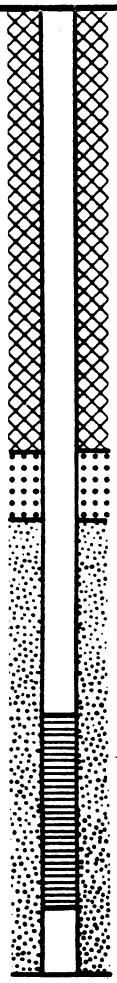
Drilling Method ~~Hollow Stem Auger~~

Total Depth 25 feet

Drilled By Soil Sampling Service, Inc.

Date Completed 11/25/86

Logged By D. E. Mills DEM

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled, but it is located 9' south of well 2-100. See the boring log for 2-100 for details of the geology in this vicinity. Bottom at 25 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

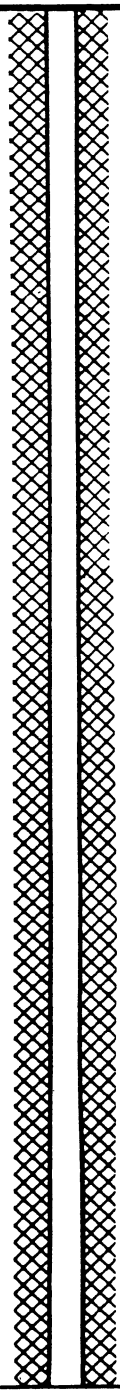
PROJECT Occidental Chemical Corp.,-Tacoma, WA

Location Southeast of Caustic Tank #3 **Boring No.** 2-50

Surface Elevation 13.94 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/25/86 **Logged By** B. A. Butler DEM for BAB 12/11/86

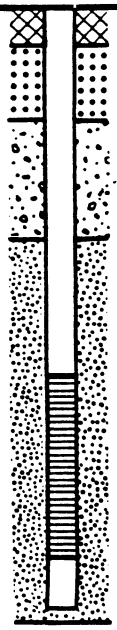
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25 30 35					This boring was not sampled but it is located 3' south of well 2-100. See the boring log for 2-100 for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See preceding page for description. Bottom at 50 feet	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast of Caustic Tank #7 **Boring No.** 2-100

Surface Elevation 13.16 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 100 ft **Drilled By** Soil Sampling Services

Date Completed 11-24-86 **Logged By** B. A. Butler DEM for B/AC

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
						SW	0.9.5', Gravelly SAND, olive brown, loose, saturated from 7.5'. Fine to coarse, coarsens downward. Trace angular gravel. Abundant shell 7.8-8.5' Trace silt.	
	3-1-1-2	5	1	Split Spoon				
	2-1-1-1		2	"				
	2-2-1-2		3	"				
		10				SW	9.5-15.7', SAND, brownish-black, saturated, loose. Fine to coarse. Fining downwards. Well sorted. Trace silt and shells. Layer of abundant shells from 15-15.7'.	
	1-2-3-4		4	"				
	2-3-4-8		5	"				
		15						
	2-2-5-6		6	"		SP-SM	15.7-23.5', SAND, olive brown, saturated, medium dense. Medium to coarse. Trace silt. Interbedded sand and silty sand. Carbonized wood fragments between 17.5-19.5. Trace shells.	
	5-8-12-12		7	"				
		20						
	17-14 10-17		8	"				
	12-15 16-12		9	"				
		25				ML	23.5-32', Sandy SILT, olive gray, saturated, very stiff. Thin laminae of sandy silt and silt. Trace clay. Trace shell fragments.	
	9-14 22-22		10	"				
	5-7-10 -20		11	"				
		30						
	50/2"		12					
	13-28-33-40		13			SP	32.43.5', SAND, medium brown, saturated, very dense. Fine to medium sand. Trace silt. Trace shell fragments.	
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-100

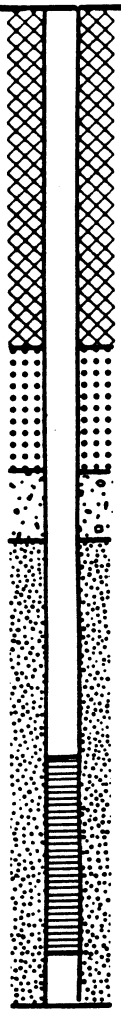
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					See preceding page for description	
	10-17-26-22		14	Split Spoon				
	5-15-22-23		15	"		SP		
	9-22-50/6"	40	16	"				
	9-17-53/6"		17	"		SM	43.5-44.5 Silty SAND, olive gray, saturated, very dense. With ¼-½" layers of sandy silt.	
		45				SP		
	6-19-12-23		18	"				
	10-17-51/6"		19	"		ML	44.5-46', SAND, brownish-black, loose, saturated. Medium to coarse. Large shell fragments. ¼" silt nodules common.	
		50						
	22-56/6"		20	"			46-55', Sandy SILT, olive gray, saturated, very stiff. Trace carbonized wood. Interbedded silt and sandy silt. Trace shells.	
	15-21-33-34		21	"				
	13-50/6"	55	22	"				
	10-20-34-35		23	"		SM	55.62.5', Silty SAND, olive gray, saturated, dense to very dense. Very fine to fine. Trace wood and shell fragments. Fines downward. Laminated with thin sand interlayers.	
		60						
	10-15-18-18		24	"				
	9-14-19-25		25	"		SW	62.5-69', SAND, brownish black, saturated, very dense. Fine to medium coarse. Trace silt 67.5-69. Trace shell fragments.	
		65						
	17-35-50/6"		26	"				
	11-17-23-42		27	"				
		70						
	10-29-33-50		28	"				
	28-39-50/4"		29	"		SM	69-75.8', SAND, olive brown, saturated, very dense. Very fine to fine. Silty sand interbedded with thin layers of silt. Trace shells in silt layers.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-100

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75				SM	See preceding page for description.	
	9-19-35 -41		31	Split Spoon		SP - SM	75.8-85', Silty SAND, brownish-gray, saturated, very dense. Fine to medium. Laminated with sand. Carbonized wood fragments.	
	11-7 - 50/6"		32	"				
		80						
	17-39 - 24-32		33	"				
	7-20 - 50/5"		34	"				
		85						
	17-31 - 50/3"		35	"		SP	85-96.1', SAND, olive black, saturated, very dense. Fine-medium. Trace silt nodules. Well sorted. Trace shell and wood fragments. Silty, very fine sand stringers from 88.2-89.5 and 90.9-92'.	
	18-28 - 51/6"		36	"				
		90						
	15-56/ 6"		37	"				
	12-39 - 50/4"		38	"				
		95						
	12-20 - 52/6"		39	"				
						SM	96.1-99.5', Silty SAND, olive gray, saturated, very dense. Fine with 1" sandy silt laminae. Trace shells and wood.	
	17-19 34 - 50/5"	100	40	"				
							Bottom at 100 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

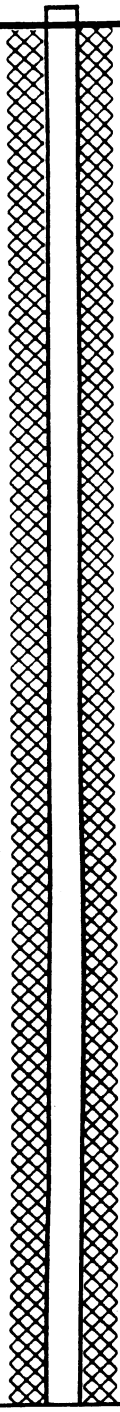
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast of Caustic Tank #7 **Boring No.** 2-166

Surface Elevation 11.59 ft. (Top of 2" steel casing) **Drilling Method** Cable Tool

Total Depth 166 ft **Drilled By** Holt Drilling

Date Completed 11/17/86 **Logged By** B. A. Butler DEM for BAB

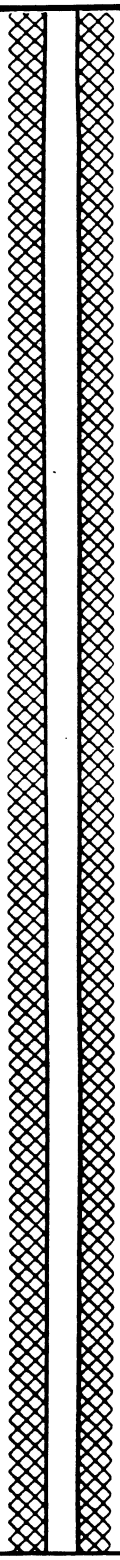
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25 30 35					This boring was not sampled between 0 and 100'. It is located about 12' south of well 2-100. See the boring log for 2-100 for details of the geology between 0 and 100' in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-166

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50 55 60 65 70						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-166

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		70					See Page 1 for description.	
		75						
		80						
		85						
		90						
		95						
							Sampling begun at 100 ft.	
		100						
	6-12-15		1	Split Barrel		SP	100-107' SAND, olive brown to brownish black, saturated, medium dense. Fine to coarse. Trace silt. Some wood fragments.	
	9-9-12		2	"				
		105						
	9-13-18		3	"				
							107-114', Description on following page.	
	14-14-12		4	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-166

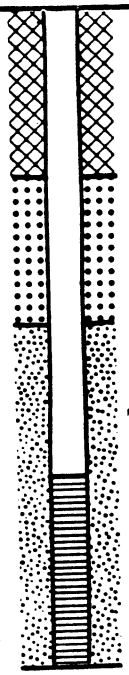
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		110						
	3-3-5		5	Split Barrel		SM	107-114', Silty SAND, medium olive gray, saturated, loose. Fine. Fining downward to sandy silt and silty sand beds below 111'.	
	3-4-7		6	"				
		115						
	31-35		7	"		SW	114.0-117.0', SAND, brownish black, very dense, saturated. Fine to medium coarse. Trace silty sand laminae.	
	4-5-9		8	"		SM	117.0-123.0' Silty SAND, olive black, saturated, loose. Thin beds of silty sand grading upward to sandy silt bed tops.	
		120						
	2-5-13		9	"				
	9-12-15		10	"		SP-SM	123-131', Silty SAND, brownish-black, saturated, medium dense. Fine to medium. Interbedded sand and silty sand. Bed thickness from 1/8 to ½".	
		125						
	12-19-18		11	"				
	14-18-17		12	"				
		130						
	14-16-14		13	"		SM	131-132', Silty SAND, olive gray, saturated. Fine to medium, with ½"-½" silt laminae. Abundant wood chips. Fining downward.	
	5-5-7		14	"		ML	132-138.2', SILT, olive gray, saturated, medium stiff. Massive, cohesive. Some shell and wood fragments.	
		135						
	4-4-5		15	"				
	1-4-10		16	"		SW-SP	138.2-145', SAND, brownish-black, moderately dense, saturated. Medium-fine to coarse. Moderate wood fragments. Trace silt laminae and nodules. Coarsens downward with trace fine gravel at base.	
		140						
	15-25-27		17	"				
	16-40		18	"				
		145						
	18-50		19	"		SW	145-150', Gravelly SAND, brownish-black, saturated, very dense. Fine to coarse sand with fine gravel. Abundant wood fragments. Trace silt.	
	36-35-36		20	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 2-166

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	50/4"	150	21	Split Barrel		SW	See description on preceding page.	
						GP	150-152', Sandy GRAVEL, olive grey, saturated, very dense. Gravel fine to (0.5-2" dia.), in silty sand matrix. Trace shells.	
	16-44		22	"				
		155						
	26-32 39		23	"				
						SP-SW	152-166', Gravelly SAND, greenish black, saturated very dense. Medium to coarse. Trace silt. Gravel to 0.5" diameter.	
	32-42		24	"				
		160						
	50/7"		25	"				
	50/5"		26	"				
		165						
	50/3"		27	"				
							Bottom at 166 feet.	
		170						

Sweet, Edwards & Associates, Inc.

BORING LOG

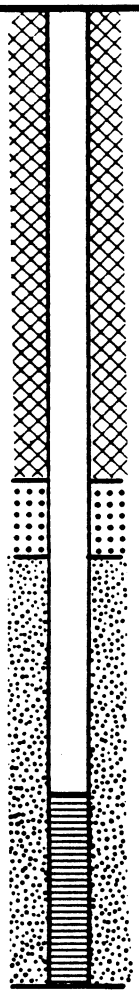
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location East side of $CaCl_2$ Batch Plant **Boring No.** 3-25

Surface Elevation 14.84 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/12/86 **Logged By** D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25			No permeability testing conducted during drilling.		This boring was not sampled but it is located 4.5 feet south-east of well 3-100. See the log of that boring for details of the geology at this location. Bottom at 25 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

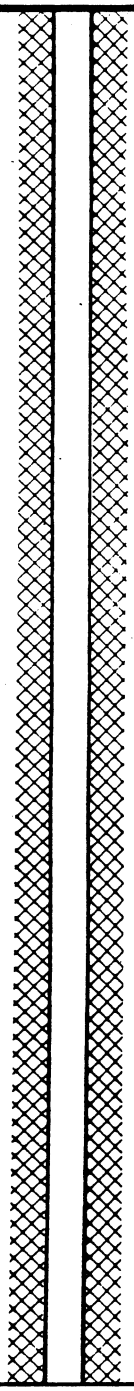
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location East side of $CaCl_2$ Batch Plant **Boring No.** 3-50

Surface Elevation 14.64 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/11/86 **Logged By** D.E. Mills

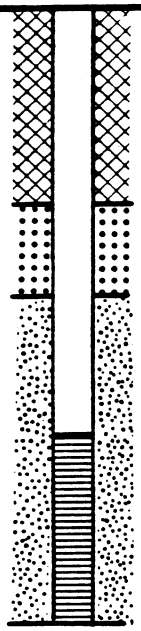
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35			No permeability testing conducted during drilling		This boring was not sampled but it is located about 6 feet east of well 3-100, See the log of that boring for a description of the geology at this location.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See previous page for description. Bottom at 50 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location SE side of $CaCl_2$ Batch Plant **Boring No.** 3-100

Surface Elevation 14.37 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 101.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/11/86 **Logged By** D.E. Mills/B.A. Butler

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0					0-6.5' SILT, mottled black and red, moist, stiff. Trace fine gravel(to 0.5" dia., rounded).	
	4-4-4-5		1	Split Spoon				
	2-7-6-4	5	2	"		ML	6.5-13.8' Clayey SILT, mottled black and reddish brown, moist to saturated (below 9.5 ft), stiff to very stiff. Crushed red brick abundant. Clay content increasing downward (FILL)	
	1-1-4-7		3	"				
	6-6-9-11	10	4	"				
	7-8-9-11		5	"			13.8-19' Silty SAND, grayish-brown speckled red, saturated, loose to dense. Thin beds of fine to medium sand grading upward to silty fine sand. Layer of laminated clayey silt (ML) at 15.5-16 ft. Wood fragments abundant.	
	7-26 10-10	15	6	"		SM		
	3-4-3-5		7	"				
	4-4-6-6	20	8	"		SP	19-23' SAND, gray, saturated, loose. Fine to medium Trace silt.	
	9-5-6-13		9	"		ML	23-24' Sandy SILT, light gray, moist, very stiff. Massive. Abundant shell fragments.	
	3-4-6-6	25	10	"		SM	24-33.3' Silty SAND and SAND, gray, saturated, medium dense. Fine to med. Abundant shell fragments. Thin layer of sandy silt between 29.5-30.2 ft and 32.2-33.3 ft.	
	7-13-17-14		11	"				
	3-12-16-18	30	12	"		ML		
	4-1-2-7		13	"		SP		
	3-12-19-21	35	14	"		ML		
						SM	33.3-40.8' See description on following page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-100

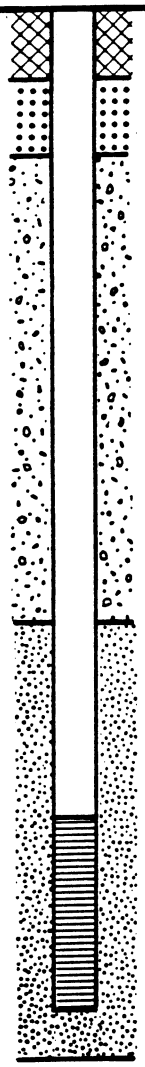
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	3-12-19-21	35	14	Split Spoon		SM	33.3-40.8' Silty SAND, dusky yellowish brown, saturated, medium dense. Thin beds of fine to medium sand grading upward to silty sand at bed tops. Beds to 1-in. thick Laminated between 39.5 and 40.8 ft. Wood fragments abundant at the bed tops.	
	5-6-11-14		15	"				
	4-7-12-15	40	16	"				
	10-12-20-23		17	"		SP	40.8-44' SAND, dusky yellowish brown, saturated, medium dense to dense. Fine. Vague layering indicated by zones with a trace silt.	
	10-16-19-25	45	18	"				
	8-9-13-23		19	"			44-62' Silty SAND, dusky yellowish brown, saturated, medium dense. Thin beds (to 3-in. thick of very fine to fine sand grading upward to silty sand. Laminated at several zones.	
	7-12-10-10	50	20	"				
	5-6-11-15		21	"		SM		
	4-2-8-8	55	22	"				
	6-6-8-17		23	"				
	5-5-9-12	60	24	"				
	2-2-5-9		25	"		ML	62-68' Sandy SILT, olive black, saturated, stiff. Very fine to fine sand; trace clay. Laminated. Lense of silty sand at 64.5-65 feet.	
	3-3-3-4	65	26	"		SM / ML		
	12-14-18-26		27	"				
	14-18-25-32	70	28	"		SP	68-83.5' SAND, olive black, saturated, dense to very dense. Medium to coarse. Speckled red. Trace silt and gravel.	
	12-20-30-33		29	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-100

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	10-14-27-25	75	30	Split Spoon			See previous page for description.	
	15-33-32-45		31	"		SP		
	10-19-37-50/5"	80	32	"				
	10-21-35-50/5"		33	"				
	6-14-23-40	85	34	"		SP-SM	83.5-86.5' SAND, olive brown, dense, saturated. Fine to medium, angular. Coarsens downward. Layer of sandy silt at 86.2-86.5 feet.	
	5-5-10-24		35	"				
	9-14-23-24	90	36	"		SP-SM	86.5-93' SAND, olive brown, saturated, very dense. Thin (laminated), alternating layers of very fine sand and sandy silt. Wood fragments in fine bed tops.	
	10-16-23-38		37	"				
	12-36-57/6"	95	38	"				
	7-35-53		39	"		SP	93-101.5' SAND, dark olive brown, saturated, very dense. Medium to coarse, angular. Trace silt.	
	10-30-50/6"	100	40	"				
		105					Bottom at 101.5 feet.	
		110						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp-Tacoma, WA

Location East of $CaCl_2$ batch plant **Boring No.** 3-175

Surface Elevation 14.38 ft. (Top of 2" steel casing) **Drilling Method** Cable Tool

Total Depth 175 feet **Drilled By** Holt Drilling

Date Completed 11/22/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0					This boring was not sampled between 0 and 100 feet. It is located 7 feet south-east of well 3-100, see the log of that boring for details of the shallow geology at this location.	
		5						
		10						
		15						
		20						
		25						
		30						
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-175

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					See previous page for description.	
		40						
		45						
		50						
		55						
		60						
		65						
		70						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-175

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75					See previous page for description.	
		80						
		85						
		90						
		95						
		100						
	15-19-21		1	Split Barrel		SM	100-120' Silty SAND, dusky yellowish brown, saturated, medium dense to very dense. Very fine to fine. Alternating beds of sand and silty sand, coarsening upward. Bed thickness to 0.5-in. Trace clayey silt occurring in thin layers. Shell fragments and wood between 116 and 119 feet.	
	26-31-27	105	2	"				
	14-16-16		3	"				
	14-11-16		4	"				
		110	5	"				
	9-13-12		6	"				
	7-8-10							

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-175

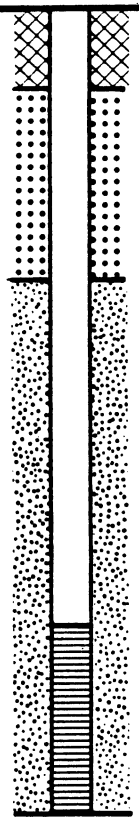
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	10-19-15	115	7	Split Barrel		SM	See previous page for description.	
	7-7-10		8	"				
	4-5-8	120	9	"		SM	120-121.5' Silty SAND, greenish gray, saturated, medium stiff. Thin beds of sand grading upward to sandy silt bed tops.	
	5-7-8		10	"		ML	121.5-132' Clayey SILT, olive black to olive gray (below 130 feet), saturated, soft to very stiff (at 131 feet). Variable clay contents; Vague laminae indicated by very thin clay beds. Abundant, unbroken clam shells between 130 and 131.5 feet	
	3-3-5	125	11	"				
	4-5-8		12	"				
	4-5-20	130	13	"				
	7-8-9		14	"				
	16-15-16	135	15	"		SM	132-147.7' Silty SAND, dusky yellowish brown, saturated, medium to very dense. Very fine to fine. Fine grained zones are olive gray. Vague layering suggested by silty zones. Thin layers of silt at 133.5-134 feet and 140.6-141 feet. Wood (0.25 inch diameter stick) at 140 feet.	
	9-27-31		16	"				
	8-8-12	140	17	"				
	13-22-20		18	"				
	10-21-23	145	19	"			147-152' Sandy SILT, olive black, saturated, stiff. Trace clay. Massive. Shell fragments (vertically and horizontally lain).	
	6-7-7		20	"		ML		
	5-6-13	150	21	"				
	6-8-12		22	"		ML	152-155' See description on following page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 3-175

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		155				ML	152-155' Clayey SILT, olive black, saturated, stiff. Vaguely laminated.	
	16-16-8		23	Split Barrel		ML	155-158.4' Sandy SILT, olive black, saturated, very stiff. Dominantly massive but contains several silty sand laminae.	
	5-15-12		24	"		SM		
		160				ML	158.4-160' Silty SAND, dusky yellowish brown, saturated, medium dense. Fine. Variable silt contents.	
	4-4-8		25	"				
	5-7-14		26	"		ML	160-164' Clayey SILT, olive black, saturated, very stiff. Massive.	
		165						
	5-6-11		27	"				
	5-7-18		28	"		SM	164-166.5' Sandy SILT, olive black, saturated, very stiff. Shell fragments	
		170					164-175' Silty SAND, olive black, saturated, loose to medium dense. Very fine to fine. Laminated. Trace clay. Silt content decreasing toward 175 feet.	
	4-6-8		29	"				
	4-10-15		30	"				
		175					Bottom at 175 feet.	
		180						
		185						
		190						

Sweet, Edwards & Associates, Inc.

BORING LOG

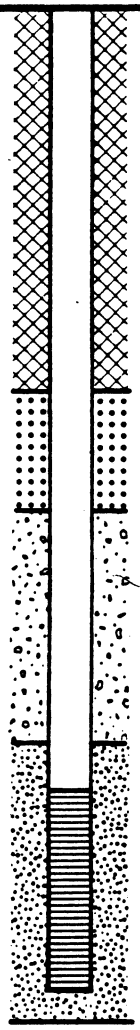
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location West of Salt Pad **Boring No.** 4-25

Surface Elevation 12.08 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 26.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/17/86 **Logged By** B.A. Butler

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0	1	Grab		SP	0-6.0' SAND, orange-brown, moist, very loose to medium dense, medium to coarse. Trace subrounded gravel; trace silt.	
	2-1-1-1		2	Split Spoon				
	4-8-13-18	5	3	"				
	6-8-8-10		4	"		SP	6.0-7.2' SAND, brown, moist, medium dense. Medium grained (FILL)	
	2-4-8-8	10	5	"		SP	7.2-12.0' SAND, brown, saturated, loose to medium dense. Trace gravel; trace silt. Medium, but fining downward.	
	4-6-6-9		6	"		SP	12.0-17.1' SAND, brown, saturated, loose. Trace silt. Fine-medium.	
	3-4-5-8	15	7	"				
	3-5-5-6		8	"		SM	17.1-26.5' Silty SAND, brown to gray, saturated, loose to medium dense. Sand fine to medium. Thin (0.7-1.0 ft), alternating layers of sand grading upward to sandy silt.	
	5-3-5-8	20	9	"				
	3-9-12-15		10	"				
	3-2-2-2	25	11	"				
		30					Bottom at 26.5 feet.	
		35						

SEA-300-02a

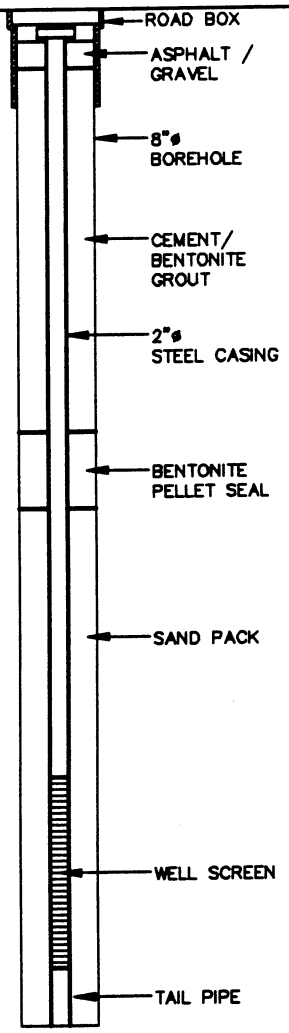
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-56)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD, SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-25R
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

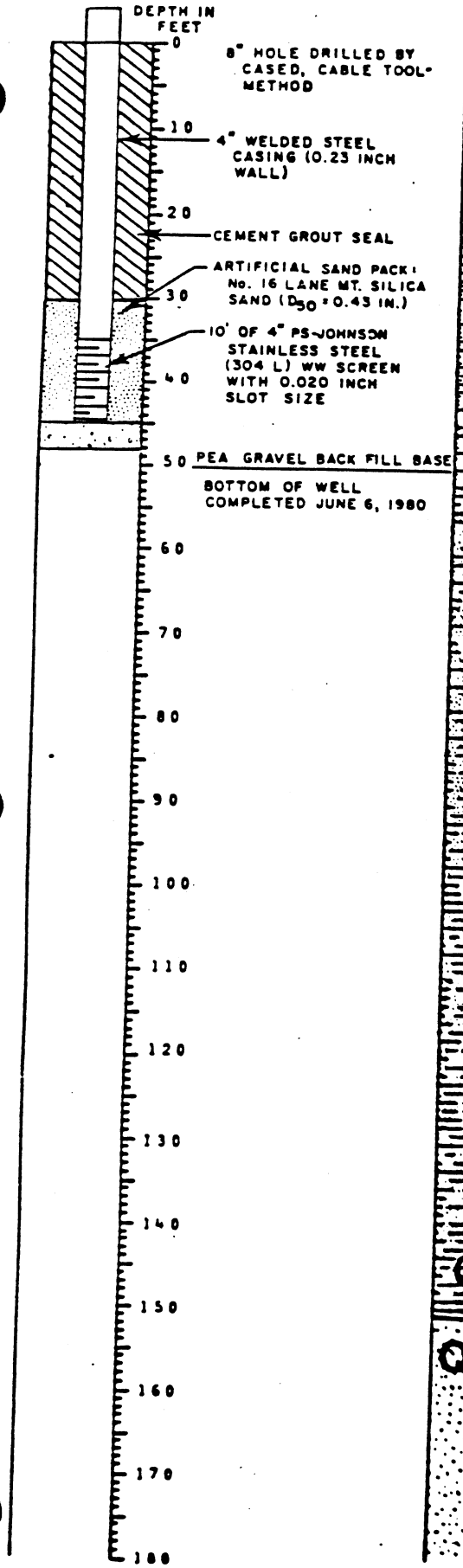
DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.71* *11.9*				
	For stratigraphy from 0.0 to 26.5 ft BGS see 4-175 located 92 ft northwest.					
2.5						
5.0						
7.5						
10.0						
12.5						
15.0						
17.5						
20.0						
22.5						
25.0						
	END OF HOLE @ 26.5 FT. BGS	*-14.6*				
27.5						
30.0						
32.5						

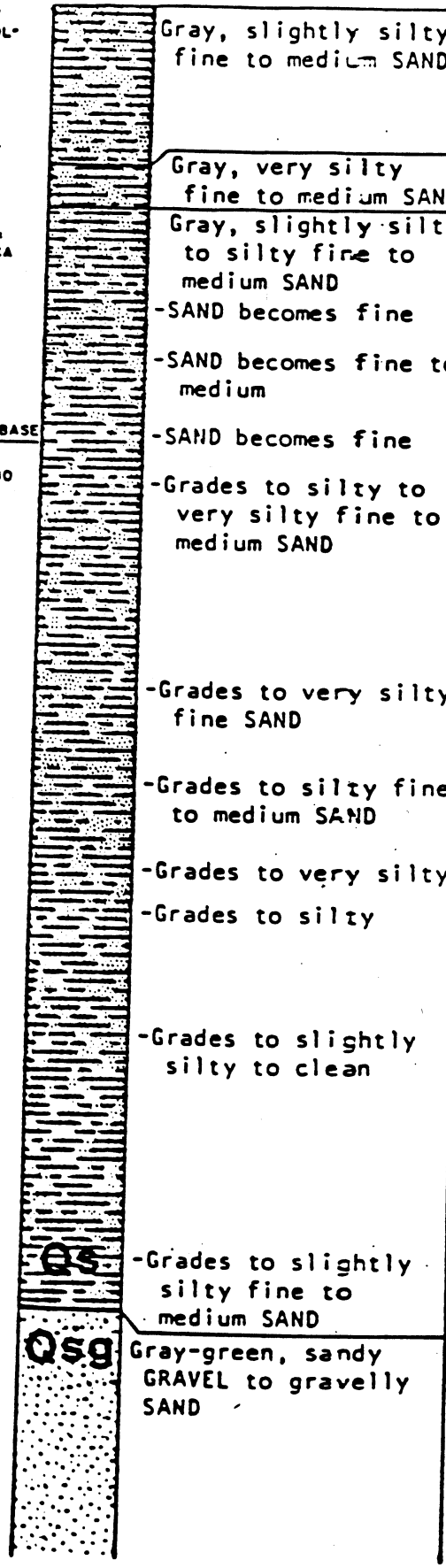


SCREEN DETAILS:
Screened Interval:
20.0 to 25.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
13.0 to 26.5' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼





QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T° C	NaOH	NaCl	Cl-Organi
12.5	0	7,700	1400
12.0	0	46,700	1600
12.5	0	27,800	1400
12.5	0	27,800	1500
12.0	0	27,200	1400
12.0	0	24,900	1800
12.0	0	23,700	900
12.0	0	22,100	700
12.0	0	18,500	700
12.0	0	17,600	720
12.5	0	17,300	720
12.5	0	16,700	1000
12.0	0	17,000	1300
14.0	120	24,100	1500
13.5	80	25,800	1600
12.5	0	39,600	830
12.5	0	42,000	430
12.5	0	37,700	680
NA	0	36,900	720
12.0	0	33,800	640
12.0	0	34,200	670
12.5	1,600	37,900	180
13.0	2,500	38,400	120
13.0	4,400	39,800	250
13.5	5,800	41,100	170
13.0	7,600	41,700	250
13.0	7,000	36,800	60
13.0	7,000	38,000	100
13.0	5,800	33,900	60
13.5	600	14,200	50
12.5	0	8,100	4.0
13.0	0	7,700	0.8
13.0	0	7,500	1.7
11.0	0	1000 (10,500)	0.6(6.3

SURFACE ELEVATION 18.6' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

864-02 July 1980

HART-CROWSER & associates inc.

Figure C-3

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-57)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING

PROJECT NO.: 1002-15

CLIENT: OXYCHEM-TACOMA

LOCATION: NORTH OF SALT PAD, SOUTH OF TREATMENT PLANT

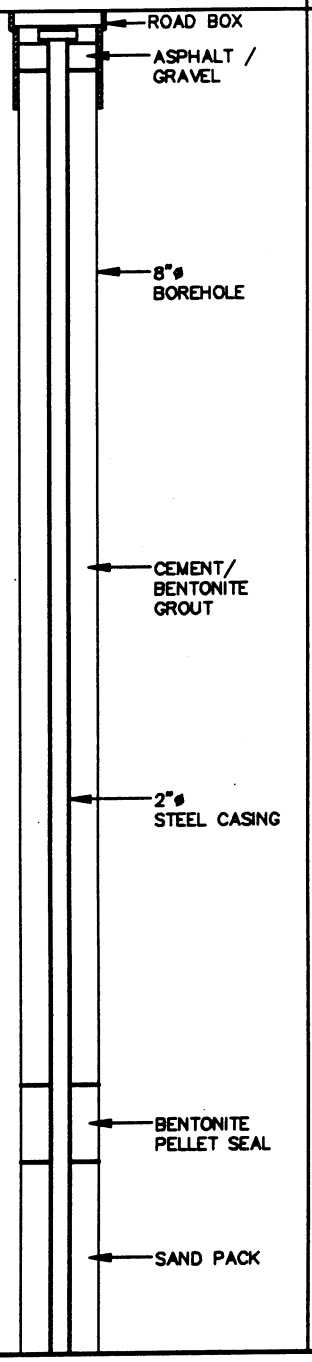
HOLE DESIGNATION: 4-45R
(Page 1 of 2)

DATE COMPLETED: FEBRUARY 28, 1994

DRILLING METHOD: 4 1/4" ID HSA

CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*11.60*				
	GROUND SURFACE	*11.9*				
	For stratigraphy from 0.0 to 48.0 ft BGS see 4-175 located 85 ft northwest.		ROAD BOX; ASPHALT / GRAVEL; 8"ø BOREHOLE; CEMENT/ BENTONITE GROUT; 2"ø STEEL CASING; BENTONITE PELLET SEAL; SAND PACK			
2.5						
5.0						
7.5						
10.0						
12.5						
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						
32.5						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-57)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD, SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-45R (Page 2 of 2)
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			8"ø BOREHOLE			
37.5			SAND PACK			
40.0			2"ø STEEL CASING			
42.5			WELL SCREEN			
45.0			TAIL PIPE			
47.5	END OF HOLE @ 48.0 FT. BGS	-36.1				
50.0						
52.5						
55.0						
57.5						
60.0						
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
40.0 to 45.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
30.0 to 48.0' BGS
Material -# 10x20 Sand

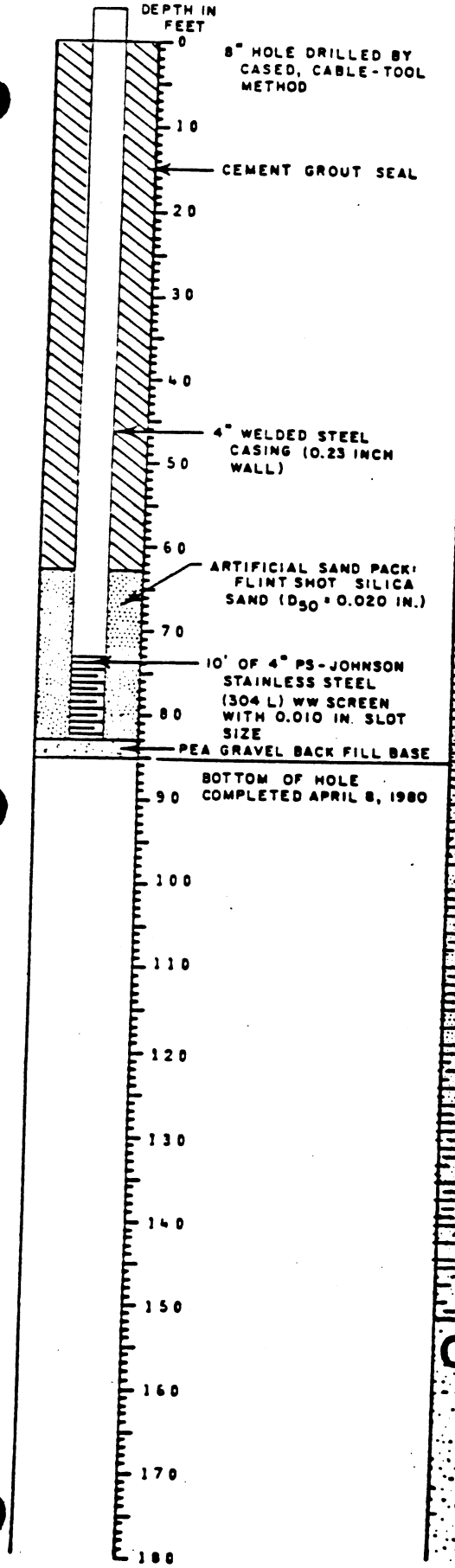
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

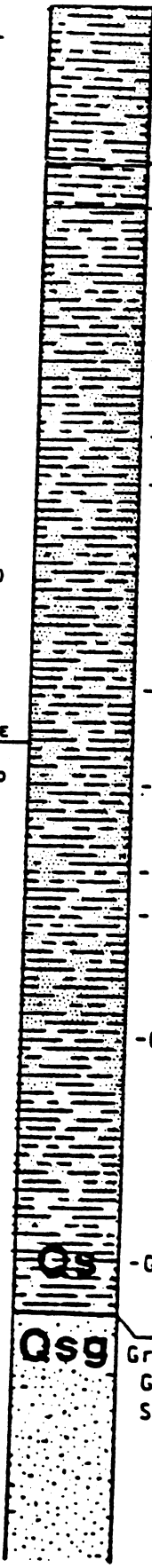
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

WELL DESIGN

GEOLOGIC LOG

4-83





	T°C	NaOH	NaCl	Cl-Organ
Gray, slightly silty fine to medium SAND	12.5	0	7,700	1400
Gray, very silty fine to medium SAND	12.0	0	46,700	1600
Gray, slightly silty to silty fine to medium SAND	12.5	0	27,800	1400
	12.5	0	27,800	1500
-SAND becomes fine	12.0	0	27,200	1400
-SAND becomes fine to medium	12.0	0	24,900	1800
	12.0	0	23,700	900
-SAND becomes fine	12.0	0	22,100	700
-Grades to silty to very silty fine to medium SAND	12.0	0	18,500	700
	12.0	0	17,600	720
	12.5	0	17,300	720
	12.5	0	16,700	1000
	12.0	0	17,000	1300
-Grades to very silty fine SAND	14.0	120	24,100	1500
	13.5	80	25,800	1600
-Grades to silty fine to medium SAND	12.5	0	39,600	830
	12.5	0	42,000	430
-Grades to very silty	12.5	0	37,700	680
-Grades to silty	NA	0	36,900	720
	12.0	0	33,800	640
	12.0	0	34,200	670
-Grades to slightly silty to clean	12.5	1,600	37,900	180
	13.0	2,500	38,400	120
	13.0	4,400	39,800	250
	13.5	5,800	41,100	170
	13.0	7,600	41,700	250
	13.0	7,000	36,800	60
-Grades to slightly silty fine to medium SAND	13.0	7,000	38,000	100
	13.0	5,800	33,900	60
Gray-green, sandy GRAVEL to gravelly SAND	13.5	600	14,200	50
	12.5	0	8,100	4.0
	13.0	0	7,700	0.8
	13.0	0	7,500	1.7
	11.0	0	1000 (10,500)	0.6(6.3

QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

SURFACE ELEVATION 18.5 MLLW

NA = Not Available

TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-4

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-58)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-83R (Page 1 of 3)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*11.23*				
	GROUND SURFACE	*11.8*				
	For stratigraphy from 0.0 to 48.0 ft BGS see 4-175 located 70 ft northwest.		ROAD BOX ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0						
			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5						
			6"ø BOREHOLE			
25.0						
27.5						
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-58)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-83R (Page 2 of 3)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			6"ø BOREHOLE			
37.5						
40.0						
42.5			CEMENT/ BENTONITE GROUT			
45.0						
47.5						
50.0			2"ø STEEL CASING			
52.5						
55.0						
57.5						
60.0			BENTONITE PELLET SEAL			
62.5						
65.0			SAND PACK			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-58)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-83R (Page 3 of 3)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

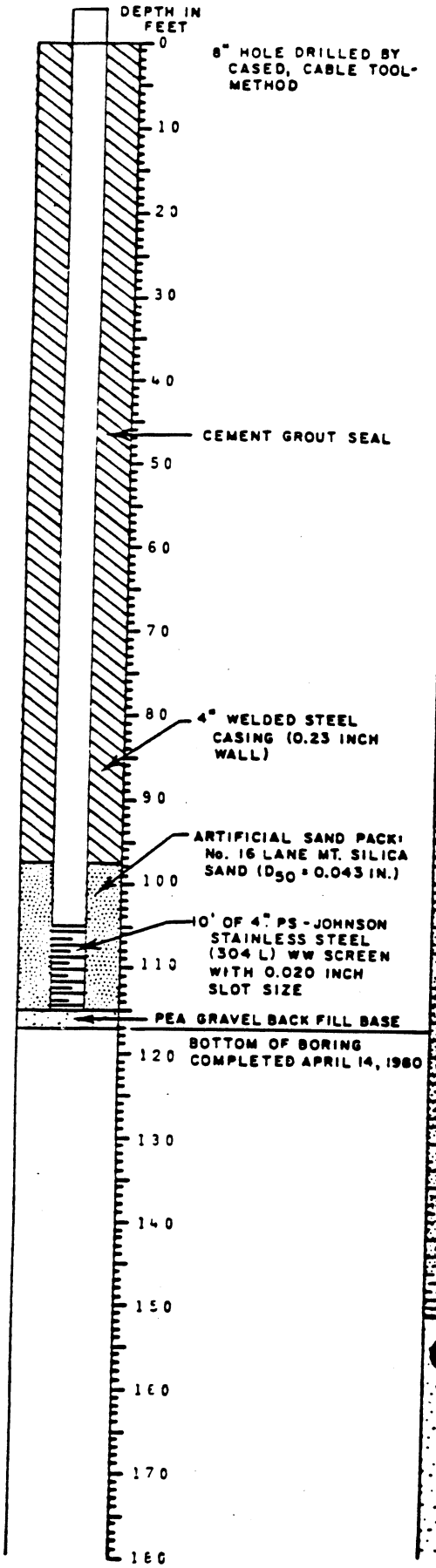
DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5			2"ø STEEL CASING			
70.0			6"ø BOREHOLE			
72.5			SAND PACK			
75.0						
77.5			WELL SCREEN			
80.0						
82.5			TAIL PIPE			
	END OF HOLE @ 83.1 FT. BGS	-71.3				
85.0						
87.5						
90.0						
92.5						
95.0						
97.5						

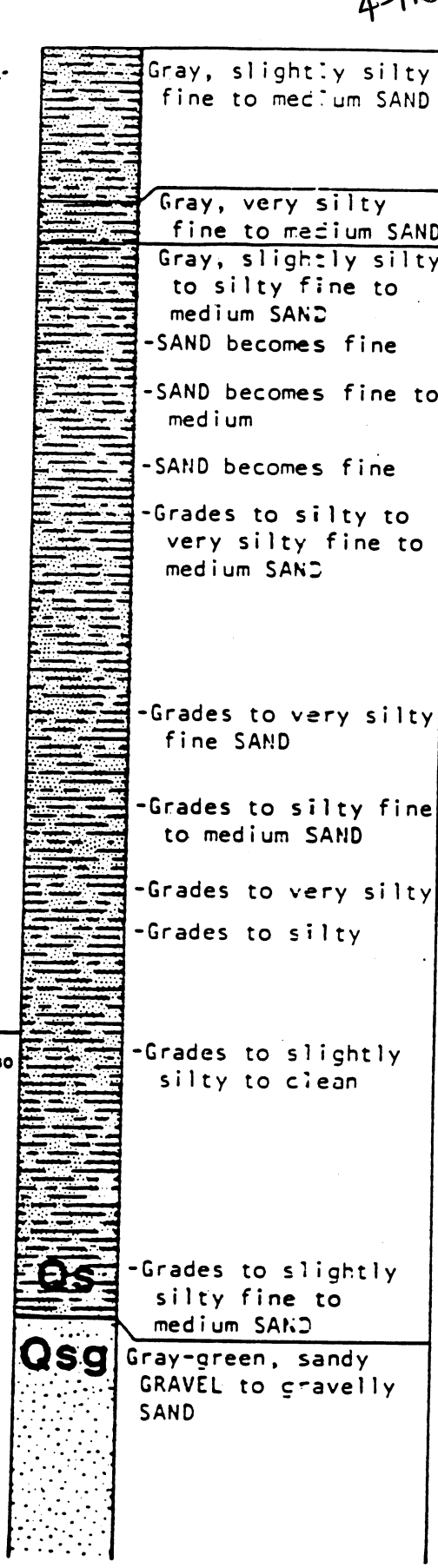
SCREEN DETAILS:
Screened Interval:
76.6 to 81.6' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
62.6 to 83.1' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

~~4-115~~ 4-115





QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T° C	NaOH	NaCl	Cl-Organic
12.5	0	7,700	1400
12.0	0	46,700	1600
12.5	0	27,800	1400
12.5	0	27,800	1500
12.0	0	27,200	1400
12.0	0	24,900	1800
12.0	0	23,700	900
12.0	0	22,100	700
12.0	0	18,500	700
12.0	0	17,600	720
12.5	0	17,300	720
12.5	0	16,700	1000
12.0	0	17,000	1300
14.0	120	24,100	1500
13.5	80	25,800	1600
12.5	0	39,600	830
12.5	0	42,000	430
12.5	0	37,700	680
NA	0	36,900	720
12.0	0	33,800	640
12.0	0	34,200	670
12.5	1,600	37,900	180
13.0	2,500	38,400	120
13.0	4,400	39,800	250
13.5	5,800	41,100	170
13.0	7,600	41,700	250
13.0	7,000	36,800	60
13.0	7,000	38,000	100
13.0	5,800	33,900	60
13.5	600	14,200	50
12.5	0	8,100	4.0
13.0	0	7,700	0.8
13.0	0	7,500	1.7
11.0	0	1000 (10,500)	0.6(6.3)

SURFACE ELEVATION 18.6' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

864-02 July 1980

HART-CROWSER & associates inc.

Figure C-5

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-59)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002–15
CLIENT: OXYCHEM–TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4–115R
(Page 1 of 4)
DATE COMPLETED: FEBRUARY 18, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	11.53 11.9				
	For stratigraphy from 0.0 to 117.0 ft BGS see 4–175 located 90 ft northwest.		ROAD BOX ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5			6"ø BOREHOLE			
25.0						
27.5						
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-59)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-115R (Page 2 of 4)
DATE COMPLETED: FEBRUARY 18, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø STEEL CASING			
45.0						
47.5						
50.0			CEMENT/ BENTONITE GROUT			
52.5						
55.0			6"ø BOREHOLE			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-59)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-115R
(Page 3 of 4)
DATE COMPLETED: FEBRUARY 18, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5			2"ø STEEL CASING			
70.0						
72.5			6"ø BOREHOLE			
75.0						
77.5						
80.0			CEMENT/ BENTONITE GROUT			
82.5						
85.0						
87.5						
90.0						
92.5						
95.0			BENTONITE PELLET SEAL			
97.5			SAND PACK			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-59)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-115R
(Page 4 of 4)
DATE COMPLETED: FEBRUARY 18, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

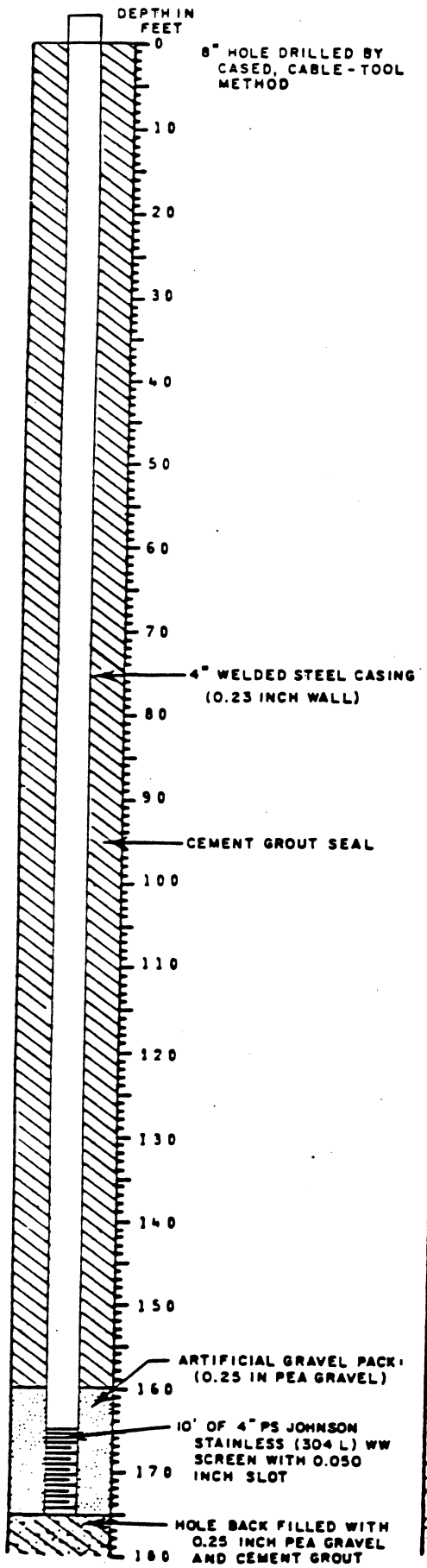
DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0			6"ø BOREHOLE			
102.5			2"ø STEEL CASING			
105.0			SAND PACK			
107.5						
110.0						
112.5			WELL SCREEN			
115.0						
117.5	END OF HOLE @ 117.0 FT. BGS	-105.1	TAIL PIPE			
120.0						
122.5						
125.0						
127.5						
130.0						

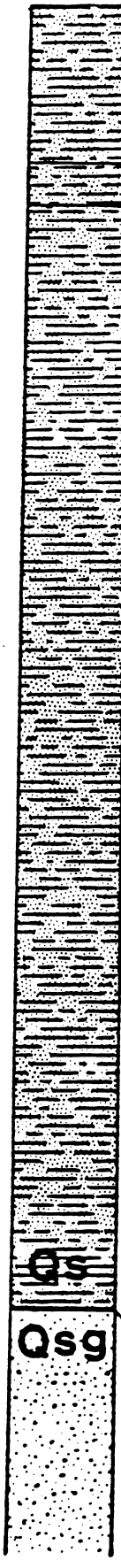
SCREEN DETAILS:
Screened Interval:
110.5 to 115.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
97.3 to 117.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

4-175





GEOLOGIC LOG	T° C	NaOH	NaCl	Cl-Organ
Gray, slightly silty fine to medium SAND	12.5	0	7,700	1400
Gray, very silty fine to medium SAND	12.0	0	46,700	1600
Gray, slightly silty to silty fine to medium SAND	12.5	0	27,800	1400
	12.5	0	27,800	1500
-SAND becomes fine	12.0	0	27,200	1400
-SAND becomes fine to medium	12.0	0	24,900	1800
	12.0	0	23,700	900
-SAND becomes fine	12.0	0	22,100	700
-Grades to silty to very silty fine to medium SAND	12.0	0	18,500	700
	12.0	0	17,600	720
	12.5	0	17,300	720
	12.5	0	16,700	1000
	12.0	0	17,000	1300
-Grades to very silty fine SAND	14.0	120	24,100	1500
	13.5	80	25,800	1600
-Grades to silty fine to medium SAND	12.5	0	39,600	830
	12.5	0	42,000	430
-Grades to very silty	12.5	0	37,700	680
-Grades to silty	NA	0	36,900	720
	12.0	0	33,800	640
	12.0	0	34,200	670
-Grades to slightly silty to clean	12.5	1,600	37,900	180
	13.0	2,500	38,400	120
	13.0	4,400	39,800	250
	13.5	5,800	41,100	170
	13.0	7,600	41,700	250
-Grades to slightly silty fine to medium SAND	13.0	7,000	36,800	60
	13.0	7,000	38,000	100
	13.0	5,800	33,900	60
Gray-green, sandy GRAVEL to gravelly SAND	13.5	600	14,200	50
	12.5	0	8,100	4.0
	13.0	0	7,700	0.8
	13.0	0	7,500	1.7
	11.0	0	1000 (10,500)	0.6(6:

QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

SURFACE ELEVATION 18.2' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

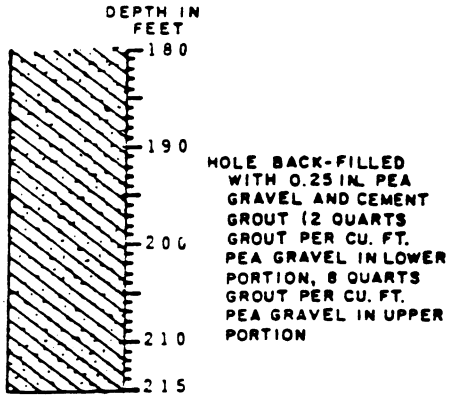
J-864-02 July 1980

HART-CROWSER & associates, inc.

Figure C-6

4-175(cont)

WELL DESIGN



GEOLOGIC LOG

Sandy GRAVEL

-Grades to very gravelly medium to coarse SAND

QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T° C	NaOH	NaCl	Cl-Organic
12.0	0	1000(7500)	0
-	0	1200(7200)	0
13.0	0	3300(4760)	0
12.0	0	3800	0
12.5	0	4100	0
13.0	0	4800	0
14.0	0	6600	0

Bottom of Hole
Completed March 25, 1980

NOTE: Corrected Concentrations in Parentheses

SURFACE ELEVATION 18.2' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

J-864-02 July 1980
HART-CROWSER & associates inc.

Figure C-6
(cont.)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

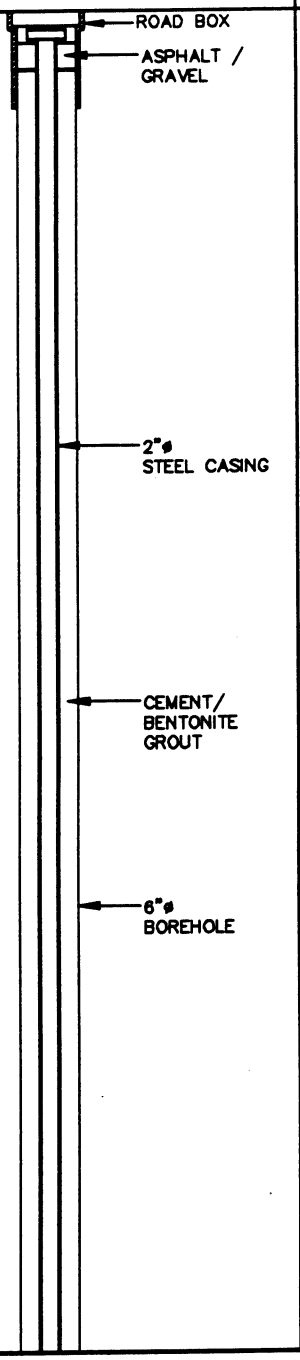
(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R

DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.51* *11.9*				
	For stratigraphy from 0.0 to 150.0 ft BGS see 4-175 located 65 ft northwest.					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R (Page 2 of 6)
DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø STEEL CASING			
45.0						
47.5						
50.0			CEMENT/ BENTONITE GROUT			
52.5						
55.0			6"ø BOREHOLE			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R (Page 3 of 6)
DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0						
72.5						
75.0			2"ø STEEL CASING			
77.5						
80.0						
82.5			CEMENT/ BENTONITE GROUT			
85.0						
87.5			6"ø BOREHOLE			
90.0						
92.5						
95.0						
97.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R (Page 4 of 6)
DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0						
102.5						
105.0						
107.5			2"ø STEEL CASING			
110.0						
112.5						
115.0			CEMENT/ BENTONITE GROUT			
117.5						
120.0			6"ø BOREHOLE			
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R

DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
132.5			6"ø BOREHOLE			
135.0						
137.5			CEMENT/ BENTONITE GROUT			
140.0						
142.5						
145.0						
147.5			2"ø STEEL CASING			
150.0	SM-SAND(NATIVE), trace to little silt, fine grained, dark olive gray, wet	-138.1		1SS	X	55
152.5				2SS	X	60
155.0				3SS	X	100
157.5	ML-SILT, trace to little sand and fine sub-angualr to subrounded gravel, occasional subrounded to subangular pebbles, trace shells, and clay, trace dark olive gray sand seams, green gray and gray, soft to medium stiff, very moist to wet	-145.6	BENTONITE PELLET SEAL	4SS	X	35
160.0				5SS	X	40
162.5	- trace shells and cobbles		SAND PACK	6SS	X	40

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

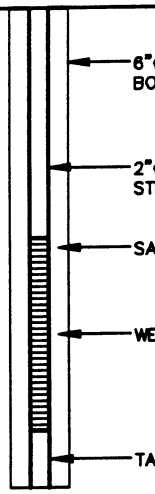
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-60)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: SOUTH OF TREATMENT PLANT

HOLE DESIGNATION: 4-175R (Page 6 of 6)
DATE COMPLETED: MARCH 3, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
165.0	– trace to little shells, trace fine gravel			7SS		65
	SW–SAND, some gravel, loose, green gray and gray, wet	–154.1				
167.5	GW–GRAVEL, some sand, loose, subangular to subrounded, green gray, wet	–155.6 –156.0		8SS		>100
170.0	GW/SW–GRAVEL and SAND(TILL), little to some silt, very dense, coarse grained gray green, wet			9SS		>100
172.5						
175.0	SW–SAND, some subangular to subrounded gravel, little silt, trace clay, very dense, gray green, moist to wet, weathers yellow brown	–162.4 –163.1		10SS		>100
177.5	END OF HOLE @ 175.0 FT. BGS NOTES: 1. Sample method consisted of jar driven split spoons.					
180.0						
182.5						
185.0						
187.5						
190.0						
192.5						
195.0						



SCREEN DETAILS:
Screened Interval:
168.5 to 173.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
159.8 to 175.0' BGS
Material –# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

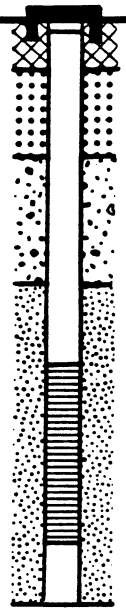
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Northwest side of H-4 Cell House **Boring No.** 5-15

Surface Elevation 11.43 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 15 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/5/86 **Logged By** D.E. Mills DEM

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled but it is located 6' east of well 5-100. See the log of 5-100 for details of the geology in this vicinity. Bottom at 15 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

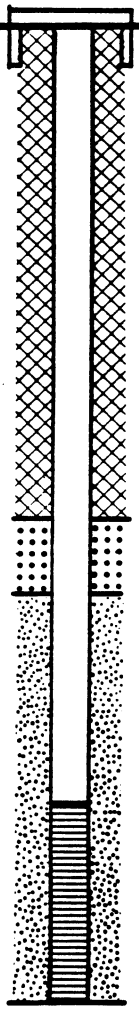
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 of 1

Location West central side of E-4 Cell House **Boring No.** 5-25

Surface Elevation 11.41 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/12/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled. It is located 10 feet west of well 5-100. See the log of that boring for details of the geology at this location.	
							Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

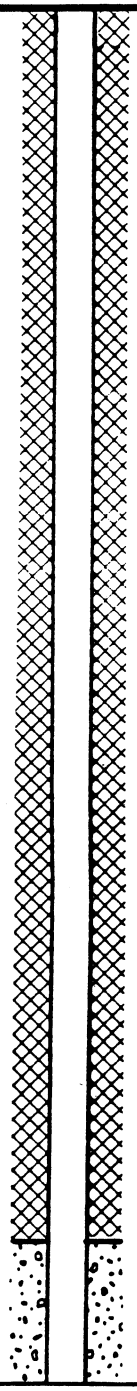
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location West central side of E-4 Cell House **Boring No.** 5-50

Surface Elevation 11.42 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/11/86 **Logged By** D.E. Mills

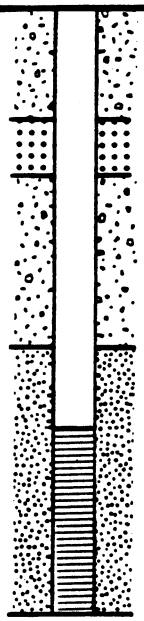
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 5 feet south of well 5-100. See that boring for details of the geology at this location.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 5-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See previous page for description. Soft, dark brown wood abundant at bottom of boring (rotting log?). Bottom at 50 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 5-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. CORNETTA

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	11.71 11.48					
	NOT SAMPLED (0 TO 70ft BGS)		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 5-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. CORNETTA

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 5-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. CORNETTA

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 5-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. CORNETTA

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
62							
64			BENTONITE CHIPS				
66							
68							
70	SC-SANDY CLAY	-58.29	2" PVC WELL SCREEN				
72			SAND PACK				
74	SM-SILTY SAND	-62.09					
	END OF BOREHOLE @ 75.0ft BGS	-63.29	NATIVE BACKFILL SUMP				
76							
78							

WELL DETAILS
Screened interval:
-57.49 to -62.49ft
69.20 to 74.20ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-51.79 to -55.09ft
63.50 to 66.80ft BGS
Material: BENTONITE CHIPS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 5-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. CORNETTA

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	
82			Sand Pack: -55.09 to -63.99ft 66.80 to 75.70ft BGS Material: SAND					
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location West-central side of E-4 Cell House **Boring No.** 5-100

Surface Elevation 11.45 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 101.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/11/86 **Logged By** D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0					0-0.5' Concrete slab.	
	2-4-6-7		1	Split Spoon		SP	0.5-9.0' SAND, brown, moist to 6.5 feet, saturated below 6.5 feet. Loose. Fine-medium. Trace coarse sand and fine gravel (angular, to 0.75-in, crushed brick?) Shell fragments. (FILL)	
	3-4-6-7	5	2	"				
	3-6-9-10		3	"				
	4-6-10-11	10	4	"		SP-SM	9.0-14.9' Silty SAND, gray, saturated, medium dense to dense. Fine to medium. Laminated at 11-11.5 ft and 14.5-14.9 ft. Silt content variable, increases downward.	
	5-9-10-10		5	"				
	9-10-16-20	15	6	"		ML	14.9-17.7' Clayey SILT, gray, moist, stiff to very stiff. Laminated, fining upward at individual laminae. Trace fine sand. Sand layers between 15.8 and 16.3 feet.	
	11-13-23-50/3"		7	"				
	22-39-53/6"	20	8	"		SP-SM	17.7-26.5' Silty SAND, gray, moist, dense to very dense, unsorted (till-like). Fine to coarse. Sulfurous odor. Wood at 19.5-19.8 ft. Layer of Sandy to Clayey Silt, at 23-24 feet, very stiff, slightly moist. Shells abundant at 23-26.5'	
	15-10-42-21		9	"		ML		
	10-26-50/6"	25	10	"		SP-SM		
	13-17-30-40		11	"				
	12-12-21-32	30	12	"		SP-SM	26.5-54.7' See description on following page.	
	3-13-36-33		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 5-100

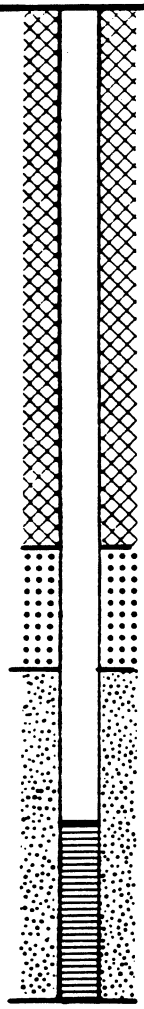
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	12-28-27-32	35	14	Split Spoon		SP-SM	26.5-54.7' Silty SAND, gray, moist to saturated, dense to very dense. Fine- medium. Thin layers of sand grading upward to silty sand (1/8-in. to 1-ft thick layers), Zones of fine sandy silt between 30 and 51.5 feet. Sulfurous odor at 47-54.7 feet. Clumps of clayey silt to 0.5-in. dia. at 32 feet. Shells abundant at 24.8-26.5 and 32-35.3 feet. Wood fragments at 50.8 ft.	
	11-20-36-37		15	"				
	9-12-19-30	40	16	"				
	15-30-34-42		17	"				
	12-31-56/6"	45	18	"				
	14-20-30-30		19	"				
	12-28-41-50	50	20	"				
	9-8-13-13		21	"				
	1-1-4-11	55	22	"		ML	54.7-59.5' Sandy SILT, with clay, greenish gray to gray, saturated, very soft to medium stiff. Laminated. Sulfurous odor. Sand layer at 56-56.5 ft. Silty clay zone (CL) at 54.7-54.9 ft.	
	4-4-6-6		23	"				
	3-3-3-4	60	24	"		ML	59.5-70' Clayey to Sandy SILT, gray with black streaks, saturated. Soft to medium stiff. Laminated, variable contents of clay and fine sand, fining upward within individual laminae. Shell fragments at 62-64 feet.	
	1-1-6-9		25	"				
	3-4-4-5	65	26	"				
	1-3-4-6		27	"				
	7-10-11-13	70	28	"		SP-SM	70-91.5' See description on following page.	
	6-14-24-27		29	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 5-100

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	5-10-19-21	75	30	Split Spoon		SP-SM	70-91.5' Silty SAND, gray-brown, saturated, medium to very dense. Fine to medium dominant, coarse sand at 70-70.5 ft. Alternating layers of sand grading upward to silty sand. Layers occur at 0.5 to 1.5-in intervals. Silt zones between 75 and 85 feet. Shell fragments at 79-84 feet. Wood fragments at 91.3 feet (peat-like).	
	8-20-30-36		31	"				
	10-17-25-30	80	32	"				
	10-13-19-29		33	"				
	10-15-2[illegible]-28	85	34	"				
	13-25-25-27		35	"				
	8-17-23-27	90	36	"				
			37	"		SM	91.5-96.5' Silty SAND, gray, medium dense, saturated, unstratified. Fine.	
	4-5-7-9	95	38	"				
	3-9-14-21		39	"		ML	96.5-98.3' Sandy SILT, gray, stiff, saturated. Fine. Massive. About 10% clay.	
	14-18-22-30	100	40	"		SP	98.3-101.5' SAND, gray, saturated, dense to very dense. Fine. Slightly silty at 101-101.5 feet.	
		105					Bottom at 101.5 feet.	
		110						

Sweet, Edwards & Associates, Inc.

BORING LOG

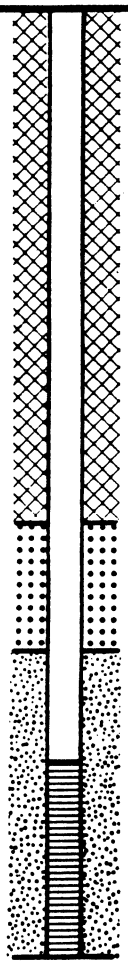
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Central portion of E. prop. line **Boring No.** 6A-24.5

Surface Elevation 12.18 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 24.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/20/86 **Logged By** B.A. Butler

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 15 feet south of 6A-100. See the log for that boring for details of the geology at this location. Bottom at 24.5 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

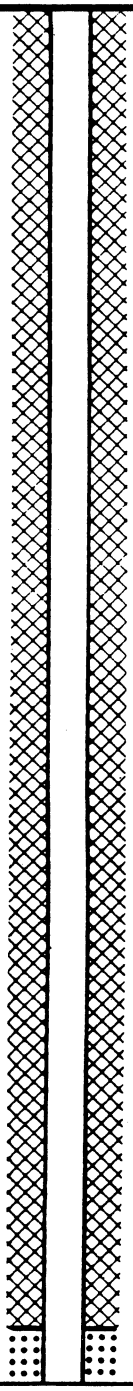
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Central portion of E. prop. line **Boring No.** 6A-50

Surface Elevation 12.48 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/20/86 **Logged By** B.A. Butler

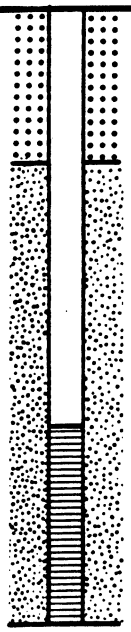
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 10 feet south of 6A-100. See the log for that boring for details of the geology at this location. Initially, one boring located 5 feet west of 6A-100 was drilled to 58 feet for this installation, but bentonite pellets bridged in auger while completing the well. The well assembly had to be withdrawn. The boring was redrilled to 58 feet and grouted with a cement and bentonite slurry from the bottom to the top using a tremie pipe.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 6A-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See previous page for description. Bottom at 50 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Central portion of east property line

Boring No. 6A-100

Surface Elevation 12.99 ft. (Top of 2" steel casing)

Drilling Method Hollow Stem Auger

Total Depth 99.5 feet

Drilled By Soil Sampling Service, Inc.

Date Completed 8/18/86

Logged By B.A. Butler/D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	No blow counts taken to 73'	0	1	Grab		SP-SM	0-26.0' SAND and Silty SAND, brown, moist to 7.5 feet, saturated below 7.5'. Sand dominantly fine to medium. Abundant shell and wood fragments between 21-26 feet.	
		5	2	Split Barrel				
			3	"				
			4	"				
		10	5	"				
			6	"				
		15	7	"				
			8	"				
		20	9	"				
			10	"				
		25	11	"		SM	26.0-37.5' Silty SAND, brown, saturated. Sand dominantly fine to medium with 2 to 6-inch light gray silty sand to sandy silt interbeds at 1 to 1.5 feet. Intervals. Some shell and wood fragments.	
			12	"				
		30	13	"				
			14	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 6A-100

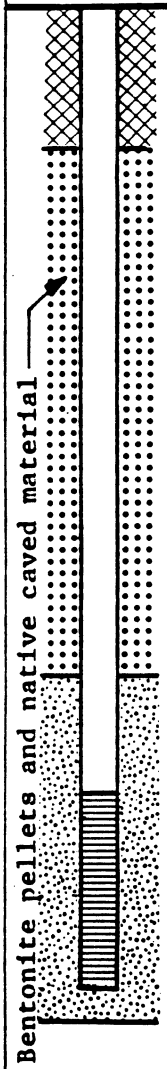
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35						
			15	Split Barrel		SM	See previous page for description.	
			16	"			37.5-72' SAND, brown, saturated, fine to medium grained. Trace silt at variable depths. Some shell and wood fragments.	
		40	17	"				
				No Recovery				
		45		No Recovery				
			18	Split Spoon		SP		
		50	19	"				
			20	"				
		55	21	"				
			22	"				
		60	23	"				
			24	"				
		65	25	"				
			26	"				
		70	27	"				
			28	"		SP-SM	72.0-94.0' See description on following page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 6A-100

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75					72.0-94.0' Silty SAND, grayish brown, saturated, dense to very dense. Thin laminae of alternating sand and silty sand, generally fining upward within individual laminae. Some shell fragments and wood fragments at irregular intervals.	
	7-13-26		29	Split Spoon				
	14-18-28-34		30	"				
		80						
	7-24-50/6"		31	"		SP-SM		
	26-50/6"		32	"				
		85						
	15-26-50/6"		33	"				
	14-23-36		34	"				
		90						
	17-35-50/5"		35	"				
	10-29-47		36	"				
			37	"			94.0-100.5' SAND, grayish brown, saturated, very dense, fine to medium grained but medium dominant downward. Trace silt. Vaguely laminated.	
	13-24-40	95				SP		
			38	"				
	30-43-50							
	8-24-32	100	39	"				
							Bottom at 100.5 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

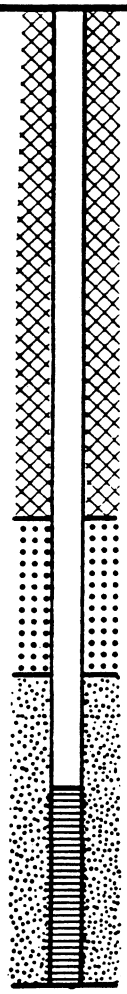
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location West of parking lot **Boring No.** 7-25

Surface Elevation 13.88 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/29/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled, but it is located feet southwest of 7-100. See the log for that boring for details of the geology at this location. Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma,WA **Page** 1 **of** 3

Location West of parking lot **Boring No.** 7-100

Surface Elevation 14.77 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 100 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/29/86 **Logged By** D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0					0-15.7' SAND, brown with red specks (crushed brick?) moist to 7.5 feet, saturated below, loose, fine-medium. Thin layers of sandy silt between 10.5 and 12.6 feet. Abundant shell fragments from 4-5.5 feet; wood from 12.3 to 12.6 feet. (FILL?)	
	5-6-7		1	Split Spoon				
	3-5-5	5	2	"				
	2-4-6		3	"		SP-SM		
	4-4-4	10	4	"				
	4-5-5-7		5	"				
	1-2-5-6	15	6	"				
	1-2-3-2		7	"			15.7-32.0' SAND, gray, saturated, loose to medium dense. Fine to medium. Vaguely laminated. Clayey silt layer from 18-20 ft, and 24-25 feet. Abundant shell fragments, generally at finer-grained zones.	
	2-2-3-4	20	8	"				
	6-8-10-10		9	"		SP-SM		
	3-6-15-12	25	10	"				
	8-14-17-18		11	"				
	8-12-17-13	30	12	"				
	1-1-2-4		13	"				
	4-6-22-19	35	14	"		ML	32.0-35.0' Clayey SILT, gray, saturated, soft, with fine sand. Vaguely laminated; abundant shells.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 7-100

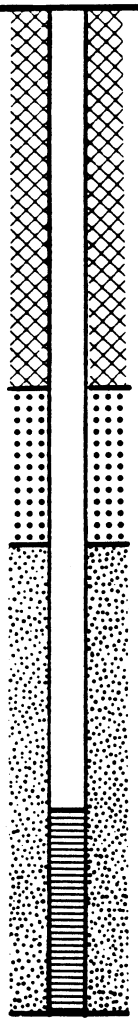
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
						ML	See previous page for desc.	
	4-6-22-19	35	14	Split Spoon		SM	35.0-47.4' Silty SAND, gray, saturated, loose to dense. Laminated with individual layers of fine-medium sand grading upward to silty sand. Shell fragments common. Peat-like plant matter at 36-36.2 feet.	
	10-10-10-12		15	"				
	2-3-4-4	40	16	"				
	4-5-10-9		17	"				
	12-23-12-10	45	18	"				
	2-2-3-2		19	"		SM	47.4-83.3' Silty SAND, gray, saturated. Sand layers loose to dense. Fine to medium. Alternating layers of silty sand grading upward to sandy silt (soft to very stiff). Trace clay at fine-grained bed tops. Shell fragments abundant; wood fragments between 74.5 and 81.2 ft.	
	3-4-13-12	50	20	"				
	3-5-5-13		21	"				
	1-3-4-3	55	22	"				
	2-4-3-4		23	"				
	3-2-3-6	60	24	"				
	5-8-8-9		25	"				
	2-3-6-8	65	26	"				
	7-8-14-20		27	"				
	8-6-8-6	70	28	"				
	8-10-21-28		29	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 7-100

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	10-10-16-21	75	30	Split Spoon			See description on previous page.	
	9-4-5-13		31	"		SM		
	9-13-13-18	80	32	"				
	3-3-3-3		33	"				
	3-4-6-6	85	34	"		ML	83.3-89.0' Sandy SILT, gray with black mottling, saturated, medium stiff, fine sand. Massive. Sand beds at 86.3-86.5 feet and 87-87.8 feet. Some shell fragments.	
	10-12-16-22		35	"				
	10-21-22-23	90	36	"			89.0-100.0' SAND, gray with red specks, saturated, dense to very dense. Fine to medium. Slightly silty zones at 94.5-95.8 feet, 98.3-99 feet. Lense of fine sandy silt at 97.5-98.3 feet. Wood and shell fragments between 89 and 96.5 feet.	
	16-32-38-34		37	"		SP-SM		
	17-23-25-28	95	38	"				
	16-21-34-41		39	"				
		100					Bottom at 100 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

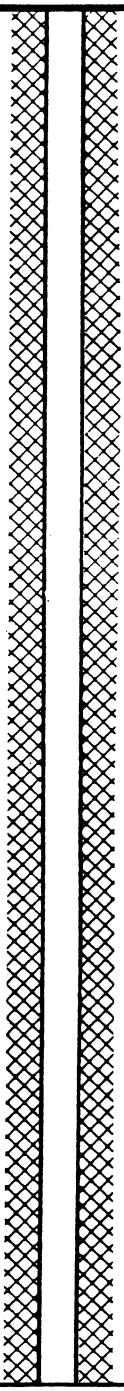
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location West of parking lot **Boring No.** 7-181

Surface Elevation 14.74 ft. (Top of 2" steel casing) **Drilling Method** Cable Tool

Total Depth 183 feet **Drilled By** Holt Drilling Co.

Date Completed 8/21/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not logged between 0 and 100 feet. It is located 6 feet west of 7-100. See the log for that boring for details of the geology between 0 and 100 feet at this location.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 7-181

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					See previous page for description.	
		40						
		45						
		50						
		55						
		60						
		65						
		70						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 7-181

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75					See page 1 for description.	
		80						
		85						
		90						
		95						
		100						
	4-5-6		1	Split Barrel			100.0-117.0' SAND, gray-brown, saturated, medium dense to dense. Sand dominantly fine, fine to medium from 100-106.5 feet. Wood fragments observed at 106.5 feet, and 111.3 feet. Vaguely laminated, with layering demarcated by silty sand zones.	
	20-6-30	105	2	"		SP-SM		
	15-10-10		3	"				
	10-12-30		4	"				
	13-22-20/4"	110	5	"				
	15-35		6	"				
	35-15		7	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma,WA

Boring No. 7-181

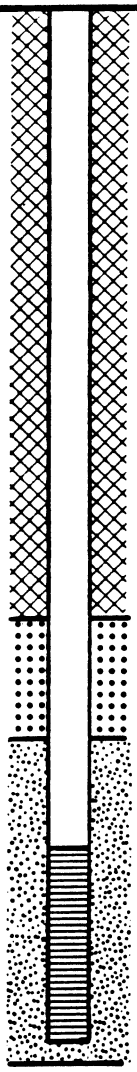
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		115						
	35-15		8	Split Barrel		SP-SM	See previous page for description.	
			8A					
			9	"				
	19-24-30							
		120	10	"				
	5-10-11							
			11	"		SP-SM	117.0-129.7' Silty SAND, gray, saturated. Sand is dominantly fine. With thin layers of sand and clayey silt. Variable quantities of fine constituents. Loose to medium dense. Mollusc shells from 124-126 feet..	
	6-25-30							
		125	12	"				
	6-13-26							
			13	"				
	7-14-23							
		130	14	"				
	10-16-19							
			15	"		ML	129.7-138.0' Clayey SILT, gray, saturated, medium to stiff. Massive structure Trace fine sand.	
	4-4-5							
		135	16	"				
	3-6-8							
			17	"				
	14-17-15	140				SM	138.0-143.5' Silty SAND, gray, moist. Massive structure. Dominantly fine to very fine sand.	
			18	"				
	13-14-17							
			19	"				
	3-5-8	145						
			20	"			143.5-160.5' Sandy SILT, gray, moist, massive. Stiff, vaguely laminated. Shell fragments throughout. Wood fragments at 150 feet. Trace clay toward bottom.	
	4-7-9					ML		
			21	"				
	5-5-9	150						
			22	"				
	3-6-8							

Sweet, Edwards & Associates, Inc.

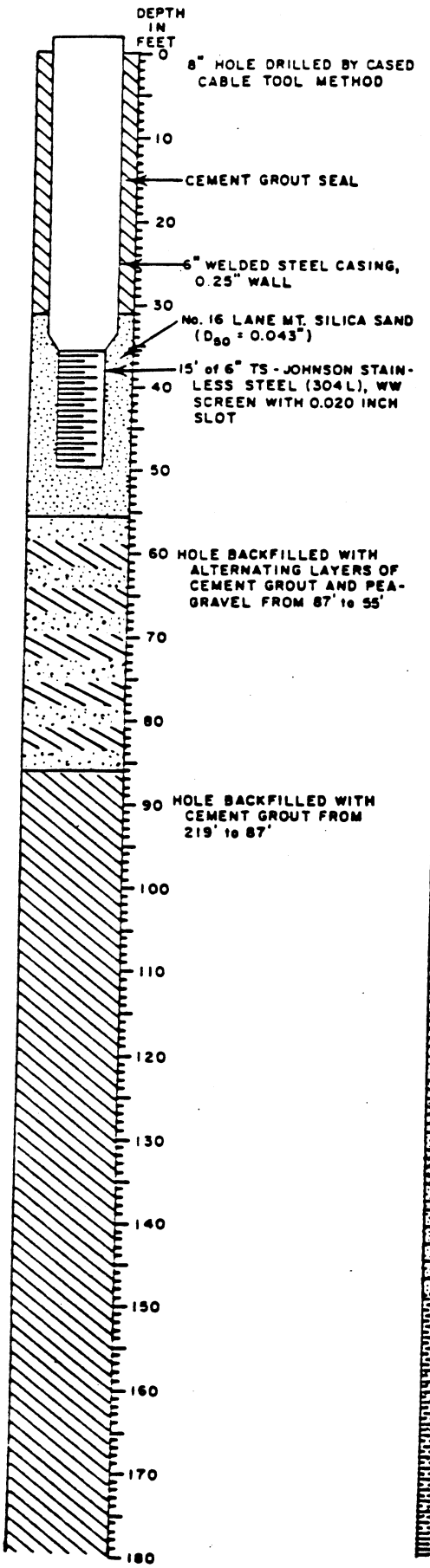
BORING LOG

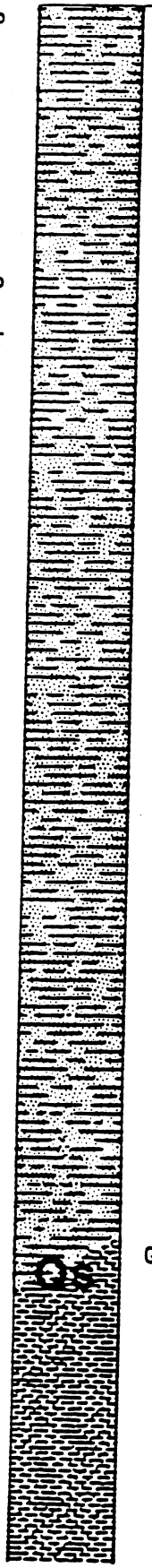
PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 7-181

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	5-7-10	155	23	Split Barrel		ML	See previous page for description.	
	5-7-10		24	"				
	6-15-15	160	25	"				
	5-10-17		26	"			160.5-183.0' Sandy SILT, gray with darker gray mottling, saturated. Not laminated. Some shell fragments.	
	10-17-18	165	27	"				
	8-8-18		28	"				
	10-15-15	170	29	"		ML		
	8-12-15		30	"			Trace of matrix-supported rounded to sub-rounded coarse sand and fine gravel at 179-180.5 feet. Trace gravel to 1.5-in dia, angular at 183 feet.	
	8-14-18	175	31	"				
	8-11-12		32	"				
	9-10-11	180	33	"				
	10-46/1"		34	"				
		185					Bottom at 183.0 feet.	
		190						

WELL BORING AND CONSTRUCTION INFORMATION WELL 7-50B





	QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)			
	T° C	NaOH	NaCl	Cl-Orgar
Gray, slightly silty medium to fine SAND	NA	0	526	1.0
	NA	120	10,500	220
	NA	0	47,100	160
	NA	0	55,200	160
Becomes very silty	NA	0	53,700	200
	NA	0	53,900	340
	14.0	0	48,300	270
Grades to gray silty fine SAND to fine silty SAND	14.0	0	41,900	210
	14.5	0	28,400	160
	14.5	0	22,900	110
	15.0	0	18,400	50
	14.0	0	14,900	20
	13.0	0	14,000	20
	13.5	0	13,800	20
	14.0	0	12,600	10
	14.0	0	10,200	1.0
	14.5	0	10,500	1.0
	NA	0	10,600	0.1
	14.5	40	10,700	1.0
	15.0	0	18,800	1.0
	NA	80	11,300	1.5
	14.5	80	11,200	1.4
	14.0	80	12,300	1.2
	14.0	40	12,900	1.3
	13.0	120	15,200	TRACE
	13.0	160	15,000	0.1
	13.0	40	14,700	0.2
Grades to gray fine sandy SILT	13.0	0	14,700	0.1
	12.0	0	14,300	0.1
	12.0	0	13,600	0.0
	15.0	120	13,000	0.0
	14.0	120	12,600	0.0
	13.5	40	12,100	0.0
	12.0	40	7,600	0.0
	12.5	0	7,300	NA

SURFACE ELEVATION 19.1' MLLW

NA = Not Available

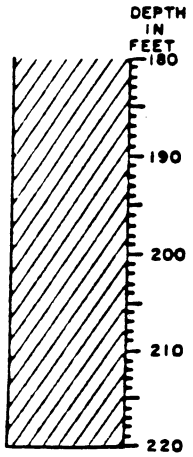
TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates, inc.

Figure C-7

WELL DESIGN



GEOLOGIC LOG

		QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)			
		T° C	NaOH	NaCl	Cl-Organ
	Gray fine sandy SILT	12.5	0	7,000	0.0
Qsg	Gray slightly gravelly medium to coarse SAND	13.0	0	5,300	0.0
		13.0	0	5,200	0.0
	Green-tan slightly silty SAND	13.0	0	5,100	0.0
		12.5	0	5.100	0.0
		13.0	0	5,400	0.0
Qt		13.0	0	5,400	0.0
	Tan-brown slighlty gravelly silty fine to mecium SAND				

Bottom of Hole
March 4, 1980

SURFACE ELEVATION 19.1' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

J-846-02 July 1980
HART-CROWSER & associates inc.

Figure C-7
(Cont.)

Sweet, Edwards & Associates, Inc.

BORING LOG

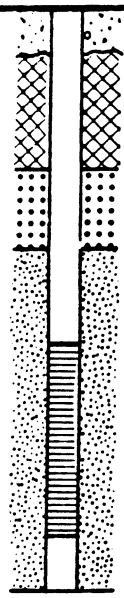
PROJECT Occidental Chemical Corporation - Tacoma, WA. **Page** 1 **of** 1

Location East of center gate on Alex. Ave. **Boring No.** 8-15

Surface Elevation 13.93 FT. **Drilling Method** Hollow Stem Auger

Total Depth 15 feet **Drilled By** Tacoma Pump & Drilling Co.,

Date Completed 9/21/87 **Logged By** D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled. It is located approx. 8 feet west of 8-99. See the log of well for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

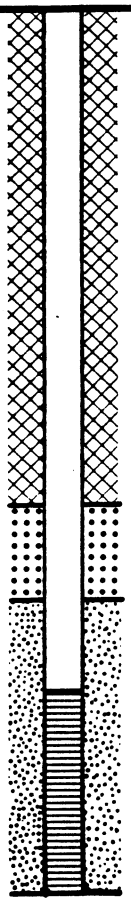
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location East of Center gate on Alexander Ave **Boring No.** 8-23

Surface Elevation 13.92 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 23 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/4/86 **Logged By** B.A. Butler

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20					This boring was not sampled It is located 6.2 feet northeast of well 8-99. See the log for 8-99 for details of the geology at this location.	
							Bottom at 23 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

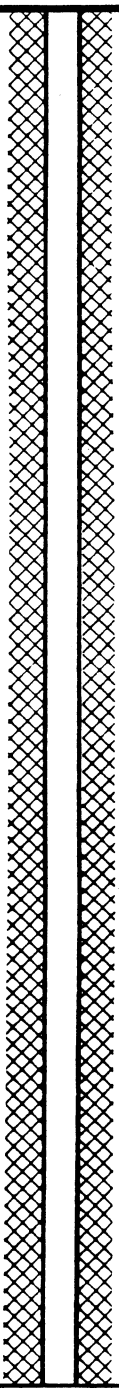
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location East of Center gate on Alexander Av **Boring No.** 8-54

Surface Elevation 13.51 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 54 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/4/86 **Logged By** B.A. Butler

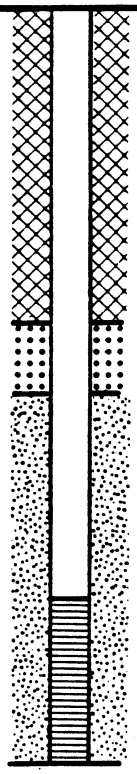
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled It is located 6.4 feet northwest of well 8-99. See the log for 8-99 for details of the geology at this location.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 8-54

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50 55					See previous page for description. Bottom at 54 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 3

Location East of Center gate on Alexander Av **Boring No.** 8-99

Surface Elevation 14.04 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 100 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/3/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				SP	0-3.0' SAND, dark brown, moist, loose. Fine to medium. Chunk of concrete (1 foot dia.) at 2.5 ft. Abundant plant roots.	
	3-4-4-8		1	Split Spoon		SP-SM	3.0-5.1' SAND, mottled gray-brown and orange, moist, loose. Fine-medium. Clumps of silty fine sand to 0.5-in dia. Layer of silty sand at 4.5-5.0 ft. Fine sandy silt at 5.0-5.1'	
	2-3-4-6	5	2					
	4-4-6-7		3	"		SP-SM		
	4-3-6-6	10	4	"			5.1-18.3' SAND, gray, moist to 6.5 ft, loose, fine to medium. Grades to silty sand at 15.9 ft. Trace fine gravel (to 3/8" dia) at 14.5-15.9 ft. Laminated sandy silt layers at 13.8, 15.9 and 16.5 ft. Shell fragments abundant at 5-11.5 ft.	
	4-4-4-6		5	"				
	2-3-4-5	15	6	"				
	5-4-3-3		7	"				
	1-1-1-1	20	8	"		SM	18.3-25.2' Silty SAND, gray, saturated, very loose to medium dense. Fine to medium. Variable ratios of silt and sand, silt content decreasing downward. Abundant shells. Grass blades at 19.6 ft.	
	3-7-16-17		9	"				
	8-12-13-10	25	10	"				
	12-16-17-20		11	"		SP-SM	25.2-33.1' SAND, gray, saturated, medium to very dense. Fine-medium. Laminated between 25.2 and 29ft with layers of sandy silt and silty sand present at variable intervals. Silt clumps in sand at 27 to 28.5 ft, about 0.5-in dia. Shells abundant between 32 and 33.1 feet.	
	10-25-32-26	30	12	"				
	1-4-3-4		13	"				
		35				ML		

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 8-99

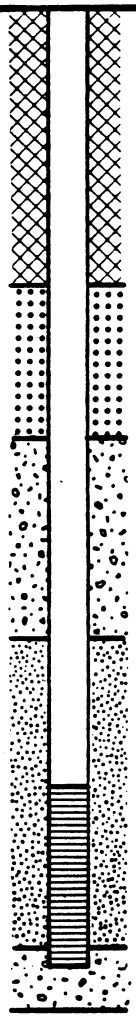
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	1-3-2-1	35	14	Split Spoon		ML	33.1-38.1' Clayey SILT, with fine sand, light gray, very soft to soft, saturated. Massive structure.	
	1-3-5-11		15	"				
	5-7-4-5	40	16	"		SM	38.1-45.2' Silty SAND, gray, saturated. medium dense to dense, Fine to medium. Vaguely laminated. Shells and shell fragments abundant.	
	7-13-10-8		17	"				
	12-25-34-57	45	18	"		SP	45.2-50.3' SAND, gray, saturated, dense to very dense. Fine to medium. Trace coarse sand at 45.2 to 45.8 ft. Layer of fine sandy silt at 47 to 47.5 ft, shells abundant.	
	11-24-30-36		19	"				
	8-24-44-57	50	20	"				
	13-26-34-39		21	"		SW	50.3-55.8' SAND, gray, saturated, very dense. Trace fine gravel (to 0.5-in dia), subangular to subrounded.	
	25-29-36-45	55	22	"				
	12-24-40-50/4.5"		23	"		SP	55.8-62.3' SAND, gray, saturated, dense to very dense. Fine to medium. Trace gravel (3/8 " to 1 " dia), rounded.	
	25-36-50/6"	60	24	"				
	15-32-66/6"		25	"		SM	62.3-67.5' Silty SAND, brown- gray, wet, very dense. Alternating beds of fine sand grading upward to silty sand, beds range from 0.5 to 1.5-in. thick. Wood (peaty) at 65.7 and 65.8 feet.	
	8-18-60/6"	65	26	"				
	22-50/6"		27	"				
	26-50/3"	70	28	"		SP	67.5-78.2' SAND, gray, saturated, dense to very dense. Fine to medium.	
	24-50/4"		29	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma,WA

Boring No. 8-99

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	15-21-34-38	75	30	Split Spoon		SP	Laminated from 76-78.2 ft, with silty beds and peat-like material between laminae.	
	10-15-45-50/5"		31	"				
	15-24-50/6"	80	32	"		SP-SM	78.2-81.0' Silty SAND, gray-brown, saturated, very dense. Fine to medium. Thin (to 1.5-in thick) layers of alternating sand and silty sand, fining upward. Wood fragments abundant from 78.2-78.5 ft.	
	7-25-29-41		33	"		SP		
	9-10-20-35	85	34	"				
	22-50/5"		35	"			81.0-85.5' SAND, gray-brown, saturated, very dense. Fine to medium. Wood and shell fragments at 82-82.5 feet.	
	12-76/6"	90	36	"		SP-SM	85.5-99.0' Silty SAND, gray-brown, saturated. very dense. Rhythmic beds of fine to medium sand grading upward to silty sand, bed thickness ranges from 1 to 2 inches. Less silt and vaguely stratified between 87 and 92.5 ft. 1/4-in sandy silt layers from 95 to 96 ft, upward fining.	
	13-14-40-50/4"		37	"				
	15-28-58/6"	95	38	"				
	16-21-50/6"		39	"				
		100					Bottom at 100 feet.	

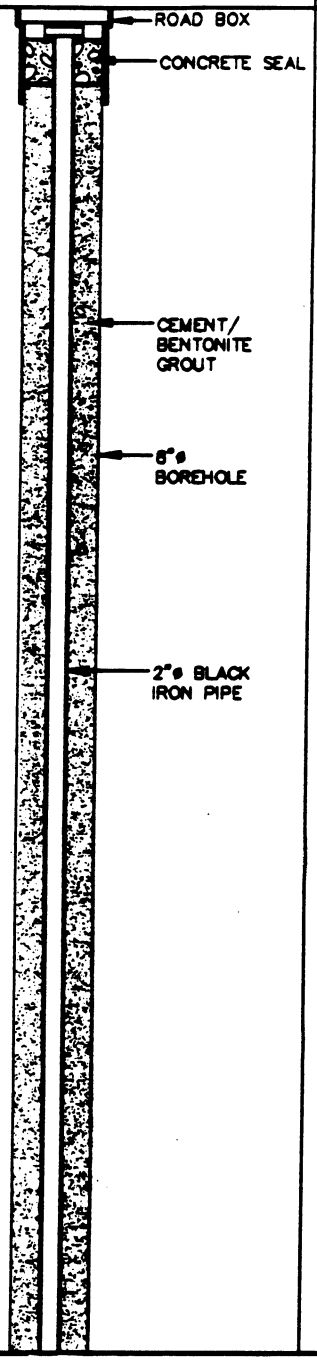
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-16)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 8-99R

PROJECT NO.: 1002-10
DATE COMPLETED: JULY 31, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 10' SOUTHEAST OF GUARDHOUSE ON CENTER STREET
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	11.45				
	GROUND SURFACE	12.0				
	For stratigraphy refer to previous log 8-99					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-16)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTHEAST OF GUARDHOUSE ON CENTER STREET

HOLE DESIGNATION: 8-99R

DATE COMPLETED: JULY 31, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0			CEMENT/ BENTONITE GROUT			
52.5						
55.0			8"ø BOREHOLE			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-16)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTHEAST OF GUARDHOUSE ON CENTER STREET

HOLE DESIGNATION: 8-99R (Page 3 of 4)
DATE COMPLETED: JULY 31, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0			CEMENT/ BENTONITE GROUT			
72.5						
75.0			8"ø BOREHOLE			
77.5						
80.0						
82.5			2"ø BLACK IRON PIPE			
85.0						
87.5			BENTONITE PELLET SEAL			
90.0			SAND PACK			
92.5						
95.0			WELL SCREEN			
97.5			TAILPIPE			

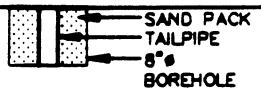
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-16)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 8-99R
(Page 4 of 4)
PROJECT NO.: 1002-10
DATE COMPLETED: JULY 31, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 10' SOUTHEAST OF GUARDHOUSE ON CENTER STREET
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	END OF HOLE @ 99.0 FT. BGS	-87.0	 SCREEN DETAILS: Screened interval: 92.5 to 97.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 88.0 to 99.0' BGS Material –# 10–20 Sand			
102.5						
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

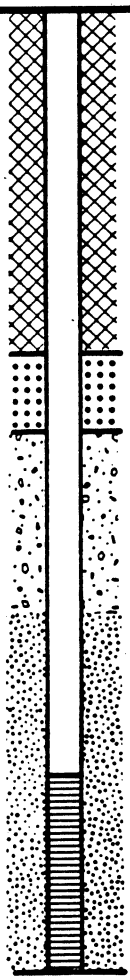
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Southeast Corner of Property **Boring No.** 9-25

Surface Elevation 13.41 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/26/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled. It is located 10 feet south of well 9-100. See the log for 9-100 for details of the geology in this vicinity.	
							Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

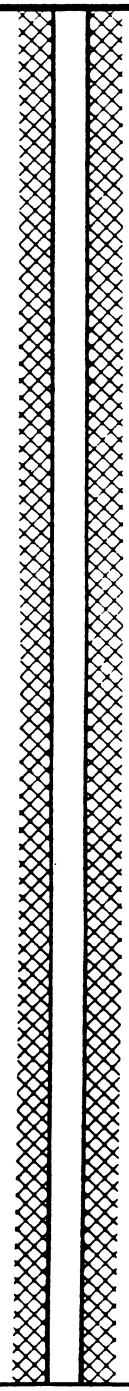
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast Corner of Property **Boring No.** 9-50

Surface Elevation 13.46 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/26/86 **Logged By** D.E. Mills

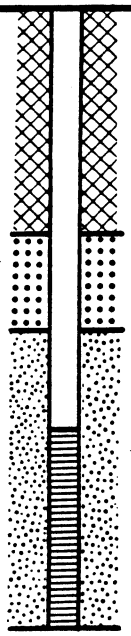
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 5 feet south of well 9-100. See the log for 9-100 for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 9-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See previous page for description. Bottom at 50 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA.

Location Southeast Corner of Property **Boring No.** 9-100

Surface Elevation 13.42 ft. (Top of 2" steel casing **Drilling Method** Hollow Stem Auger

Total Depth 100 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 8/22/86 **Logged By** B.A. Butler/D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0	1	Grab			0-22.0' SAND and Silty SAND, brown, moist to 7 ft, saturated below 7 ft, loose. Sand dominantly fine to medium, silty sand laminae at 10.5-12 feet, 18-22 feet. Wood and shell fragments common throughout.	
			2	Split Spoon				
	4-3-3	5	3	"				
			4	"				
	3-5-5	10	5	"		SP-SM		
			6	"				
	4-4-7	15	7	"				
	4-5-6		8	"				
	3-4-4	20	9	"				
	3-2-2		10	"			22.0-37.0' Silty SAND, brown, saturated, medium density. Fine to medium, laminated with variable silt contents throughout. Shells common in silty sand laminae.	
	7-10-11	25	11	"		SP-SM		
	11-9-15		12	"				
	3-6-18	30	13	"				
	15-14-12		14	"				
	11-12-13	35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 9-100

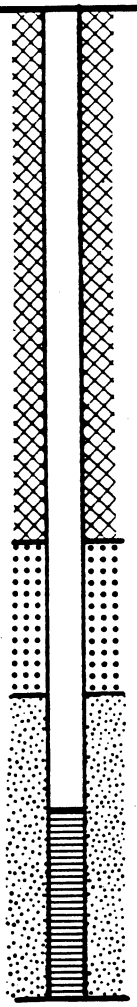
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35				SP-SM	See previous page for description.	
	2-2-1		15	Split Spoon				
	22-24-36		16	"			37.0-76.5' SAND, brown, saturated, medium dense to dense, fine to medium grained. Medium grained dominant at 60.5-78 feet. Wood is common; log encountered at 42 ft depth.	
		40						
	10-10-23		17	"				
	48-15-16		18	"				
		45						
	7-11-12		19	"				
						SP		
	14-18-18		20	"				
		50						
	10-16-17		21	"				
	18-22-38		22	"				
		55						
	16-19-20		23	"				
	19-36-36		24	"				
		60						
	18-28-29		25	"				
	11-18-20		26	"				
		65						
	15-32-36		27	"				
	30-50/6"		28	"				
		70						
	32-40-50/2"		29	"				
	23-38-48		30	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 9-100

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		75				SP	See previous page for description.	
	11-38-50/5"		31	Split Spoon				
	7-15-30		32	"		SM	76.5-100.0' Silty SAND, grayish brown to gray, saturated, medium dense to dense. Sand dominantly fine; thin laminae of alternating sandy silt and silty sand Wood and shell fragments common at some intervals. Peat-like material at 90.6-90.7 feet.	
	9-13-18	80	33	"				
	7-11-14		34	"				
	6-12-18	85	35	"				
	7-7-15		36	"				
	7-15-30	90	37	"				
	12-16-38		38	"				
	10-13-34	95	39	"				
	14-21-34		40	"				
		100					Bottom at 100 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

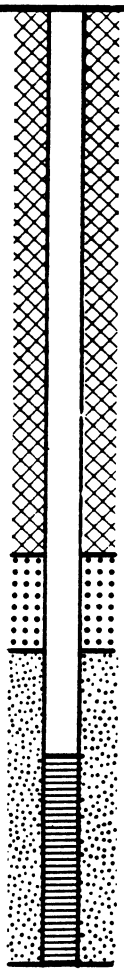
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Off OCC property; West of Shipping/Receiving Building **Boring No.** 10-24

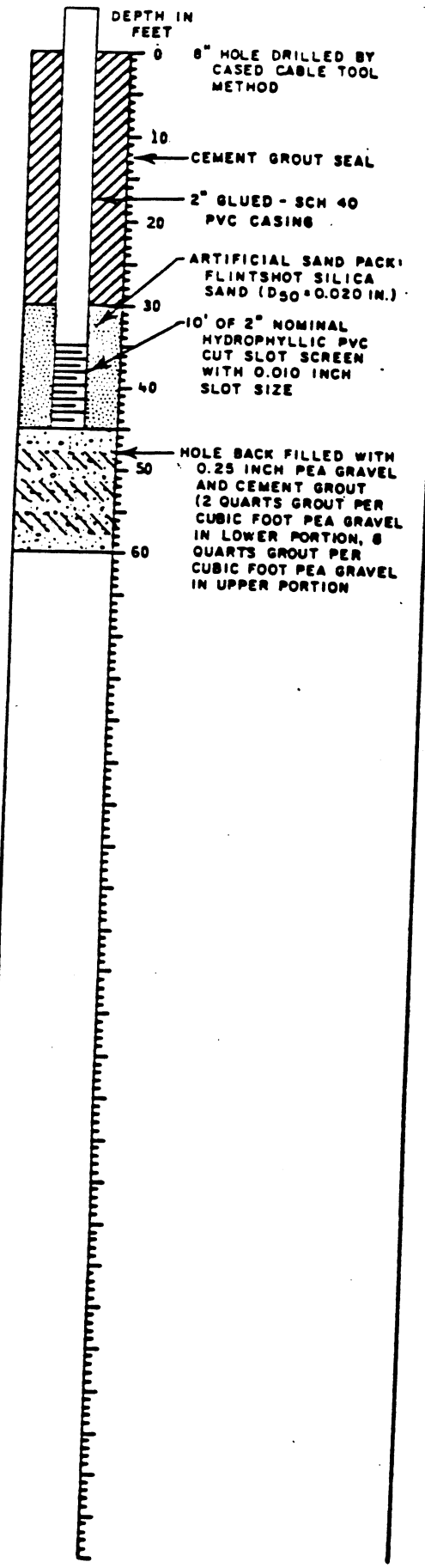
Surface Elevation 13.55 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 24 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/24/86 **Logged By** B.A. Butler

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not logged. It is located 10 feet north of well 10-100. See the log of 10-100 for details of the geology in this vicinity. Bottom at 24 feet.	

SEA-300-02a



GEOLOGIC LOG

Gray, slightly silty medium to fine SAND

Qs

Bottom of Boring Completed May 6, 1980

QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T°C	NaOH	NaCl	Cl-Organi
15	0	180	10
NA	NA	NA	NA
15.5	0	530	330
18.0	0	43,900	30
16.5	0	17,600	990
17.0	0	6,600	NA
17.0	0	16,400	NA
21.0	0	4,700	NA
18.5	0	9,700	NA

SURFACE ELEVATION 17.7' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

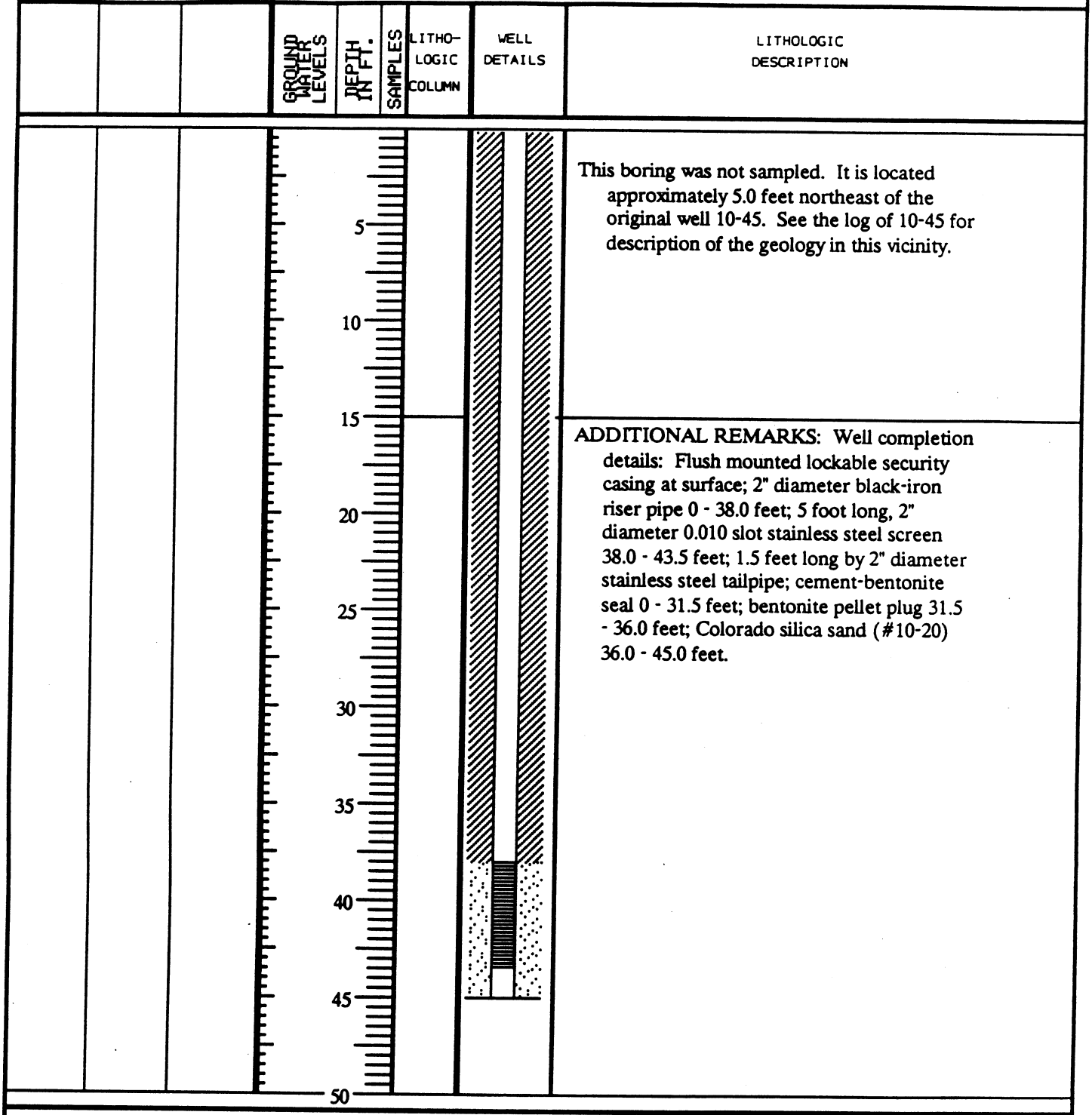
J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-8

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation-Tacoma, WA.	BORING NO.	10-45R
LOCATION	Off OCC property; West of Shipping/Receiving Bldg.	PAGE	1 OF 1
DRILLED BY	Tacoma Pump & Drill.	REFERENCE ELEV.	'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	45.00'
LOGGED BY	L. Adolfson	DATE COMPLETED	3/8/89



REMARKS

See ADDITIONAL REMARKS in Lithologic Description column.

Sweet, Edwards & Associates, Inc.

BORING LOG

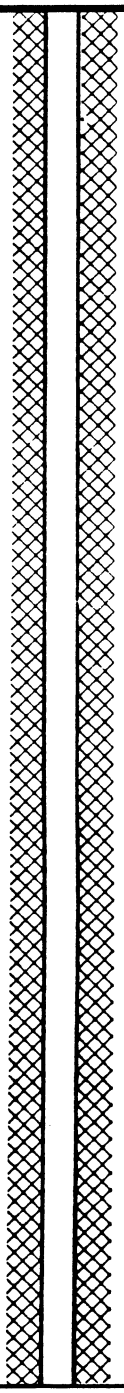
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location Off OCC property; West of Shipping/Receiving Building **Boring No.** 10-50

Surface Elevation 14.34 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/23/86 **Logged By** B.A. Butler

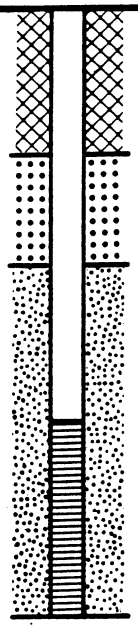
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 5 feet north of well 10-100. See the log of 10-100 for description of the goelogy in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 10-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35 40 45 50					See previous page for description. Bottom at 50 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Off OCC property; West of Shipping/Receiving Building

Boring No. 10-100

Surface Elevation 14-20 ft. (Top of 2" steel casing)

Drilling Method Hollow Stem Auger

Total Depth 102 feet

Drilled By Soil Sampling Service, Inc.

Date Completed 9/23/86

Logged By B.A. Butler/D.E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				SP	0-12.0' SAND, brown, moist to 9 ft, saturated below 9 ft, very loose to loose. Fine to coarse; predominantly medium sand, trace silt. Trace fine (to 0.5-in), subrounded gravel. Some wood and shell fragments. (FILL)	
	3-5-2-1		1	Split Spoon				
		5	2	"				
	2-3-6-4							
	3-5-6-7		3	"				
		10	4	"				
	3-2-3-4							
						SP	12.0-17.0' SAND, brown, saturated, loose. Dominantly medium grains. Lense of silty fine sand at 13.1-13.3 feet	
	2-3-4-5		5	"				
		15	6	"				
	4-2-3-6							
						SP	17.0-22.0' SAND with Sandy SILT, brown, saturated, loose. Fine to medium. Thin (0.2 ft) beds of sandy silt at roughly 0.8 ft. intervals.	
	3-2-2-4		7	"				
		20	8	"				
	3-3-3-4							
						SP	22.0-27.0' SAND, brown, saturated, loose to medium dense. Fine to medium at 22 to 24 ft, medium to coarse at 24 to 27 feet.	
	6-6-14-12		9	"				
		25	10	"				
	6-5-3-3							
						SM	27-33.8' Silty SAND, gray-green, saturated, loose to very dense. Fine. Thin, alternating beds of sand grading upward to silt. Some shell and wood fragments.	
	1-1-2-3		11	"				
		30	12	"				
	3-10-16-14							
	10-18-34-35		13	"				
		35				SP	33.8-37.0' See following page for description.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 10-100

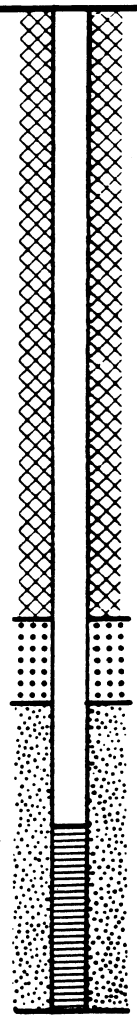
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35						
	10-24-26-25		14	Split Spoon		SP	33.8-37.0' SAND, brown, saturated, medium to very dense. Fine to medium. Some silty laminae.	
	7-10-10-18		15	"		SP-SM/ ML	37.0-48.2' Silty SAND, gray, saturated, medium dense to dense. Thin beds of fine to medium sand grading upward to silty fine sand and sandy silt.	
		40						
	4-18-18-24		16	"				
	13-28-22-19		17	"				
		45						
	8-15-18-19		18	"				
	4-9-24-21		19	"		SP-SM	48.2-59.0' Silty SAND, gray, saturated, dense to very dense, fine to medium. Thin, beds of sand grading upward to silty sand. Bed thickness from 1/32-in to 3-inches. Shell and wood fragments common.	
		50						
	6-20-29-30		20	"				
	8-26-26-32		21	"				
		55						
	14-15-21-26		22	"				
	7-13-20-20		23	"				
		60						
	3-12-15-21		24	"		SP	59.0-74.5' SAND, gray, saturated, loose to dense, fine to medium. Thin beds of fine to medium sand grading upward to fine sand, trace to slightly silty at fine bed tops; beds to 3-inches thick.	
	6-9-12-19		25	"				
		65						
	6-10-16-20		26	"				
	8-12-19-22		27	"				
		70						
	4-4-8-16		28	"				
	10-10-15-31		29	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 10-100

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	3-3-7-10	75	30	Split Spoon		SP-SM	74.5-99.5' Silty SAND, gray, saturated, loose to dense, Fine to medium. Thin beds of sand grading upward to fine sandy silt. Bed thickness ranges from 0.25-in to 1.0-in. Trace clay in fine bed tops between 97 and 99 feet. Soft to very stiff at fine-grained zones.	
	8-11-13-20		31	"				
	8-10-15-22	80	32	"				
	6-6-21-24		33	"				
	2-4-11-18	85	34	"				
	5-6-13-21		35	"				
	4-8-14-24	90	36	"				
	8-13-19-29		37	"				
	8-13-18-22	95	38	"				
	4-2-6-12		39	"				
	3-6-8-9	100	40	"		ML	99.5-102.0' Sandy SILT, gray, stiff to very stiff, saturated. Laminated. Trace clay.	
		105					Bottom at 102 feet.	
		110						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation, Tacoma, WA — **Page** 1 **of** 1

Location West of OCC plant on Port of Tacoma property

Boring No. 11-15

Surface Elevation 14.39 FT.

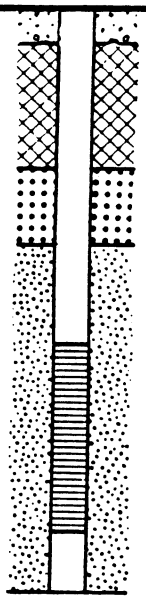
Drilling Method Hollow Stem Auger

Total Depth 15 ft.

Drilled By Tacoma Pump & Drilling Co., I

Date Completed 9/22/87

Logged By D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled. It is located approx. 5 feet south of Well 11-183, see the log of that boring for details of the geology in this vicinity.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 11-25
DATE COMPLETED: March 29, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	12.32					
	0-22' BGS - See Log from 11-45 for Stratigraphy		CONCRETE				
			BENTONITE				
			2"Ø STEEL RISER				
			8"Ø BOREHOLE				
			BENTONITE PELLETS				
20	- SHELBY TUBE SAMPLE		SAND	ST1			
22	SP-SAND, trace silt, loose, medium to fine, some coarse grains, poorly graded, dark brown, wet, trace red and white grains	-9.68	2"Ø SS SCREEN	SS1			
24	- SHELBY TUBE SAMPLE	-11.68	NATIVE				
26			2"Ø SS SUMP	ST2			
	END OF BOREHOLE @ 27.0ft BGS	-14.68					

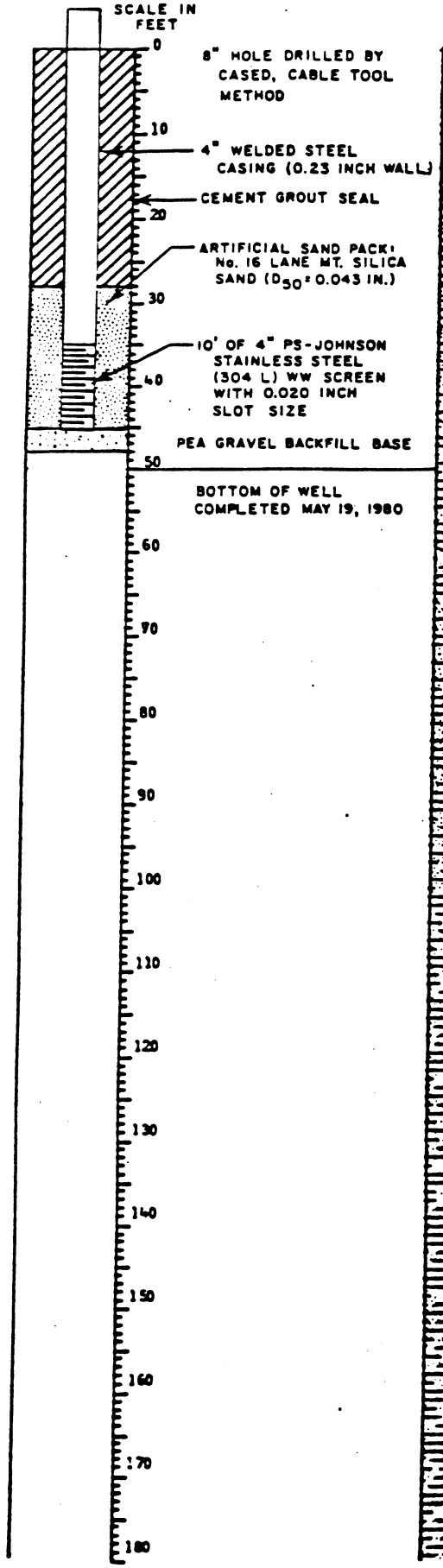
WELL DETAILS
Screened interval:
-7.68 to -12.68ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

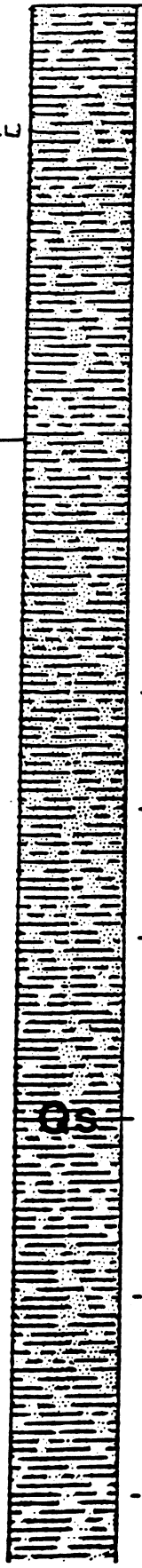
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

WELL BORING AND CONSTRUCTION INFORMATION WELL 11-45





GEOLOGIC LOG	T° C	NaOH	NaCl	Cl-Organic
Gray slightly silty medium to fine SAND				
-Grades slightly finer	18.0	0	9,500	50
	17.0	0	17,400	20
	16.0	0	16,800	10
	17.0	0	16,200	20
-Grades to gray silty fine SAND	15.5	0	18,800	10
	17.5	0	18,800	10
-Grades to very silty fine SAND	16.5	0	16,500	20
	18.0	0	16,100	20
	17.0	0	15,700	30
	13.5	0	15,300	80
	13.5	0	15,000	160
Gray, slightly silty medium to fine SAND	13.5	0	15,200	110
	17.0	0	15,300	110
-Grades to silty medium to fine SAND	15.0	0	17,000	190
	16.0	0	21,000	210
	15.5	0	28,500	120
-Grades to very silty medium to fine SAND	15.0	0	29,000	260
	15.5	0	28,700	250
	17.0	0	30,000	130
	NA	0	28,900	1100
Qs	NA	0	28,700	810
Tan-gray very silty fine SAND to very fine sandy SILT	14.0	0	27,700	700
	NA	0	24,300	1300
	14.0	0	23,500	760
-Grades to silty fine SAND	15.5	0	23,300	890
	14.5	0	21,200	1100
	14.5	0	20,600	460
	NA	0	27,700	870
	NA	0	18,500	760
-Grades to silty medium to fine SAND	NA	0	17,800	740
	NA	0	17,600	800

QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

SURFACE ELEVATION 18.7' MLLW

NA = Not Available TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-9

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 11-75
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	12.25 11.91						
	ASPHALT		CONCRETE					
		11.25						
2	ML-SANDY SILT, some fine grained gravel, firm, fine grained sand, brown, moist							
4		8.25	2" PVC WELL CASING					
	GM-GRAVEL, trace silt, trace fine to coarse grained sand, fine to coarse grained gravel, poorly sorted, brown, moist			1RS		7.0		
6			CEMENT/ BENTONITE GROUT					
		5.25						0.0
8	SP-SAND, loose, fine grained, well sorted, brownish gray, trace red grains and white grains, wet							
		4.25	6" BOREHOLE					
	NO RECOVERY (8 TO 10ft BGS)							0.0
10		2.25						
	SP-SAND, loose, fine grained, well sorted, brownish gray, trace red grains and white grains, wet							
12	- becoming dark gray, trace shell fragments at 12.0ft BGS							
14				2RS		9.0		
16	- negative DNAPL dye test at 16.0ft BGS							
18								
	CL-SILTY CLAY, trace fine grained sand, firm,	-7.25						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 11-75
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	medium plasticity, dark gray, wet							
	SP-SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-8.25						
22				3RS		3.0		
	NO RECOVERY (23 TO 25ft BGS)	-10.75						
24								
	SP-SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-12.75						
	ML-CLAYEY SILT, trace fine grained sand, soft, low plasticity, dark gray, trace red grains and white grains, trace shell fragments, wet	-13.25						
26								
				4RS		5.0		
28				-001				
30								
	SP-SAND, trace fine gravel, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, trace wood, wet	-18.55						
32				5RS		5.0		
34								
36	ML-SILT, trace fine grained sand, soft, dark gray, wet, trace wood	-23.65						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood	-24.95		6RS		5.0		
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 11-75
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet, trace wood	-27.75						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood	-29.35						
42		-30.05		7RS		5.0		
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace wood							
44		-31.95						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet							
46								
				8RS		5.0		
48								
50								
52				9RS		5.0		
54	ML-CLAYEY SILT, trace fine grained sand, firm, low plasticity, ark gray, wet	-41.75						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-42.85						
56	- negative DNAPL dye test at 56.0ft BGS - with silt at 56.5ft BGS - neutral pH (7) at 57.0ft BGS							
	- trace silt at 57.7ft BGS			10RS		5.0		
58	- negative DNAPL dye test at 58.5ft BGS							
	- neutral pH (7) at 59.0ft BGS	-46.65						
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet, trace wood							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 11-75
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
62	- negative DNAPL dye test at 62.5ft BGS			11RS		5.0		
64	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-51.65						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-52.25						
66	- negative DNAPL dye test at 65.0ft BGS	-53.75	BENTONITE CHIPS					
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet			12RS		4.5		
68								
70								
72	- negative DNAPL dye test at 72.5ft BGS		2" PVC WELL SCREEN	13RS		5.0		
74			SAND PACK					
	- negative DNAPL dye test at 74.5ft BGS							
	END OF BOREHOLE @ 75.0ft BGS	-62.75	NATIVE BACKFILL					
76								
78								

WELL DETAILS
Screened interval:
-58.15 to -63.15ft
70.40 to 75.40ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 11-75
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
82			Seal: -53.15 to -55.15ft 65.40 to 67.40ft BGS Material: BENTONITE CHIPS Sand Pack: -55.15 to -63.15ft 67.40 to 75.40ft BGS Material: SAND					
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

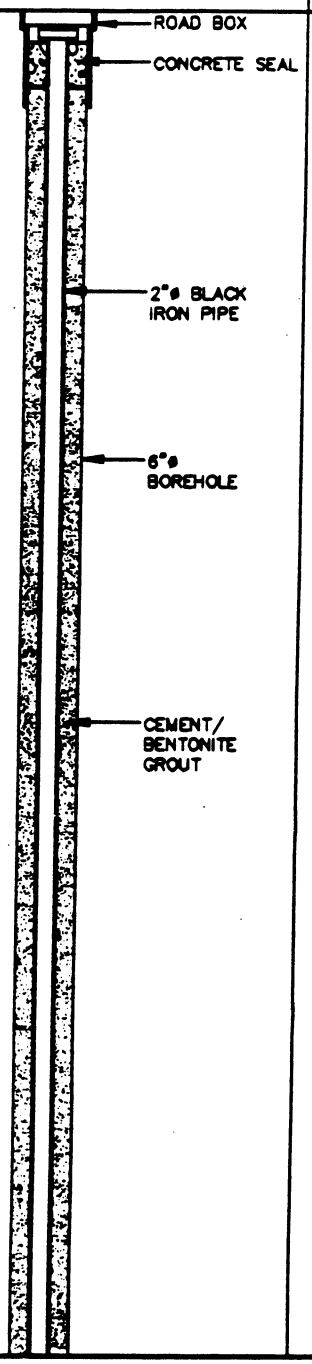
CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-17)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 11–100
(Page 1 of 4)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 19, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 6" CABLE TOOL
LOCATION: APPROXIMATELY 150' NORTHWEST OF WEST OXY FENCE
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.99* *12.5*				
	For stratigraphy from 0.0 to 51.0 ft BGS refer to log 11–183					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-17)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 150' NORTHWEST OF WEST OXY FENCE

HOLE DESIGNATION: 11-100

DATE COMPLETED: JUNE 19, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0			CEMENT/ BENTONITE GROUT	1ST		
52.5	SP–SAND, loose, medium grained, olive and dark gray, wet	-38.5		1CT		3
55.0	ML–SILT, loose, some medium grained sand, olive gray and dark gray, moist to saturated – medium grained sand and silt seam, olive, moist	-40.5	6"ø BOREHOLE	2CT		4
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-17)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 150' NORTHWEST OF WEST OXY FENCE

HOLE DESIGNATION: 11-100
(Page 3 of 4)
DATE COMPLETED: JUNE 19, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0						
72.5			6"ø BOREHOLE			
75.0			CEMENT/ BENTONITE GROUT			
77.5						
80.0						
82.5			2"ø IRON PIPE			
85.0						
87.5			BENTONITE PELLET SEAL			
90.0			SAND PACK			
92.5						
95.0	ML-SILT, some fine grained sand, very dense, olive gray and dark gray, saturated		WELL SCREEN	3CT		53
97.5	– medium dense		TAILPIPE	4CT		15

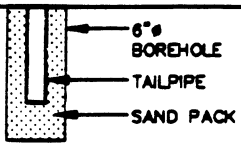
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-17)

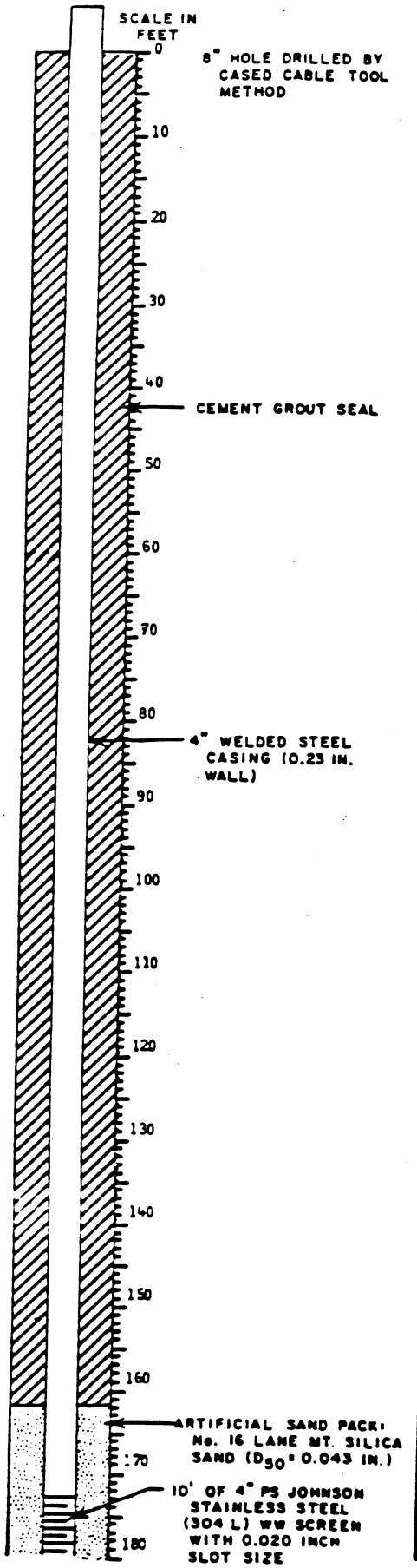
PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 11–100
(Page 4 of 4)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 19, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 6" CABLE TOOL
LOCATION: APPROXIMATELY 150' NORTHWEST OF WEST OXY FENCE
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
100.0	END OF HOLE @ 101.0 FT. BGS	-88.5	 SCREEN DETAILS: Screened Interval: 93.5 to 98.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 90.0 to 101.0' BGS Material –# 10–20 Sand	2ST		
102.5						
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

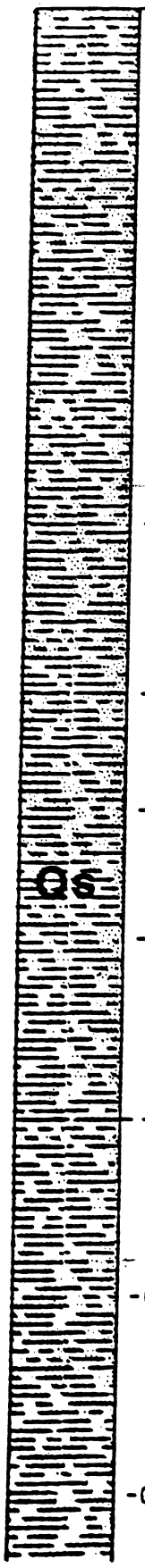
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

WELL DESIGN



GEOLOGIC LOG



GEOLOGIC LOG	QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)			
	T°C	NaOH	NaCl	Cl-Organi
Gray slightly silty medium to fine SAND				
-Grades slightly finer	18.0	0	9,500	50
	17.0	0	17,400	20
	16.0	0	16,800	10
	17.0	0	16,200	20
-Grades to gray silty fine SAND	15.5	0	18,800	10
	17.5	0	18,800	10
-Grades to very silty fine SAND	16.5	0	16,500	20
	18.0	0	16,100	20
	17.0	0	15,700	30
	13.5	0	15,300	80
	13.5	0	15,000	160
Gray, slightly silty medium to fine SAND	13.5	0	15,200	110
	17.0	0	15,300	110
-Grades to silty medium to fine SAND	15.0	0	17,000	190
	16.0	0	21,000	220
	15.5	0	28,500	120
-Grades to very silty medium to fine SAND	15.0	0	29,000	260
	15.5	0	28,700	250
	17.0	0	30,000	130
	NA	0	28,900	2000
	NA	0	28,700	810
Tan-gray very silty fine SAND to very fine sandy SILT	14.0	0	27,700	700
	NA	0	24,300	1300
	14.0	0	23,500	800
-Grades to silty fine SAND	15.5	0	23,300	900
	14.5	0	21,200	1100
	14.5	0	20,600	500
	NA	0	27,700	870
	NA	0	18,500	760
-Grades to silty medium to fine SAND	NA	0	17,800	740
	NA	0	17,600	800

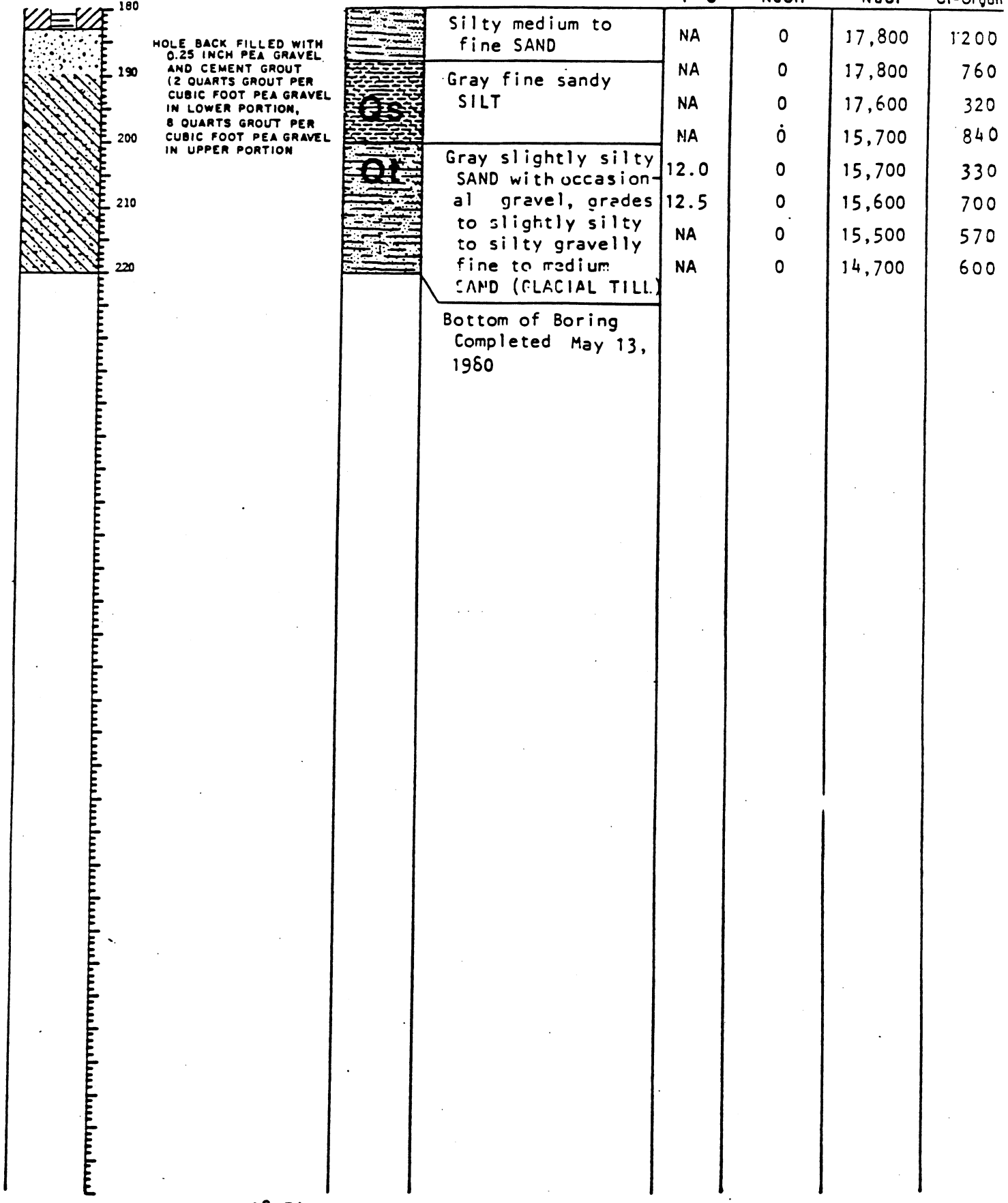
SURFACE ELEVATION 18.7' MLLW

NA = Not Available TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates, inc.

Figure C-10



SURFACE ELEVATION 18.7' MLLW

NA = Not Available TRACE = Detectable but not Measurable

J-864-02 July 1981

HART-CROWSER & associates inc

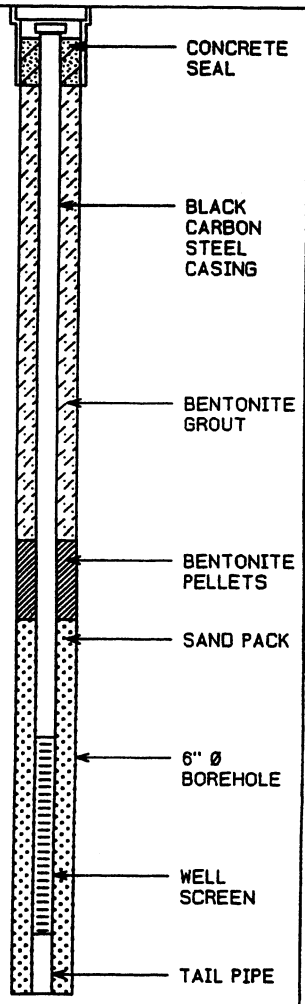
Figure C-10
(cont.)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 12-25
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

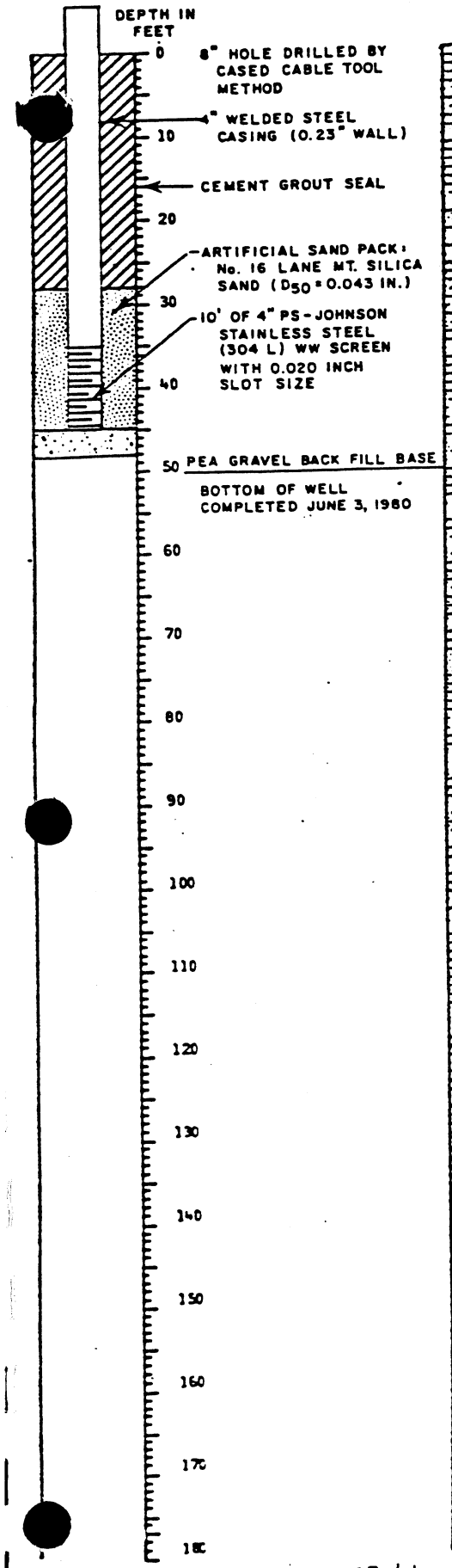
DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.56* *10.4*					
	Refer to 12-45 for stratigraphic details.						
-2.5							
-5.0							
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0	END OF HOLE @ 25.0ft BGS	*-14.5*					
-27.5							
-30.0							
-32.5							

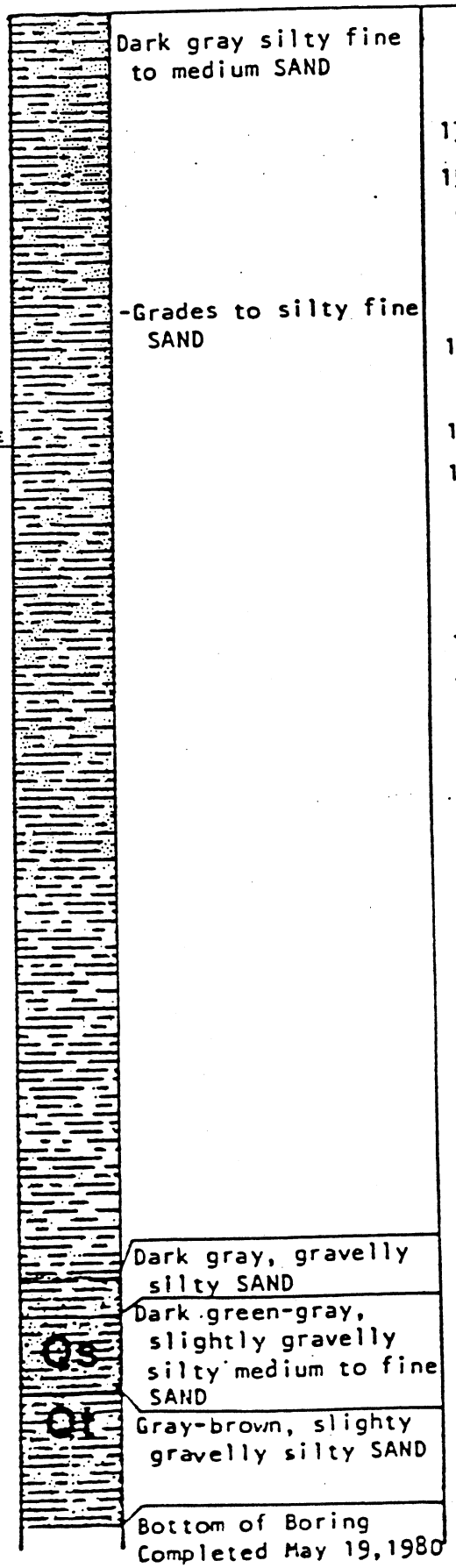


SCREEN DETAILS
Screened interval:
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
15.5 to 25.0ft BGS
Material: 20/40 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

12-45





QUALITATIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

T°C	NaOH	NaCl	Cl-Organics
17.0	0	13,000	0
15.0	0	29,800	0
NA	0	18,100	0
NA	0	20,700	0
NA	0	14,500	0
14.0	0	10,700	0
NA	0	11,700	0
15.0	0	10,500	0
15.0	0	8,100	0
NA	0	7,400	NA
NA	0	7,000	NA
NA	0	7,000	NA
16.5	0	9,200	NA
15.5	0	15,900	0
NA	0	24,300	NA
15.0	0	37,400	NA
14.5	0	24,800	NA
14.5	0	23,600	NA
14.5	0	22,400	NA
15.0	0	18,500	NA
12.5	0	17,900	NA
13.0	0	17,800	0
13.0	0	17,600	NA
13.0	0	16,700	NA
13.5	0	14,300	NA
NA	0	14,000	NA
NA	0	13,600	0
13.0	0	13,500	NA
NA	0	13,200	NA
NA	0	12,600	0
NA	0	11,900	NA
NA	0	11,600	NA
NA	0	11,400	NA

SURFACE ELEVATION 17.4' MLLW

NA = Not Available TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates inc.

Figure C-11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 12-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	NOT SAMPLED (0 to 65ft BGS)		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 12-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 12-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 12-75
DATE COMPLETED: August 13, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
62			BENTONITE CHIPS				
64							
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	65.00					
66							
			2" PVC WELL SCREEN				
68							
			SAND PACK				
70				1RS		10.0	
72			NATIVE BACKFILL				
			SUMP				
74	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	73.40					
	END OF BOREHOLE @ 75.0ft BGS	75.00					
76							
78							

WELL DETAILS
Screened interval:
66.75 to 71.75ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
60.00 to 63.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
63.00 to 71.75ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 12-100
DATE COMPLETED: March 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	9.22						
	0-95' BGS - See Logs from 12-25, 12-45, and 12-160 for Stratigraphy		CONCRETE; BENTONITE CHIPS; CEMENT/ BENTONITE GROUT; 2"Ø STEEL RISER; 8"Ø BOREHOLE					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 12-100
DATE COMPLETED: March 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36								
38								
40			CEMENT/ BENTONITE GROUT					
42			2"Ø STEEL RISER					
44								
46			8"Ø BOREHOLE					
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 12-100
DATE COMPLETED: March 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72								
74								
76								
78								
80			CEMENT/ BENTONITE GROUT					
82			2"Ø STEEL RISER					
84								
86			8"Ø BOREHOLE					
88								
90			BENTONITE					
92								
94			SAND					
96	SHELBY TUBE SAMPLE	-85.78						
98	SM/ML-SILTY SAND, trace clay, compact, fine to medium grained, poorly graded, dark brown, moist to wet	-87.78	2"Ø SS SCREEN	SS1		1.8	13	5.1
100	ML-SANDY SILT, trace clay, occasional shell fragments, fine grained sand, soft, low plasticity, homogeneous, dark brown/gray, wet	-89.78	2"Ø SS SUMP	SS2		1.0	4	3.0
102	END OF BOREHOLE @ 101.0ft BGS	-91.78						
104								

WELL DETAILS
Screened interval:
-85.78 to -90.78ft NGVD
95.00 to 100.00ft BGS
Length: 5ft
Diameter: 2in

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

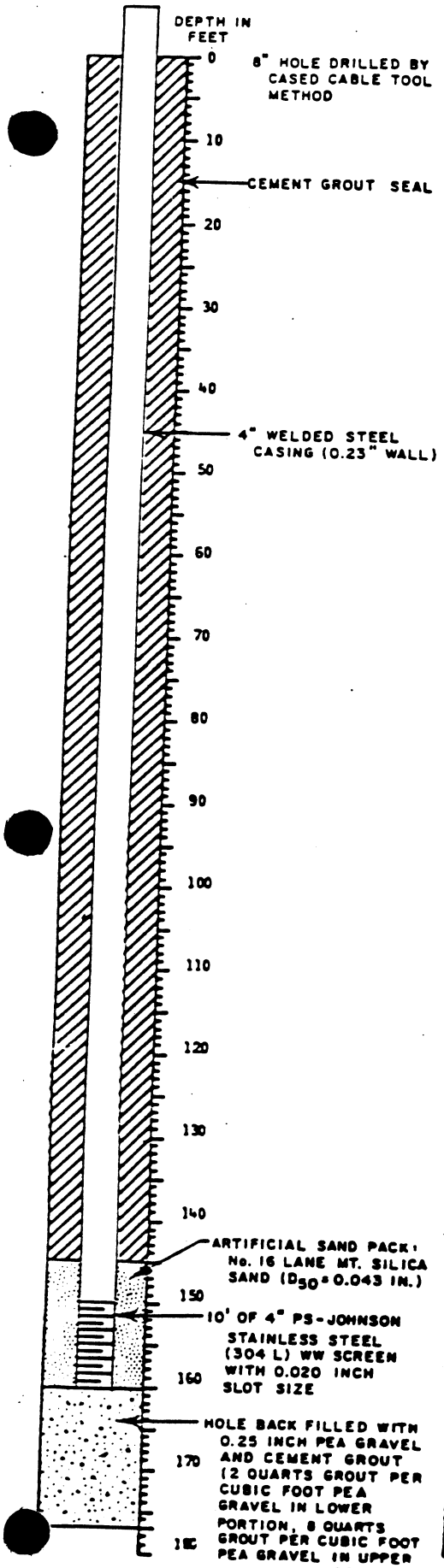
HOLE DESIGNATION: 12-100
DATE COMPLETED: March 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106			Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09



GEOLOGIC LOG

12-160

	T°C	NaOH	NaCl	Cl-Organics
Dark gray silty fine to medium SAND	17.0	0	13,000	0
	15.0	0	29,800	0
	NA	0	18,100	0
	NA	0	20,700	0
-Grades to silty fine SAND	NA	0	14,500	0
	14.0	0	10,700	0
	NA	0	11,700	0
	15.0	0	10,500	0
	15.0	0	8,100	0
	NA	0	7,400	NA
	NA	0	7,000	NA
	NA	0	7,000	NA
	16.5	0	9,200	NA
	15.5	0	15,900	0
	NA	0	24,300	NA
	15.0	0	37,400	NA
	14.5	0	24,800	NA
	14.5	0	23,600	NA
	14.5	0	22,400	NA
	15.0	0	18,500	NA
	12.5	0	17,900	NA
	13.0	0	17,800	0
	13.0	0	17,600	NA
	13.0	0	16,700	NA
	13.5	0	14,300	NA
	NA	0	14,000	NA
Dark gray, gravelly silty SAND	NA	0	13,600	0
	13.0	0	13,500	NA
Dark green-gray, slightly gravelly silty medium to fine SAND	NA	0	13,200	NA
	NA	0	12,600	0
	NA	0	11,900	NA
Gray-brown, slighty gravelly silty SAND	NA	0	11,600	NA
	NA	0	11,400	NA
Bottom of Boring Completed May 19,1980				

QUALITIVE CHEMICAL CONCENTRATIONS AT SAMPLED DEPTH (mg/l)

SURFACE ELEVATION 17.3' MLLW

NA = Not Available

TRACE = Detectable but not Measurable

J-864-02 July 1980

HART-CROWSER & associates inc.

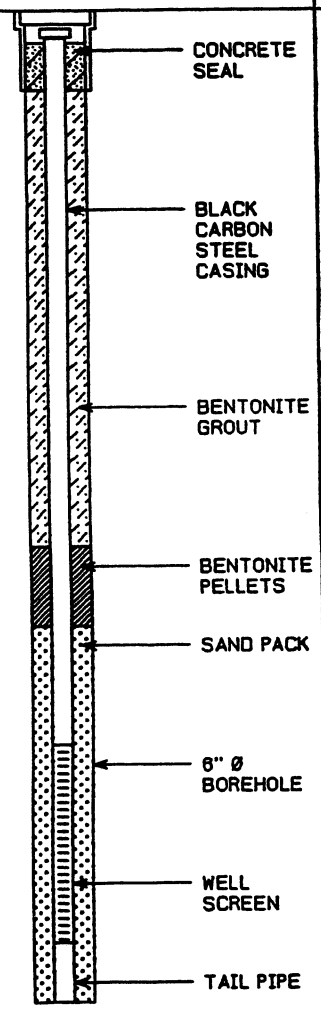
Figure C-12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 12A-25
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Curb Box)	*12.7* *12.65*					
	Refer to 12A-50 for stratigraphic details.						
-2.5							
-5.0							
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0	END OF HOLE @ 25.0ft BGS	*-12.3*					
-27.5							
-30.0							
-32.5							



SCREEN DETAILS
Screened Interval:
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
15.5 to 25.0ft BGS
Material: 20/40 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 12A-50
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Curb Box)	12.8 12.69					
2.5	SW-SAND, loose, very fine to fine grained, well graded, dark gray, red grains, moist		CONCRETE SEAL				
5.0							
7.5	- wet						
	SM-SAND, some silt, dense, very fine grained	3.8	BENTONITE GROUT				
10.0							
12.5							
15.0	SW-SAND, dense, well graded, dark brown	-2.2					
17.5				CC			0
	- dark gray						
20.0			6" Ø BOREHOLE				
22.5							
	ML/CL-SILT and CLAY, soft, poorly graded	-11.2					
25.0							
	SM-SAND, some silt, medium dense	-13.2					
27.5							
30.0			BLACK CARBON STEEL CASING				
32.5							
	SW-SAND, trace silt, loose	-20.2					

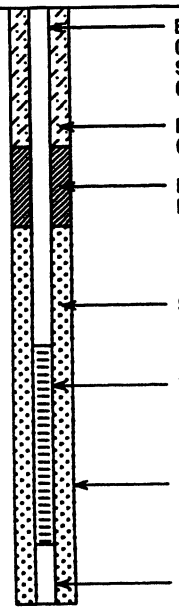
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 12A-50
DATE COMPLETED: OCTOBER 4, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5	ML-SILT, trace very fine sand, dense, very fine grained	-23.2	BLACK CARBON STEEL CASING; BENTONITE GROUT; BENTONITE PELLETS; SAND PACK	CC			0
-40.0							
-42.5							
-45.0	SM/ML-SAND and SILT	-31.2	WELL SCREEN; 6" Ø BOREHOLE				
-47.5							
-50.0	END OF HOLE @ 50.0ft BGS	-37.2	TAIL PIPE				
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							



SCREEN DETAILS
Screened interval:
43.5 to 48.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
40.5 to 50.0ft BGS
Material: #20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

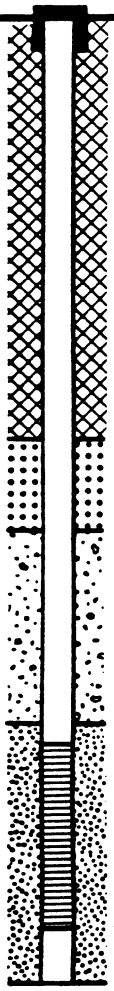
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Northwest of Building H-25 **Boring No.** 13-25

Surface Elevation 11.26 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/4/86 **Logged By** D.E. Mills DGM

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled, but it is located 6' southeast of well 13-50. See the log of 13-50 for details of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Northwest side of Building H-25 **Boring No.** 13-49

Surface Elevation 11.41 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/3/86 **Logged By** D.F. Mills

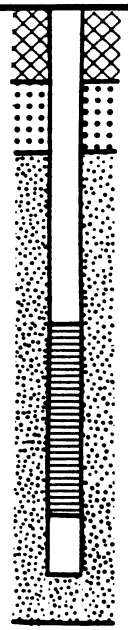
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
							0-1', Asphaltic Concrete	
	6-9-11-11	5	1	Split Spoon		SP	1-16', SAND, moderate brown to 12.5', dusky yellowish brown below. Moist to 7.5', saturated below. Loose to medium dense. Fine to medium. Trace fine (to 0.5" dia.), rounded gravel from 15.5 to 16'. Trace silt. (FILL)	
	6-9-9-8		2	"				
	4-5-6-8	10	3	"				
	3-4-5-7		4	"				
	3-3-4-5	15	5	"				
	3-2-3-4		6	"		SP-SM	16-19', Silty SAND, dusky yellowish brown, saturated, loose. Thickly laminated with alternating beds of sand and silty sand. @17.5-18.2'. Lense of olive grey, clayey SILT, laminated.	
	2-2-4-6	20	7	"		ML / SP-SM		
	3-4-7-8		8	"		SM		
	6-9-11-12	25	9	"		SM	19.5-22.5' Silty SAND, olive black, saturated, loose. Fine-coarse. Vague layering indicated by siltier zones.	
	8-8-4-5		10	"				
	4-13-20-23	30	11	"		SP-SM	22.5-27.5' SAND, dusky yellowish brown, saturated, loose. Fine-medium.	
	7-18-28-35		12	"			27.5-32' Silty SAND, dusky yellowish brown, saturated, medium dense to dense. With sand interbeds.	
	9-10-11-11	35	13	"		SP	32-36.4', Description on following page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 13-49

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35				SP	32-36.4' SAND, dusky yellowish brown, saturated, medium dense. Fine-medium. Trace silt.	
	3-8-7-9		14	Split Spoon		ML		
						SM		
	7-13-20-35		15	"		SP	36.4-37-8' Sandy SILT, olive grey, moist, stiff. Thinly laminated with sand zones between 36.7 and 36.8', 36.9 and 37'. Wood (peat-like) layers at laminae tops.	
		40						
	10-15-19-21		16	"				
						SM	37.8-39.5' SAND, dusky yellowish brown, saturated, dense. Fine-medium.	
	5-11-14-16	45	17	"				
			18	"			39.5-50' Silty SAND olive grey, saturated, dense. Very fine to fine. Thinly laminated. Beds of sand grading upward to silt. Some bed tops are clayey. Shell and wood fragments common.	
	7-14-16-25		19	"				
	10-13-15-25	50					Bottom at 50 feet.	

NOTE:
Well screen was initially set at 50', but sand bridge in auger caused the well to come up 1' during installation.

Sweet, Edwards & Associates, Inc.

BORING LOG

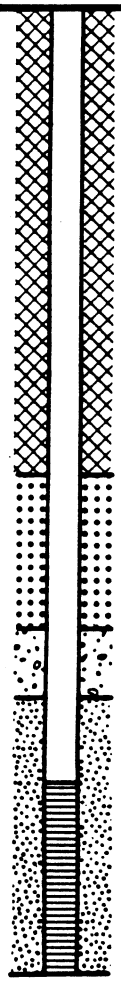
PROJECT Occidental CHemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location North of Salt Pad **Boring No.** 14-25

Surface Elevation 13.27 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/20/86 **Logged By** B.A. Butler DOM for BAB

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled, but it is located 5' south of well 14-50. See the log of 14-50 for details of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-139)
Page 1 of 1

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 14-25R
DATE COMPLETED: JUNE 4, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.3* *10.98*					
0	Refer to 14-25 for stratigraphic details.		CONCRETE				
2.5							
5.0			CEMENT/ BENTONITE GROUT				
7.5							
10.0			2" Ø SS PIPE				
12.5							
15.0			BENTONITE SEAL				
17.5			8" Ø BOREHOLE				
		-7.7					
20.0	SW-SAND (NATIVE), trace shells, medium grained, black staining, trace red sand, wet, moderate chemical odor, sheen			1SS		42	
	- trace to little shells, wet						
22.5	- trace shells, moist to wet			2SS		52	
	- no shells		SAND PACK				
			WELL SCREEN	3SS		39	
25.0		*-13.5*					
	SW-SAND, with silt pockets, medium grained, no shells, moist to wet		SUMP				
		-15.2	NATIVE MATERIAL				
27.5	END OF HOLE @ 26.5ft BGS						
30.0							
32.5							

SCREEN DETAILS
Screened Interval:
19.5 to 24.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
16.5 to 25.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Northeast of Salt Bridge **Boring No.** 14-50

Surface Elevation 13.52 ft (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/19/86 **Logged By** B.A. Butler DGW for BAB

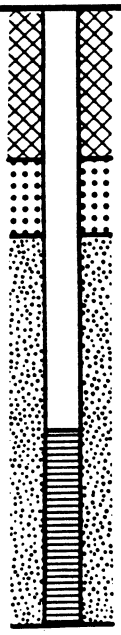
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	4-3-3-5	5	1	Split Spoon		SW	0-5'. Gravelly SAND, dusky yellowish brown, moist, loose. Fine to coarse. Coarse, angular gravel.	
	5-7-6-8		2	"		GW	5-11.5' Sandy GRAVEL, dusky yellowish brown, moist to 10', saturated below. Loose coarse angular gravel. Fine to coarse sand.	
	10-7-7-8	10	3	"				
	2-6-4-2		4	"			11.5-14.5'. Gravelly SAND, dusky yellowish brown, saturated, loose.	
	3-6-15-18	15	5	"		SW	14.5-18.9' Gravelly SAND, irridescent blue-black, saturated, dense. Angular coarse gravels. Medium fine to coarse sand. Oily sheen. Trace white precipitate. Abundant wood.	
	14-22-16-18		6	"				
	13-11-10-13		7	"		SM		
	6-6-8-13	20	8	"			18.9-20', Silty SAND, olive brown, cohesive saturated. Dense. Very fine to medium sand. 2" olive gray, silt laminae.	
	12-16-16-16		9	"		SW	20-26', SAND, brownish black, saturated. Medium dense. Fine to coarse. Fines downward. Trace shells. Silt laminae. Oily sheen from 25 to 26'.	
	10-11-51/6"	25	10	"				
	7-13-25-50		11	"		SM	26-32' Silty SAND, olive gray, saturated, dense. Fine to medium sand, with silt interbeds. Trace shells. Coarsens downward.	
	52/6"	30	12	"				
	20-32-50/4"		13	"		SP	32-49.5' Description on following page.	
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 14-50

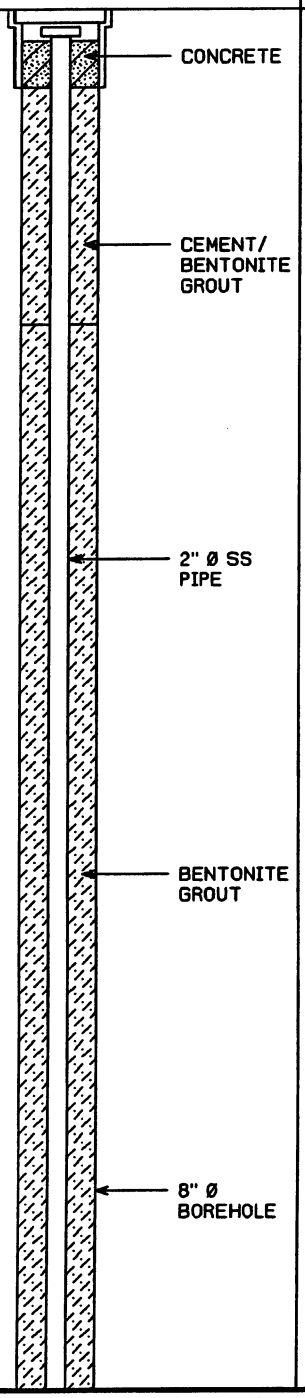
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					32-49.5' SAND, brownish black, saturated, very dense, fine-medium. Trace silt.	
	50/4"		14	Split Spoon		SP		
	50/4"		15	"				
		40						
	17-50/3"		16	"				
	23-50/5"		17	"				
		45						
	13-27 55/6"		18	"				
	16-55/6"		19	"				
		50					Bottom at 50 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 14-50R
DATE COMPLETED: JUNE 3, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.4* *10.61*					
	Refer to 14-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 14-50R
DATE COMPLETED: JUNE 3, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			BENTONITE GROUT				
-40.0			8" Ø BOREHOLE				
-42.5			BENTONITE SEAL				
-45.0	SP-SAND (NATIVE), fine to medium grained, dark gray to black, trace red sand, moist to wet	-32.6	2" Ø SS PIPE	1SS		65	
	SM/ML-SAND and SILT, layers <0.1"	-34.2					
	SP-SAND, fine to medium grained, moist to wet	-34.4					
-47.5	SW-SAND, medium grained, moist to wet, trace sheen on soil and water, trace chemical odor	-34.6	SAND PACK	2SS		13	
-50.0			WELL SCREEN	3SS		34	
				4SS		30	
-52.5	END OF HOLE @ 53.0ft BGS	-41.6	SUMP				
			NATIVE MATERIAL				
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

SCREEN DETAILS
Screened Interval:
46.5 to 51.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
43.5 to 52.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

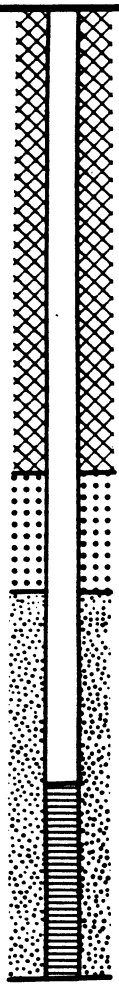
PROJECT Occidental Chemical Crop.-Tacoma, WA **Page** 1 **of** 1

Location Southeast of Salt Pad **Boring No.** 15-25

Surface Elevation 13.29 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/17/86 **Logged By** B.A. Butler DCM for BAB

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20					This boring was not sampled, but it is located 5' north of well 15-50. See the log of 15-50 for details of the geology in this vicinity.	
							Bottom at 25 feet.	

SEA-300-02a

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-141)
Page 1 of 1

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 15-25R
DATE COMPLETED: JUNE 6, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*10.8* *10.79*					
	Refer to 15-25 for stratigraphic details.		CONCRETE				
2.5							
5.0			CEMENT/ BENTONITE GROUT				
7.5							
10.0			2" Ø SS PIPE				
12.5							
15.0			BENTONITE SEAL				
17.5			8" Ø BOREHOLE				
		-8.1					
20.0	SP-SAND (NATIVE), trace to little shells, fine to medium grained, black, trace red sand, wet, trace chemical odor			1SS		26	
	- trace shells	*-10.1*	SAND PACK				
22.5	SW-SAND, slightly firm, medium grained, trace red sand, trace chemical odor	*-11.6*		2SS		80	
	SW/ML-SAND, with silt pockets, moist to wet	*-12.1*	WELL SCREEN				
	SP-SAND, trace shells, medium to fine grained, moist to wet	*-13.3*		3SS		25	
25.0	- medium to coarse grained						
	SW-SAND, medium grained, moist to wet	*-15.6*	SUMP				
27.5	END OF HOLE @ 26.5ft BGS						
30.0							
32.5							

SCREEN DETAILS
Screened interval:
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
17.0 to 26.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast of Salt Pad **Boring No.** 15-50

Surface Elevation 12.72 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/17/86 **Logged By** B.A. Butler DCM for BAB

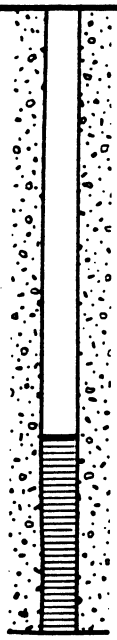
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5	1	Split Spoon		GP	0-9' Sandy GRAVEL, mottled orange-brown and medium brown, moist, very loose. Medium, angular gravels (1"-2") in fine to medium sand.	
	3-2-1-3							
			2	"				
	1-20"	10						
			3	"		GP	9-17' GRAVEL, black, wet, loose. ¼"-1½" angular gravels. Broken pieces of glass common. Some wood and grasses. Trace med. fine sand.	
	1-2-3-2							
	5-8-10-12		4	"				
		15						
	11-12-10-12		5	"				
	10-10-10-11		6	"		GP	17-23.8' Sandy GRAVEL, black, saturated, medium dense. ¼"-1", angular gravel in a fine to coarse sand. Trace glass shards and wood. Trace silt 22.5-23.8'.	
		20						
	5-7-17-25		7	"				
	10-8-10-13		8	"		SP	23.8-25.6' Gravelly SAND, olive black, saturated, medium dense. ¼"-½" angular gravels in a fine-coarse sand. Trace shells & silt from 25-25.6'. (BASE OF FILL)	
		25						
	4-24-30-53		9	"		ML		
	22-13 12-13		10	"		SM	25.6-28.1' Sandy SILT, olive gray, saturated, very stiff. Fine to medium sand. Shell fragments. Gradational lower contact.	
		30						
	3-2-3-11		11	"				
	15-27-50/6"		12	"		SP-SM	See next page for description.	
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 15-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					28.1-33' Silty SAND, olive gray, saturated, loose to very dense, fine. With interbeds of sandy silt. Distinct contacts.	
	6-15-24-19		13	Split Spoon				
	13-20-23-52		14	"		SP-SM	33-44.5' Silty SAND, olive black, dense, saturated. Fine to coarse sand, with silty fine to medium sand interbeds. Trace shells in silty sand. 1" silt nodules in sand layers. Trace fine gravel (to 0.5") at 40-44.5'.	
	7-14-20-24	40	15	"				
	55/6"		16	"		ML		
	7-9-13 20	45	17	"		SP	44.5-46' Sandy SILT, olive gray, saturated. Very fine to fine sand. Stiff Vaguely laminated. Distinct underlying contact.	
	11-33-34-34		18	"			46-49.5', SAND, olive black saturated, very dense. Fine to medium sand. Trace silt. Well sorted.	
		50					Bottom at 50 feet.	

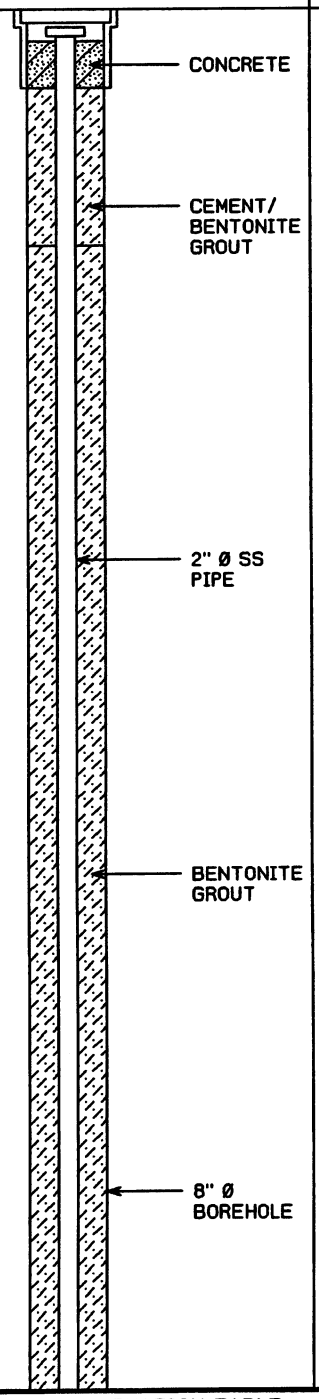
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-142)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 15-50R
DATE COMPLETED: JUNE 5, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*10.9* *10.60*					
	Refer to 15-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 15-50R
DATE COMPLETED: JUNE 5, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BENTONITE GROUT; 8" Ø BOREHOLE				
40.0			BENTONITE SEAL				
42.5			2" Ø SS PIPE				
		-33.1					
45.0	SP-SAND (NATIVE), trace to little silt, trace shells, medium grained, dark gray to black, trace red sand, moist to wet	-34.1	SAND PACK	1SS		26	
	SP-SAND, medium to fine grained dark gray to black, trace red sand, moist to wet			2SS		40	
47.5			WELL SCREEN				
				3SS		49	
50.0			SUMP				
	END OF HOLE @ 51.5ft BGS	-40.6					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
45.0 to 50.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
42.0 to 51.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

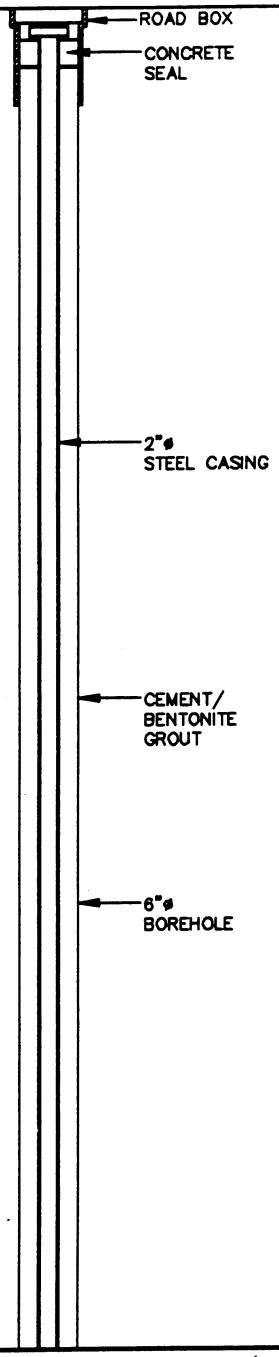
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-55)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: 15-120 (Page 1 of 4)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.75				
	GROUND SURFACE	11.3				
	For stratigraphy from 0.0 to 50.0 ft BGS see 15-50 located 10 ft south.					
2.5						
5.0						
7.5						
10.0						
12.5						
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						
32.5						



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-55)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: 15-120

DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø STEEL CASING			
45.0						
47.5						
50.0	SM-SAND, little silt, loose, fine grained, dark olive brown, wet, irridescent sheen, slight chemical odor	-38.8	CEMENT/ BENTONITE GROUT	1SS	X	50
52.5	- little to some silt, trace wood			2SS	X	>50
55.0	- trace silt seams, wood - gray fine sandy silt seam		6"ø BOREHOLE	3SS	X	>50
57.5				4SS	X	63
60.0	- some silt, occasional silty interbeds, trace wood layers, medium stiff, dark olive brown to olive gray			5SS	X	>100
62.5				6SS	X	75
65.0				7SS	X	70

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-55)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: 15-120
(Page 3 of 4)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5	– no wood layers			8SS	X	95
70.0	– little to some silt			9SS	X	75
72.5				10SS	X	50
75.0	– little silt, trace silty lenses and seams		2"ø STEEL CASING	11SS	X	>100
77.5				12SS	X	>100
80.0	– little to some silt, trace thin sandy silt interbeds			13SS	X	32
82.5			CEMENT/ BENTONITE GROUT	14SS	X	45
85.0	– trace gray silt beds			15SS	X	>100
87.5	SM/ML-SAND and SILT, interbbeded, dark olive gray and gray	-76.3	6"ø BOREHOLE	16SS	X	70
90.0	ML-SILT, little to some fine sand, occasional dark olive gray silty sand interbed, trace silt lenses, gray, wet	-78.8		17SS	X	>100
92.5	– hard			18SS	X	>100
95.0				19SS	X	>100
97.5	– very stiff sandy silt with trace shells and decayed wood, dark olive gray silty sand interbeds, loose			20SS	X	95

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

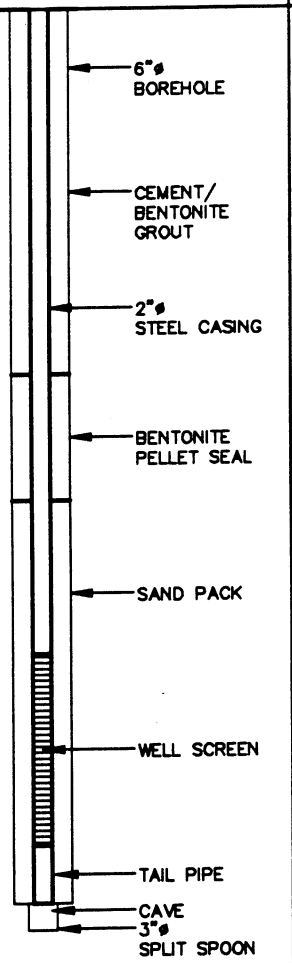
(L-55)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: 15-120 (Page 4 of 4)
DATE COMPLETED: FEBRUARY 15, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
100.0	– some fine sand, hard, olove gray, moist to wet	
102.5		
105.0		
107.5	SM–SAND, little to some silt, trace silt interbeds, fine grained, dark olive gray, wet	-96.3
110.0	ML–SILT little to some fine sand, trace silty sand interbeds, trace decayed wood, hard, dark olive gray to black, moist to wet	-98.8
112.5		
115.0	SP–SAND, fine grained, dark olive brown, wet	-103.8
	ML–SILT, some fine sand, stiff, dark olive gray, wet, faintly laminated	-104.8
117.5	– thin gravel seam	
	SM–SAND, some silt, fine grained, dark olive brown, wet	-107.8
120.0		
	END OF HOLE @ 121.5 FT. BGS	-110.3
122.5	NOTES: 1. Sample method consisted of jar driven split spoons.	
125.0		
127.5		
130.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
114.3 to 119.3' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
110.3 to 120.8' BGS
Material -# 10x20 Sand

SAMPLE NUMBER	STATE	'N' VALUE
21SS		>100
22SS		>100
23SS		>100
24SS		>100
25SS		>100
26SS		>100
27SS		>100
28SS		80
29SS		95

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

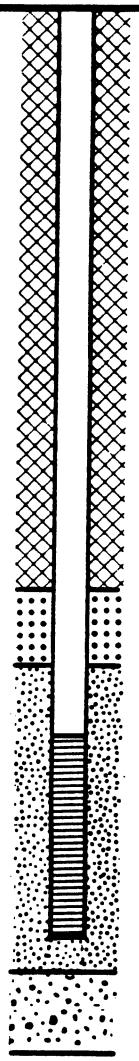
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location North of G-4 Building (Boiler)
Boring No. 16-25

Surface Elevation 13.86 ft. (Top of 2" steel casing)
Drilling Method Hollow Stem Auger

Total Depth 27 feet
Drilled By Soil Sampling Service, Inc.

Date Completed 11/13/86
Logged By D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30					This boring was not sampled. It is located 5 feet west of well 16-50. See the log for 16-50 for details of the geology in this vicinity.	
							Bottom at 27 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location North of C-4 Building (Boiler) **Boring No.** 16-50

Surface Elevation 13.42 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/13/86 **Logged By** D.E. Mills

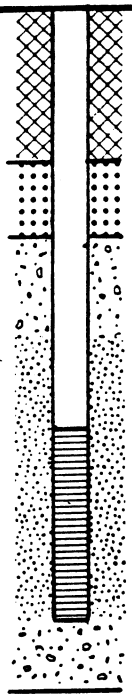
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0					0-11.0' SAND, brownish black, moist to 7 feet, saturated below, very loose to loose. Fine to medium, trace to 10% coarse sand. Some shell fragments. (FILL)	
	3-3-2-2		1	Split Spoon				
	1-1-1-1	5	2	"		SP		
	1-1-3-4		3	"				
	4-6-8-8	10	4	"				
	10-11-15-18		5	"		SM	11.0-15.0' Silty SAND, dusky yellowish brown, saturated, medium dense. Fine to medium. Trace gravel (subrounded to 0.75-in).	
	8-7-8-15	15	6	"		ML	15.0-16.5' Sandy SILT, brownish black, moist, very stiff. Massive. Wood abundant between 15.5 and 16.5'.	
	50/5"		7	"		SP-SM	16.5-23.8' Silty SAND, brownish black, moist very dense. Fine to medium. Coarse sand also between 17 and 17.2 ft. Unsorted. (till-like)	
	16-16-18	20	8	"				
	23-40-52/6"		9	"				
	6-13-24-50/4"	25	10	"		ML	23.8-24.5' Sandy SILT, olive black, moist, very stiff. Unsorted (till-like); trace clay.	
	36-30-40-50/4"		11	"		SM	24.5-30.0' Silty SAND, olive black, saturated, fine to medium. Vague layering indicated by increased silt content at several zones. Thin (0.5ft) layer of sandy silt at 29.5-30 feet.	
	34-50/6"	30	12	"				
	13-15-15-18		13	"		SP-SM	30.0-38.5' See description on following page.	
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 16-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	7-24-28-42	35	14	Split Spoon		SP-SM	30.0-38.5' SAND, dusky yellowish brown, saturated, very dense. Fine. Silty between 30 and 30.5 ft.	
	16-25-32-33		15	"				
	9-16-25-24	40	16	"		SP-SM	38.5-47.0' SAND, dusky yellowish brown, saturated, dense to very dense. Very fine to fine. Vague, thin layering indicated by silty zones (laminated). Sulphurous odor.	
	9-12-21-21		17	"				
	5-14-23-23	45	18	"				
	8-9-17-23		19	"		SP	47.0-51.5' SAND, dusky yellowish brown, saturated, dense to very dense. Fine to medium. Trace silt.	
	10-21-38-50	50	20	"				
							Bottom at 51.5 feet.	
		55						

Sweet, Edwards & Associates, Inc.

BORING LOG

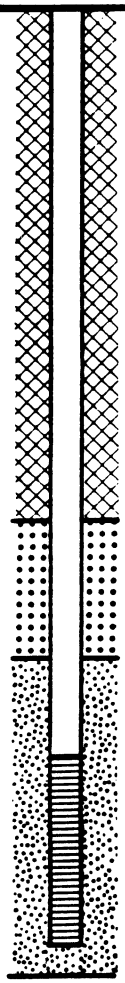
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Northeast corner of site, adjacent to shoreline **Boring No.** 17-24

Surface Elevation 12.34 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/7/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled. It is located 5 feet west of well 17-50. See the log for 17-50 for a description of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location Northeast corner of property, adjacent to shore line **Boring No.** 17-50

Surface Elevation 13.34 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11/7/86 **Logged By** D.E. Mills

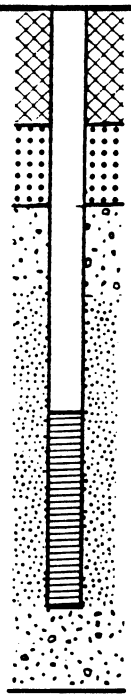
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0						
	3-6-6-3		1	Split Spoon		SP	0-14.5' Gravelly SAND, brown moist, loose. Fine to medium. Gravel to 3-in dia. angular. Cobble sized concrete fragments common.	
	1-1-1-3	5	2	"		ML	Red brick fragments abundant; also cotton(?) fibers. Trace silt.	
	1-3-1-2		3	"		SM	@4.5-6.5 ft, Sandy SILT zone, brown, moist, very soft.	
	2-1-1-2	10	4	"		SP	@6.5-9 ft, Silty SAND, brown, saturated, loose. Pieces of rubber, rope returning up auger flights.	
	2-3-5-7		5	"				
	2-5-10-12	15	6	"		SM	14.5-18.5' Silty SAND, black, saturated, medium dense, fine to coarse. Trace gravel to 1-in dia, angular. (FILL)	
	9-10-11-10		7	"		ML		
	3-30-50/5"	20	8	"			18.5-19.9' Clayey SILT, light gray, moist, very stiff. Massive structure.	
	5-5-7-10		9	"			19.9-27.0' Silty SAND, brown with red specks, saturated, loose to medium dense. Fine to medium. Vaguely layered. Abundant shell fragments, sulphurous odor.	
	1-4-4-8	25	10	"		SM	@22-24 ft, light gray silt lense, moist, very stiff. Massive.	
	3-10-38-9		11	"				
	9-12-16-21	30	12	"		SP	27.0-37.2' SAND, gray-brown, saturated, dense. Trace silt Shell fragments abundant. Lenses of laminated clayey silt common, (to 0.5' thick).	
	11-24-26-26		13	"				
		35	14	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 17-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	6-8-18-19	35	14	Split Spoon		SP	See previous page for description.	
	6-11-12-16		15	"		SP	37.2-49.0' SAND and Silty SAND, gray-brown, saturated, medium dense to dense, fine to medium. Thin layers (to 3-in thick) of fine sand grading upward to finer sand and silty sand bed tops. Laminated at several zones. Wood fragments common between 41 and 45.5 feet.	
	6-8-15-23	40	16	"		SP-SM		
	8-13-17-17		17	"				
	10-22-29-21	45	18	"		SP		
	11-11 20-34		19	"				
	2-5-10-9	50	20	"		SM	49.5-51.5' Silty SAND, gray, saturated, loose to medium dense, very fine to fine. Thinly laminated below 51 feet.	
		55					Bottom at 51.5 feet.	

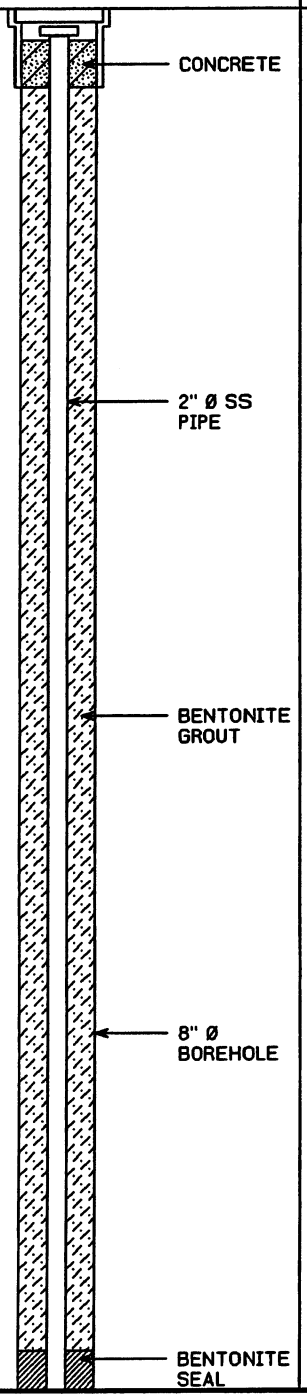
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-143)
Page 1 of 2

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 17-50R
DATE COMPLETED: JUNE 9, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.4* *11.07*					
	Refer to 17-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 1002-15
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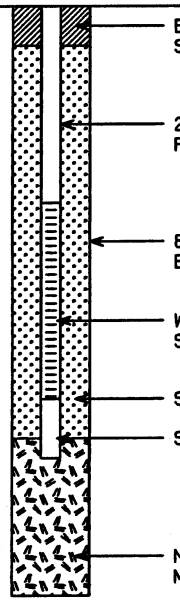
HOLE DESIGNATION: 17-50R
DATE COMPLETED: JUNE 9, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5							
40.0							
42.5							
45.0	SP-SAND (NATIVE), trace shells, medium to fine grained, dark brown, trace red sand, moist to wet	-32.6 -33.0 -33.5		1SS		>50	
	SM/ML-SAND and SILT, fine grained sand, gray-brown, moist to wet	-35.6		2SS		90	
47.5	SP-SAND, firm, medium to fine grained	-36.0					
	ML-SILT, little fine sand, hard	-36.6		3SS		23	
	SM-SAND, little to trace black silt, firm, fine grained, moist to wet	-38.0					
50.0	ML-SILT, trace fine grained sand, firm, wet	-38.6					
	SM/ML-SAND and SILT, fine sand, layers						
52.5	END OF HOLE @ 50.0ft BGS						
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							



SCREEN DETAILS
Screened interval:
40.0 to 45.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
36.0 to 46.0ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	14.06 11.67					
0	AGGREGATE FILL, sand, gravel, small stones						
2				1RS		5.0	
4				-001			
6							
	SP-SAND (FILL), trace silt, fine grained, loose, dark brown, white grains and red grains throughout, moist, trace sand size shell fragments (probable fill)	4.67		2RS		5.0	
8			BENTONITE GRAVEL				
10	FILL, wood fragments, with clay, small pieces of glass, brick, black, wet	1.67					
12				3RS		5.0	
14			6" BOREHOLE				
				-002			
16	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown to gray, white grains and red grains throughout, wet, trace sand size shell fragments	-4.13					
				4RS		5.0	
18			SAND PACK	-003			
	- faint laminations at 19.3ft BGS		PORT 1 SCREEN 1				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	ML-CLAYEY SILT, with sand, firm, slight plasticity, medium to dark gray, wet	-8.43	PORT 1 SCREEN 2 PORT 1 SCREEN 3				
22	- increase in sand content at 21.5ft BGS - wood fragments at 21.9ft BGS - shell fragments at 22.0ft BGS		TRANSDUCER #1 PORT 1 SCREEN 4	5RS		5.0	
	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments	-10.93	PORT 1 SCREEN 5				
24	- zone of partial to nearly complete shell fragments at 22.9ft BGS - sandy at 24.2ft BGS		PORT 1 SCREEN 6				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments throughout	-13.53		-004			
26	- cobble size concrete at 25.9ft BGS - partially complete shell fragments at 26.0ft BGS			6RS		4.0	
28	- 6" clayey small cobble size subangular gravel lens, with sand at 26.2ft BGS - clay clasts at 27.0ft BGS - clay clasts at 27.9ft BGS - clay clasts at 28.9ft BGS						
30							
32	ML-SANDY SILT, firm, slight plasticity, gray, wet, elevated pH (10)	-20.03					
	- 3" cobble at 32.4ft BGS	-20.73		7RS		5.0	
34	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, elevated pH (10)		COATED BENTONITE PELLETS				
	ML-SANDY SILT, trace clay, firm, slight plasticity, medium gray, wet	-22.93					
	SM-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size and larger shell fragments	-23.53		-005			
36							
				8RS		5.0	
38	- grading to silty very fine sand, medium gray, elevated pH (10) at 38.1ft BGS						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size	-27.23					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
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DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	shell fragments						
	- 3" clayey sand lens, medium gray, wet at 41.3ft BGS						
42	SM-SILTY SAND, very fine grained, compact, well sorted, medium to dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, elevated pH (9.5)	-30.33		9RS		5.0	
	- silt, with sand at 42.6ft BGS		SAND PACK				
44	- grading to very fine silty sand, elevated pH (11) at 42.8ft BGS		PORT 2 SCREEN 1				
			PORT 2 SCREEN 2	-006			
	- sandy at 45.6ft BGS						
46			PORT 2 SCREEN 3				
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)	-34.73	TRANSDUCER #2				
			PORT 2 SCREEN 4	10RS		5.0	
48			PORT 2 SCREEN 5				
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, medium to dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)	-37.03					
			PORT 2 SCREEN 6				
50							
52	- wood fragments at 52.4ft BGS			11RS		4.0	
54							
56							
				12RS		4.0	
58	- silty, neutral pH (7) at 58.1ft BGS						
			COATED BENTONITE PELLETS				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/10/12

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HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
62	- wood fragments at 60.1ft BGS			13RS		4.0	
64	- wood fragments at 63.0ft BGS						
66	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)	-54.43		14RS		4.0	
68			SAND PACK				
70	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size and larger shell fragments, neutral pH (7)	-58.43	PORT 3 SCREEN 1 PORT 3 SCREEN 2				
72	- 4" zone of partial shell fragments at 71.6ft BGS		PORT 3 SCREEN 3 TRANSDUCER #3 PORT 3 SCREEN 4	15RS		4.0	
74			PORT 3 SCREEN 5 PORT 3 SCREEN 6				
76							
78	- increase in clay content at 77.4ft BGS			16RS		4.0	
	SC-CLAYEY SAND, with silt, very fine grained, compact, well sorted, dark gray, white grains and red grains, wet, trace sand size shell fragments, neutral pH (7)	-66.53					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

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FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
82				17RS		4.0	
84	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, dark gray, white grains and red grains, wet, trace sand size shell fragments, neutral pH (7)	-72.43	COATED BENTONITE PELLETS				
86	SC-CLAYEY SAND, with silt, very fine grained, compact, well sorted, dark gray, white grains and red grains, wet, trace sand size shell fragments, neutral pH (7)	-74.83					
88	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size and larger shell fragments, neutral pH (7) - partially intact shell fragments at 88.4ft BGS	-76.43		18RS		4.0	
90							
92				19RS		4.0	
94			SAND PACK PORT 4 SCREEN 1				
96	SM/ML-SANDY SILT TO SILTY SAND, trace clay, very fine grained, compact, gray to gray brown, trace white grains and red grains, wet, neutral pH (7) - 3" fine sand seam, trace silt, white grains and red grains, gray, wet at 95.2ft BGS - 3" fine sand seam, trace silt, white grains and red grains, gray, wet at 95.4ft BGS	-82.83	PORT 4 SCREEN 2 PORT 4 SCREEN 3				
98	SP-SAND, trace silt, very fine to fine grained, well sorted, gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)	-85.13	TRANSDUCER #4 PORT 4 SCREEN 4 PORT 4 SCREEN 5 PORT 4 SCREEN 6	20RS		4.0	

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CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
102	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, gray to gray brown, white grains and red grains throughout, wet, trace sand size shell fragments - increase in clay content at 103.0ft BGS - 2" fine sand seam, with wood fragments at 103.5ft BGS	-90.03		21RS		4.5	
104	- increase in sand content at 103.7ft BGS - increase in clay content at 103.8ft BGS	-92.63					
106	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7) - trace fine gravel, well rounded at 104.5ft BGS	-93.83	COATED BENTONITE PELLETS				
108	SM-SILTY SAND, very fine grained, compact, well sorted, gray to dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7) - 2" fine sand seam at 107.3ft BGS			22RS		4.0	
110				-007			
112	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7)	-100.33		23RS		4.0	
		-101.53	SAND PACK				
114	SM-SILTY SAND, very fine to fine grained, compact, well sorted, gray to dark gray, white grains and red grains throughout, wet, trace sand size shell fragments, neutral pH (7) - thin fine sand seams at 115.4ft BGS		PORT 5 SCREEN 1 PORT 5 SCREEN 2				
116			PORT 5 SCREEN 3				
118			PORT 5 SCREEN 4 PORT 5 SCREEN 5	24RS		4.5	
	- thin fine sand seams at 118.6ft BGS - increase in clay content (trace clay) at 119.4ft BGS		TRANSDUCER #5 PORT 5				

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
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FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
122			SCREEN 6	25RS		4.0	
		-111.83					
124	SC-CLAYEY SAND TO SANDY CLAY, with silt, very fine grained, compact to firm, slight plasticity, slow dilatancy, gray to gray brown, white grains and red grains, wet, trace sand size shell fragments						
126							
128				26RS		4.0	
130							
132	- thin sand seam at 132.1ft BGS			27RS		4.0	
	- thin sand seam at 133.4ft BGS						
134	- increase in sand content at 134.5ft BGS						
	- increase in clay content at 135.6ft BGS						
136	- increase in sand content at 136.0ft BGS						
138				28RS		4.0	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
142	- interbedded silt and sand partings at 142.0ft BGS		COATED BENTONITE PELLETS	29RS		5.0	
144	- increase in sand content at 144.0ft BGS						
146							
148	- thin >1" subangular gravel seam at 148.1ft BGS - thin >1" subangular gravel seam at 148.3ft BGS	-136.83		30RS		5.0	
150	GP-GRAVEL, with cobble, with sand, fine to coarse gravel, fine to coarse sand, well sorted, dark gray to black, wet, shell fragments	-138.33					
152	SM-SAND, with silt, trace fine gravel, trace clay, fine to medium and coarse sand, compact, well sorted, gray to green, wet, neutral pH (7)			31RS		5.0	
154							
156							
158				32RS		5.0	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/10/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
162				33RS		5.0	
164			SAND PACK PORT 6 SCREEN 1				
	- increase in clay content at 165.0ft BGS		PORT 6 SCREEN 2				
166			PORT 6 SCREEN 3				
			TRANSDUCER #6 PORT 6 SCREEN 4	34RS		5.0	
168	- faintly laminated at 168.0ft BGS		PORT 6 SCREEN 5				
			PORT 6 SCREEN 6				
170	- grading to fine to medium sand, with silt, trace fine gravel at 170.0ft BGS						
172							
174				35RS		5.0	
			CMT ANCHOR				
176							
			COATED BENTONITE PELLETS				
178							

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CHEMICAL ANALYSIS

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
182				36RS		5.0	
184							
	END OF BOREHOLE @ 185.0ft BGS	-173.33					
186	NOTE:						
	GLACIAL CONTACT ASSUMED AT 150.0FT BGS						
188	PORT 1 SAND PACK 17.7 TO 25.0FT BGS (-6.03 TO -13.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.4, 20.4, 21.4, 22.4, 23.4 AND 24.4FT BGS (-7.73, -8.73, -9.73, -10.73, -11.73 AND -12.73FT NGVD) TRANSDUCER (# 1200810) 21.90FT BGS (-10.23FT NGVD)						
190							
192	COATED BENTONITE PELLETS 25.0 TO 43.1FT BGS (-13.33 TO -31.43FT NGVD)						
194	PORT 2 SAND PACK 43.1 TO 50.0FT BGS (-31.43 TO -38.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.44, 45.44, 46.44, 47.44, 48.44 AND 49.44FT BGS (-32.77, -33.77, -34.77, -35.77, -36.77 AND -37.77FT NGVD)						
196							
	TRANSDUCER (# 1200812) 46.94FT BGS (-35.27FT NGVD)						
198	COATED BENTONITE PELLETS 50.0 TO 67.4FT BGS (-38.33 TO -55.73FT NGVD)						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
202	PORT 3 SAND PACK 67.4 TO 75.3FT BGS (-55.73 TO -63.63FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.49, 70.49, 71.49, 72.49, 73.49 AND 74.49FT BGS (-57.82, -58.82, -59.82, -60.82, -61.82 AND -62.82FT NGVD) TRANSDUCER (# 1203033) 71.99FT BGS (-60.12FT NGVD) COATED BENTONITE PELLETS 75.3 TO 93.2FT BGS (-63.63 TO -81.53FT NGVD)						
204							
206							
208	PORT 4 SAND PACK 93.2 TO 100.0FT BGS (-81.53 TO -88.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.51, 95.51, 96.51, 97.51, 98.51 AND 99.51FT BGS (-82.84, -83.84, -84.84, -85.84, -86.84 AND -87.84FT NGVD) TRANSDUCER (# 1203039) 97.01FT BGS (-85.34FT NGVD) COATED BENTONITE PELLETS 100.0 TO 122.8FT BGS (-88.33 TO -111.13FT NGVD)						
210							
212	PORT 5 SAND PACK 112.8 TO 120.0FT BGS (-101.13 TO -108.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 114.50, 115.50, 116.50, 117.50, 118.50 AND 119.50FT BGS (-102.83, -103,83, -104.83, -105.83, -106.83 AND -107.83FT NGVD) TRANSDUCER (# 1204320) 119.0FT BGS (-107.33FT NGVD) COATED BENTONITE PELLETS 130.0 TO 163.8FT BGS (-118.33 TO -152.13FT NGVD)						
214							
216							
218	PORT 6						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 17C
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
222	SAND PACK 163.8 TO 170.0FT BGS (-152.13 TO -158.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 164.46, 165.46, 166.46, 167.46, 168.46 AND 169.46FT BGS (-152.79, -153.79, -154.79, -155.79, -156.79 AND -157.79FT NGVD) TRANSDUCER (# 1204317) 166.96FT BGS (-155.29FT NGVD)						
224	CMT ANCHOR 175.0FT BGS (-163.33FT NGVD)						
226	COATED BENTONITE PELLETS 170.4 TO 185.0FT BGS (-159.23 TO -173.33FT NGVD)						
228							
230							
232							
234							
236							
238							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southeast of H-4 cell house

Boring No. 18-25

Surface Elevation 14.02 ft. (Top of 2" steel casing)

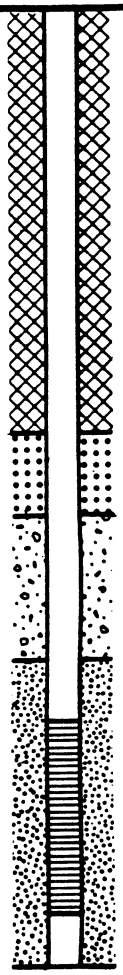
Drilling Method Hollow Stem Auger

Total Depth 25 Feet

Drilled By Soil Sampling Service, Inc.

Date Completed 12/1/86

Logged By D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled but it is located 5' east of well 18-50. See the log of 18-50 for details of the geology in this vicinity. Bottom at 25 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location Southeast of D-7 Cell House **Boring No.** 18-50

Surface Elevation 13.77 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 Feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 11-26-86 **Logged By** B.A. Butler DEM for BAB

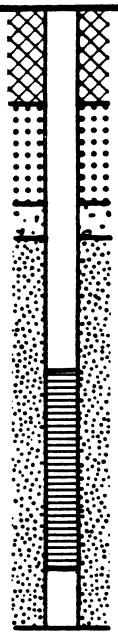
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	3-3-3-5	5	1	Split Spoon		SW-SP	0-16', SAND, dusky yellowish brown, moist to 7.5', saturated below, loose. Fine to coarse sand. Trace shell fragments. Trace ¼"-½" silt nodules from 10-14.5'. Fines downward to a medium-fine to medium sand in basal 0.8'.	
	2-3-5-6		2	"				
	3-6-6-7	10	3	"				
	4-7-8-8		4	"				
	1-2-5-9	15	5	"				
	1-2-1-5		6	"		SM	16-22' Silty SAND, olive black, saturated, loose, Fine to coarse sand. with ½" to 1" olive gray silt laminae. Abundant wood fragments. Trace shell fragments. Trace silt nodules from 20-22'.	
	2-2-3-3	20	7	"				
	2-2-3-3		8	"				
	5-8-15-10	25	9	"		SW	22-30.7', SAND, brownish black, saturated. Medium dense. Fine to medium coarse. Fining downward. Trace shell fragments, and silt.	
	3-7-9-12		10	"				
	6-17-18-19	30	11	"				
	7-22-52/6"		12	"		SM	30.7-41', Description on following page.	
	8-22-38-37	35	13	"				

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 2 **of** 2

Boring No. 18-50

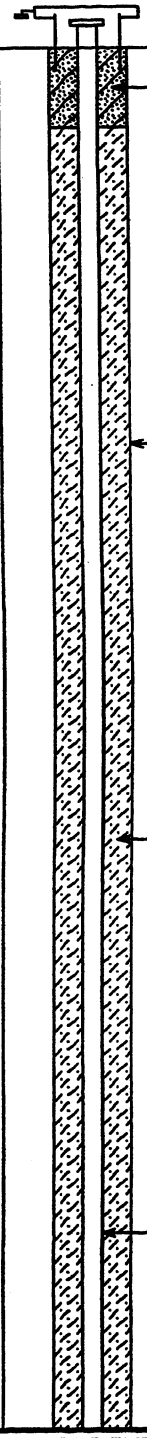
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					30.7-41' Silty SAND, brownish black, saturated, very dense. Fine to medium sand with olive grey, sandy (very fine) silt nodules and laminae. Carbonized wood fragments from 38.5-39.5'.	
	8-7-20-26		14	Split Spoon				
	6-24-30-26		15	"		SM		
		40						
	7-12-11-12		16	"				
						ML	41-44' Sandy SILT, olive grey, saturated. Very fine sand. Sand content decreasing downwards.	
	3-2-1-2		17	"				
		45				SM	44.5-49.5' Silty SAND, olive brown, saturated, loose. Very fine to fine sand.	
	2-2-2-2		18	"				
	4-3-5-12		19	"				
		50					Bottom at 50 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 100 FEET EAST OF 18-50

HOLE DESIGNATION: 18-50R
DATE COMPLETED: SEPTEMBER 17, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*13.67* *12.0*					
	For overburden stratigraphy refer to stratigraphic and instrumentation log for 18-50.						
2.5							
5.0							
7.5							
10.0							
12.5							
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE: REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: 100 FEET EAST OF 18-50

HOLE DESIGNATION: 18-50R
DATE COMPLETED: SEPTEMBER 17, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BENTONITE GROUT; 8" Ø BOREHOLE; BENTONITE CHIPS; 2" Ø BLACK IRON PIPE; WELL SCREEN; SAND PACK; TAILPIPE				
40.0							
42.5							
45.0							
47.5							
50.0							
	END OF HOLE @ 51.5ft BGS	-39.5					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
45.0 to 50.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
42.0 to 51.5ft BGS
Material: 20-40 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

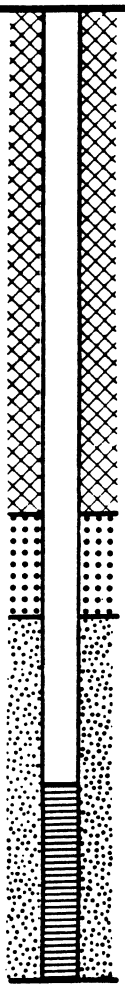
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location North of Shop (E-3)
Boring No. 19-25

Surface Elevation 13.22 ft. (Top of 2" steel casing)
Drilling Method Hollow Stem Auger

Total Depth 25 feet
Drilled By Soil Sampling Service, Inc.

Date Completed 9/15/86
Logged By D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled. It is located 3 feet east of well 19-50. See the log for 19-50 for details of the geology in this vicinity. Bottom at 25 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location North of Shop (E-3) **Boring No.** 19-50

Surface Elevation 13.31 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/15/86 **Logged By** P.J. Rowland

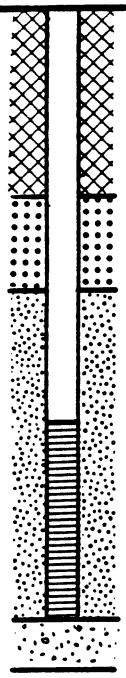
WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				SM	0-13.0' Silty SAND, brown, moist to 7.5 ft, saturated below 7.5 ft, moderately dense to dense. Sand fine to medium, variable silt content. Trace fine gravel (to 1/2-in dia). Abundant shells from 9 to 12 feet. (FILL)	
	2-3-4-4		1	Split Spoon				
	3-4-5-6	5	2	"				
	2-3-5-6		3	"				
	4-8-18-19	10	4	"				
	18-40-50/6"		5	"				
	16-15-40-50/6"	15	6	"		SM	13.0-21.5' Silty SAND, brown, saturated, medium dense to dense. Fine. Individual beds to 0.5-in thick, generally fining upward to silty bed tops. Shell and wood fragments common in fine-grained zones.	
	6-9-15-10		7	"				
	10-13-6-8	20	8	"				
	4-5-10-19		9	"		SP	21.5-25.0' SAND, brown, saturated, loose to medium dense. Fine to medium, coarser downward. Sulphurous odor.	
	19-13-13-15	25	10	"				
	4-20-31-38		11	"		SM	25.0-51.5' See description on following page.	
	10-15-15-23	30	12	"				
	14-23-31-37		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 19-50

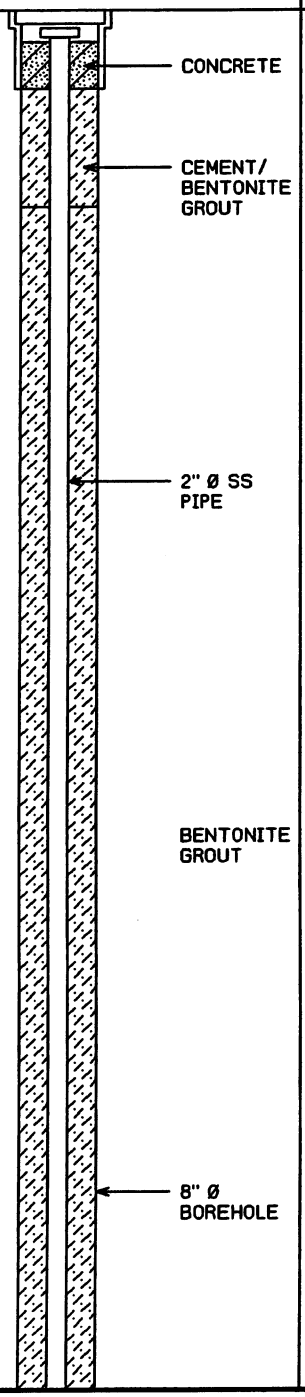
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	8-12-15-18	35	14	Split Spoon			25.0-51.5' Silty SAND, brown, saturated, medium to very dense. Fine to medium sand. Individual beds generally finer grained (silt) upward with gradational contacts, ranging in thickness from 0.25-in to 6-inches. Shell and wood fragments common at fine zones.	
	8-12-18-21		15	"				
	4-13-17-18	40	16	"				
	6-15 21-29		17	"				
	7-14-27-44	45	18	"		SM		
	10-18-26-38		19	"				
	8-55/6"	50	20	"				
							Bottom at 51.5 feet.	
		55						

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 19-50R
DATE COMPLETED: JUNE 7, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.2* *10.41*					
	Refer to 19-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 19-50R
DATE COMPLETED: JUNE 7, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BENTONITE GROUT				
40.0			2" Ø SS PIPE				
42.5			BENTONITE SEAL				
		-32.8	8" Ø BOREHOLE				
45.0	SM/ML-SAND and SILT (NATIVE), fine sand, trace red sand, moist to wet	-34.0		1SS		65	
	SP-SAND, trace silt, fine grained, brown, trace red sand, moist to wet		WELL SCREEN	2SS		55	
47.5	– little to trace silt, trace shells, moist to wet						
		-37.3					
	SP/ML-SAND and SILT, layers, moist to wet	-37.5	SAND PACK	3SS		>50	
50.0	SP-SAND, trace silt, fine grained, brown, trace red sand, moist to wet						
		-40.3	SUMP				
	END OF HOLE @ 51.5ft BGS						
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
45.0 to 50.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
41.5 to 51.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

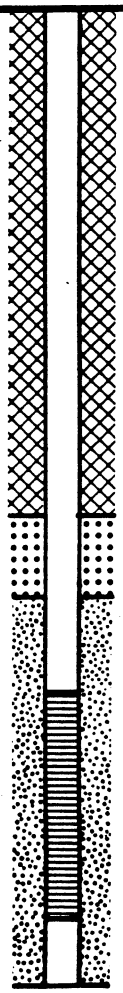
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Northwest side of Salt Pad **Boring No.** 20-25

Surface Elevation 11.66 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/2/86 **Logged By** D.E. Mills DEM

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled, but it is located approx. 6' north of well 20-50. See the log of 20-50 for details of the geology in this vicinity.	
							Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Northwest side of Salt Pad **Boring No.** 20-50

Surface Elevation 11.53 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/2/86 **Logged By** D.E. Mills DEM ✓GMW

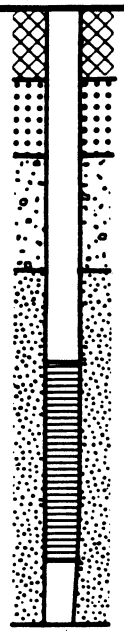
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
						SW	0-2.5' Gravelly SAND, brown moist, angular gravel to 1" dia. Asphaltic concrete top 4".	
	6-8-8-9	5	1	Split Spoon		SP	2.5-11.5' SAND, dark yellowish brown, moist to 8.5', saturated below, loose. Very fine to medium, trace coarse. Trace fine gravel (to 0.75" dia. sub-angular) from 2.5-7'. Some shell fragments. (FILL)	
	3-5-7-7		2	"				
	3-3-5-6	10	3	"				
	3-5-6-5		4	"				
	4-4-5-3		5	"		SP-SM	11.5-18 SAND, dusky yellowish brown, saturated, loose. Fine to medium. Vague bedding to 6" thickness indicated by silty zones.	
	5-7-8-8	15	6	"				
	2-5-6-5		7	"		CL SM	18-18.8' Silty CLAY, brownish black, saturated, medium stiff. Thinly laminated. Trace fine sand.	
	5-5-7-7	20	8	"		SP-SM	18.8-26' Silty SAND, dusky yellowish brown, saturated, loose to medium dense. Fine to medium. Some shell fragments. Variable silt/sand ratios.	
	5-10-16-20		9	"				
	3-4-4-3	25	10	"				
	1-6-6-8		11	"		ML	26-28.5' Sandy SILT with clay, olive grey, saturated, soft. Thinly laminated. Unbroken shells are common.	
	7-12-10-11	30	12	"			28.5-42.5' Description on following page.	
	3-6-11-10		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, Wa

Boring No. 20-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35					28.5-42.5' Silty SAND, dusky yellowish brown, saturated, medium to very dense. Fine to medium. Variable silt/sand ratios, generally beds of sand grading upward to silty sand bed tops. Beds to 0.5" thick. Laminated sandy SILT (olive grey) between 38.3 and 38.7'.	
	3-13-28-25		14	Split Spoon		SM		
	6-13-16-27		15	"		ML		
		40	16	"		SP-SM		
	13-50/6"							
	4-6-13-15		17	"		SM	42.5-46.2', Silty SAND, dusky yellowish brown, Medium dense. saturated. Thin interbeds of sand with sandy silt, some clayey silt zones. Variable silt/sand ratios.	
		45						
	3-12-16-29		18	"				
	3-4-4-8		19	"		ML	46.2-50' Sandy SILT, olive grey, medium stiff, saturated. Laminated with silty sand laminae.	
		50					Bottom at 50 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

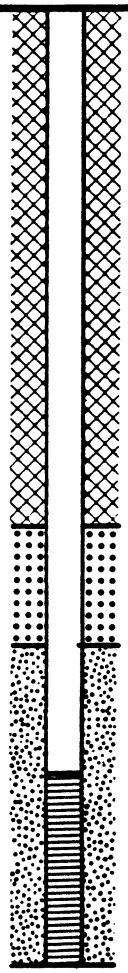
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location North of Medical Building **Boring No.** 21-25

Surface Elevation 13.99 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/16/86 **Logged By** B.A. Butler

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled. It is located 5 feet east of well 21-48. See the log for 21-48 for a description of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 21-25R
DATE COMPLETED: JUNE 6, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*13.0* *12.38*					
	Refer to 21-25 for stratigraphic details.		CONCRETE				
-2.5							
-5.0			BENTONITE CHIPS				
-7.5							
-10.0			2" Ø SS PIPE				
-12.5							
-15.0			BENTONITE SEAL				
-17.5			8" Ø BOREHOLE				
-20.0	SW-SAND (NATIVE), trace shells, trace wood, medium grained, dark gray to black, trace red sand, moist to wet	*-6.0*		1SS		17	
	SP-SAND, medium to coarse grained, dark gray to black, moist to wet	*-8.0*	SAND PACK	2SS		23	
-22.5			WELL SCREEN	3SS		39	
-25.0			SUMP				
	END OF HOLE @ 26.5ft BGS	*-13.5*	NATIVE MATERIAL				
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened Interval:
20.0 to 25.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
17.0 to 26.0ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location North of Medical Building **Boring No.** 21-48

Surface Elevation 11.53 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/16/86 **Logged By** D.E. Mills/B.A. Butler

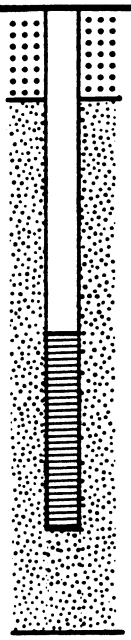
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0						
	4-6-8-8		1	Split Spoon		SP	0-10.2' SAND, brown, moist to 7.5 ft, saturated below, loose. Trace coarse sand (crushed brick?); trace silt. (FILL)	
	3-4-6-6	5	2	"				
	6-2-3-4		3	"			10.2-16.2' SAND, gray-brown, saturated, loose. Fine to medium. Vaguely laminated, with slightly silty zones between 12.9 and 14 feet. Wood and shell fragments at the finer zones.	
	2-3-5-5	10	4	"		SP-SM		
	3-4-6-2		5	"				
	1-2-2-3	15	6	"			16.2-22.0' Silty SAND, gray, saturated, loose. Thin, alternating layers of fine to medium sand grading upward to silty sand and clayey silt. Shell and wood fragments abundant.	
	1-2-2-3		7	"		SP-SM		
	2-2-5-11	20	8	"				
	3-5-8-10		9	"		SP	22.0-27.6' SAND, gray, saturated, medium dense to dense. Fine to medium sand dominant. Trace fine gravel (to 0.5-in dia.), subrounded at 25.8 feet.	
	7-12-22-22	25	10	"				
	1-2-6-4		11	"			27.6-51.5' See description on following page.	
	3-10-18-10	30	12	"		SP-SM		
	10-16-28-30		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 21-48

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	7-8-13-24	35	14	Split Spoon		SP-SM	27.6-51.5' Silty SAND, gray, saturated, medium dense to dense to 44.5 ft.; loose to medium dense at 44.5 to 51.5 feet. Thin, alternating layers of fine to medium sand grading upward to sandy silt. Layer thickness to 0.1-ft. Shell and wood fragments common at finer zones.	
	8-8-18-25		15	"				
	12-24-22-17	40	16	"				
	7-13-20-24		17	"				
	7-5-5-6	45	18	"				
	2-3-11-11		19	"				
	3-7-16-18	50	20	"				
							Bottom at 51.5 feet.	
		55						
		60						
		65						
		70						

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	15.45 12.93						
	NOT LOGGED (0-10ft BGS)							
10	SW-SAND, with silt, trace gravel, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	2.93	BENTONITE GRAVEL 6" BOREHOLE					19.2
12	- 0.2' GM-SANDY GRAVEL layer at 12.5ft BGS	0.23		1RS		4.0		
14	SP-SAND, trace silt, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout	-2.07		-001				77.5
16	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, neutral pH (6)							514
18	- negative DNAPL dye test at 17.5ft BGS		SAND PACK PORT 1 SCREEN 1 PORT 1 SCREEN 2	2RS		5.0		778
	SP-SAND, trace silt, compact, fine to medium	-6.77						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
22	grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - negative DNAPL dye test, neutral pH (7) at 20.0ft BGS - partially intact shell fragments at 21.0ft BGS - partially intact shell fragments at 22.0ft BGS	-9.27
	SM-SILTY SAND, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-10.27
24	SM/ML-SAND AND SILT, loose, fine grained sand, well sorted, dark gray, wet, shell fragments and large pieces of woody debris throughout	-10.77 -11.47
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments and woody debris throughout	-12.07
26	SW-SAND, trace silt, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet	-13.57
	- negative DNAPL dye test, neutral pH (7) at 25.0ft BGS	-14.37
28	SP-SAND, trace to with silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, woody debris present	-16.07
30	SM/ML-SAND AND SILT, fine grained sand, very loose, well sorted, dark gray, wet, shell fragments and woody debris throughout	-17.47
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - neutral pH (8) at 30.0ft BGS	-20.17
32	SM/ML-SAND AND SILT, fine grained, loose, well sorted, dark gray, wet, shell fragments throughout	-20.97
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - mostly intact shell fragments at 33.8ft BGS	
34	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - neutral pH (7) at 35.0ft BGS	
36		
38	- increase in silt content at 39.7ft BGS	

MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
PORT 1 SCREEN 3					85
TRANSDUCER #1					
PORT 1 SCREEN 4					
PORT 1 SCREEN 5	3RS		5.0		
PORT 1 SCREEN 6					647
	-002				
					215
	4RS		5.0		
					49.1
					84
	5RS		5.0		
COATED BENTONITE PELLETS					97
	-003				
					115
	6RS		5.0		
					116

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- neutral pH (8) at 40.0ft BGS		SAND PACK	7RS		5.0		40.0
	ML-SANDY SILT, trace clay, firm, low plasticity, gray, wet, shell fragments throughout	-30.17	PORT 2 SCREEN 1					
44	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-30.77	PORT 2 SCREEN 2	-004				64.8
	ML-SANDY SILT, compact, fine grained sand, dark gray, wet, shell fragments throughout	-31.27 -31.57	PORT 2 SCREEN 3	-005				
46	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - neutral pH (7) at 45.0ft BGS - increase in silt content at 46.0ft BGS - 0.5' SM-SILTY CLAYEY SAND layer at 46.8ft BGS		TRANSDUCER #2 PORT 2 SCREEN 4 PORT 2 SCREEN 5	8RS		5.0		9.23
48		-35.17	PORT 2 SCREEN 6					
	SP-SAND, trace to with silt, compact, fine grained, well sorted, gray, with red grains and white grains, wet							15.9
50	- neutral pH (7) at 50.0ft BGS	-37.07						
	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - increase in clay content at 51.0ft BGS							14.30
52				9RS		5.0		
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-40.57						14.10
54	- neutral pH (7) at 55.0ft BGS	-42.07		-006				
	SM/ML-SAND AND SILT, trace clay, loose, very fine grained sand, dark gray, wet, increasing clay content with depth							9.09
56		-44.17		10RS		5.0		
	ML-CLAYEY SILT, with sand, soft, low to moderate plasticity, dark gray, wet		COATED BENTONITE PELLETS					
58		-45.37						
	SM/ML-SAND AND SILT, trace clay, loose, very fine grained sand, dark gray, wet, shell fragments throughout							17.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- neutral pH (7) at 60.0ft BGS	-47.07						
	ML-SILT, with sand to sandy, trace clay, very soft, moderate plasticity, dark gray, wet							11.5
62				11RS		5.0		
	SP-SAND, with silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, larger partially intact shell fragments throughout	-50.67		-007				35
64	- 0.1' silt lens at 63.9ft BGS							
	- neutral pH (7) at 65.0ft BGS							
66								7.79
	- slight increase in silt content at 66.9ft BGS		SAND PACK					
				12RS		5.0		
68			PORT 3 SCREEN 1					
	ML-SILT, trace sand, stiff, low plasticity, dark gray, wet, shell fragments throughout	-55.57	PORT 3 SCREEN 2	-008				24.05
		-56.87	PORT 3 SCREEN 3					
70	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red and white grains, wet, shell fragments throughout, neutral pH (7)	-57.27	TRANSDUCER #3					
		-57.47	PORT 3 SCREEN 4					18.20
	SW-SAND, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		PORT 3 SCREEN 5					
72	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout			13RS		5.0		
			PORT 3 SCREEN 6	-009				
74								21.26
	- increase in grain size at 75.0ft BGS							
		-62.87						
76	SM/ML-SAND AND SILT, loose, fine grained sand, dark gray, wet, sand size shell fragments throughout							12.79
	- 0.1' CL-SILTY CLAY lens at 76.6ft BGS			14RS		5.0		
78								4.15

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- neutral pH (8) at 80.0ft BGS							
	ML-SANDY SILT, stiff, low plasticity, dark gray, wet, brown stained pore water, odor	-67.87						88.9
82	SM/ML-SAND AND SILT, loose, fine grained sand, dark gray, wet, brown stained pore water, odor	-68.57	COATED BENTONITE PELLETS	15RS		5.0		
84	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, elevated pH (10)	-71.07		-010				246
86	SM/ML-SAND AND SILT, compact, fine grained sand, dark gray, wet, elevated pH, brown stained pore water	-73.47						126
88	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, elevated pH, brown stained pore water	-74.87	PORT 4 SCREEN 1 SAND PACK	16RS		5.0		191
90	SP-SAND, trace silt, compact, fine to medium grained angular sand, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, elevated pH, brown stained pore water	-76.57	PORT 4 SCREEN 2					
	- slight cementation of sand, elevated pH (11) at 90.0ft BGS		PORT 4 SCREEN 3					18.7
92			PORT 4 SCREEN 4	17RS		5.0		
			PORT 4 SCREEN 5					
94	- increase in grain size, increase in silt content, elevated pH (11) at 94.0ft BGS		TRANSDUCER #4 PORT 4 SCREEN 6					19.79
	ML-SILT, trace sand, stiff, no plasticity, dark gray, wet, shell fragments throughout	-81.87 -82.07		-011				
96	SP-SAND, with silt, compact, very fine grained, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, elevated pH	-82.47						151
98	SM/ML-SAND AND SILT, loose, fine grained, dark gray, wet, elevated pH (12), brown stained pore water			18RS		5.0		
	ML-SILT, trace to with clay, stiff, low plasticity, dark gray, wet, elevated pH	-85.97						139

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- neutral pH (8) at 100.0ft BGS							
	CL-SILTY CLAY, soft, moderate plasticity, dark gray to black, wet, slow dilatancy, shell fragments throughout	-87.87						116
102				19RS		5.0		
	- slightly elevated pH (8.67) at 103.5ft BGS							74
104			COATED BENTONITE PELLETS	-012				
106	ML-SANDY SILT, trace to with silt, soft, low plasticity, dark gray, wet, shell fragments throughout	-93.07						3983
	- negative DNAPL dye test at 107.5ft BGS			20RS		5.0		
108	- negative DNAPL dye test, slightly elevated pH (8.6) at 108.5ft BGS			-013				6008
110	- negative DNAPL dye test at 110.0ft BGS	-97.07						
	NO RECOVERY (110-115ft BGS)							
112				21RS		0.0		
114			SAND PACK					
	ML-CLAYEY SILT, firm, low plasticity, gray, wet	-102.07	PORT 5 SCREEN 1	-014				
	ML-SANDY SILT, with clay, very fine grained sand, soft, low plasticity, dark gray, wet	-102.27						
116	- 0.2' CL-CLAY lens at 116.0ft BGS		PORT 5 SCREEN 2					96.0
	SM/ML-SAND AND SILT, loose, very fine grained sand, well sorted, dark gray, wet	-103.67	PORT 5 SCREEN 3					
	- slightly elevated pH (8.63) at 117.5ft BGS			22RS		5.0		
118			PORT 5 SCREEN 4					
	CL-SILTY CLAY, firm, moderate plasticity, dark gray, wet	-105.57 -105.97	PORT 5 SCREEN 5					5.37
	ML-CLAYEY SILT, trace sand, soft, low plasticity, dark gray, wet	-106.67	TRANSDUCER					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-107.17	#5 PORT 5 SCREEN 6	-016				
		-108.17						231
122	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
	ML-SILT, trace to with very fine grained sand, stiff, low plasticity, dark gray, wet, shell fragments throughout			23RS		5.0		
	- 0.1' CL-SILTY CLAY lens at 121.5ft BGS	-110.77						7.35
124	- 0.2' CL-SILTY CLAY lens at 122.3ft BGS - 0.2' CL-SILTY CLAY lens at 122.7ft BGS							
	CL-SILTY CLAY, soft, low plasticity, dark gray, wet, shell fragments throughout, neutral pH (7.95)	-112.07 -112.17		-015				
126	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							5.41
	ML-CLAYEY SILT, stiff, low plasticity, dark gray, wet, shell fragments throughout	-113.87						
	- 0.1' CL-SILTY CLAY lens at 125.7ft BGS	-114.87		24RS		5.0		
128	CL-SANDY SILTY CLAY, very soft, low plasticity, dark gray, wet, shell fragments throughout							3.63
	CL-SILTY CLAY, soft, moderate plasticity, dark gray, wet, shell fragments throughout, neutral pH (8.06)							
130	- 0.3' sandy clay lens at 130.5ft BGS							
								21.0
132				25RS		5.0		
	- neutral pH (8.11) at 134.0ft BGS							6.95
134	NO RECOVERY (135-140ft BGS)	-122.07		-017				
136								
			COATED BENTONITE PELLETS	26RS		0.0		
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace to with silt, loose, fine grained, gray, wet, shell fragments, wet	-127.07						
	ML-CLAYEY SILT, stiff, low plasticity, gray, wet, shell fragments throughout	-128.17						22.45
142	- 0.1' SP-SAND lens at 142.4ft BGS			27RS		5.0		
144								33.05
	CL-SILTY CLAY, soft, low plasticity, gray, wet	-131.47						
	SM-SILTY SAND, loose, fine to medium grained, well sorted, dark gray, with white grains, shell fragments throughout	-131.97 -132.07		-018				
146	NO RECOVERY (145-150ft BGS)							
				28RS		0.0		
148								
150	CL-SILTY CLAY, trace medium grained well rounded gravel, soft, moderate plasticity, gray, wet, shell fragments throughout	-137.07						39.21
152				29RS		5.0		
154								29.08
	- 2" well rounded gravel piece at 155.0ft BGS	-142.07	NATURAL HEAVE	-019				
156	GM-SILTY GRAVEL, with sand, with cobble, compact, fine to coarse grained angular to well rounded gravel, poorly sorted, gray, wet,	-143.07						54.01
	SM/GM-SILTY SAND AND GRAVEL, compact, fine to coarse grained, poorly sorted, greenish gray, wet`							
	GC-CLAYEY SANDY GRAVEL, compact, fine to medium grained, gray, wet	-144.57		30RS		5.0		
158	SP-GRAVELLY SAND, with silt, compact, medium grained, well sorted, green, wet	-145.27						40.15
	SP-SAND, trace to with silt, dense, fine to medium grained, well sorted, black, wet, slightly cemented	-145.97						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-147.77						
162	SW-SAND, trace to with silt, trace fine to medium gravel, compact, fine to coarse grained, poorly sorted, black to green, with red grains, orange grains, white grains and black grains, wet		PORT 6 SCREEN 1					49.21
			PORT 6 SCREEN 2	31RS		5.0		
164	- slightly cemented at 164.0ft BGS		PORT 6 SCREEN 3					19.21
			TRANSDUCER #6					
	- green at 165.0ft BGS		PORT 6 SCREEN 4	-020				
			PORT 6 SCREEN 5					
166			PORT 6 SCREEN 6					20.40
				32RS		5.0		
168								12.41
170								
								10.54
172				33RS		5.0		
			CMT ANCHOR					
174	GM-SILTY SANDY GRAVEL, dense, fine to coarse grained round to angular gravel, poorly sorted, semi-consolidated, green, moist	-160.87		-021				24.77
		-161.57						
	ML-SILT, with gravel, trace sand, dense, semi-consolidated, green, moist	-161.97						
176	SW-SAND, trace silt, trace gravel, compact, fine to coarse grained, poorly sorted, green, with orange grains, white grains and black grains, wet	-162.07						
	END OF BOREHOLE @ 175.0ft BGS							
178	NOTE:							
	GLACIAL CONTACT ASSUMED AT 155.0FT BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	PORT 1 SAND PACK 17.3 TO 24.0FT BGS (-4.37 TO -11.07FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
182	18.14, 19.14, 20.14, 21.14, 22.14 AND 23.14FT BGS (-5.21, -6.21, -7.21, -8.21, -9.21 AND -10.21FT NGVD) TRANSDUCER (# 1200807) 20.64FT BGS (-7.71FT NGVD)							
184	COATED BENTONITE PELLETS 24.0 TO 42.0FT BGS (-11.07 TO -29.07FT NGVD)							
186	PORT 2 SAND PACK 42.0 TO 49.0FT BGS (-29.07 TO -36.07FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
188	43.18, 44.18, 45.18, 46.18, 47.18 AND 48.13FT BGS (-30.25, -31.25, -32.25, -33.25, -34.25 AND -35.25FT NGVD) TRANSDUCER (# 1203028) 45.68FT BGS (-32.75FT NGVD)							
190	COATED BENTONITE PELLETS 49.0 TO 67.0FT BGS (-36.07 TO -54.07FT NGVD)							
192	PORT 3 SAND PACK 67.0 TO 74.0 BGS (-54.07 TO -61.07FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
194	68.16, 69.16, 70.16, 71.16, 72.16 AND 73.16FT BGS (-55.23, -56.23, -57.23, -58.23, -59.23 AND -60.23FT NGVD) TRANSDUCER (# 1203030) 70.56FT BGS (-57.73FT NGVD)							
196	COATED BENTONITE PELLETS 74.0 TO 89.0FT BGS (-54.07 TO -76.07FT NGVD)							
198	PORT 4 SAND PACK 89.0 TO 96.0FT BGS (-76.07 TO -83.07FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 21C
DATE COMPLETED: June 18, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 89.09, 90.09, 91.09, 92.09, 93.09 AND 94.09FT BGS (-76.16, -77.16, -78.16, -79.16, -80.16 AND -81.16FT NGVD) TRANSDUCER (# 1206518) 93.59FT BGS (-80.66FT NGVD)							
202								
	COATED BENTONITE PELLETS 96.0 TO 114.0FT BGS (-83.07 TO -101.07FT NGVD)							
204								
	PORT 5 SAND PACK 114.0 TO 121.0FT BGS (-101.07 TO -108.07FT NGVD)							
206	INDIVIDUAL 3-INCH SCREEN BOTTOMS 115.14, 116.14, 117.14, 118.14, 119.14 AND 120.14FT BGS (-102.21, -103.21, -104.21, -105.21, -106.21 AND -107.21FT NGVD) TRANSDUCER (# 1204318) 119.64FT BGS (-106.71FT NGVD)							
208								
	COATED BENTONITE PELLETS 121.0 TO 154.0FT BGS (-108.07 TO -141.07FT NGVD)							
210								
	PORT 6 SAND PACK (NATURAL HEAVE) 154.0 TO 175.0FT BGS (-141.07 TO -162.07FT NGVD)							
212	INDIVIDUAL 3-INCH SCREEN BOTTOMS 161.77, 162.77, 163.77, 164.77, 165.77 AND 166.77FT BGS (-148.84, -149.84, -150.84, -151.84, -152.84 AND -153.84FT NGVD) TRANSDUCER (# 1204312) 164.27FT BGS (-151.34FT NGVD)							
214	CMT ANCHOR 172.87FT BGS (-159.94FT NGVD)							
216								
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

Sweet, Edwards & Associates, Inc.

BORING LOG

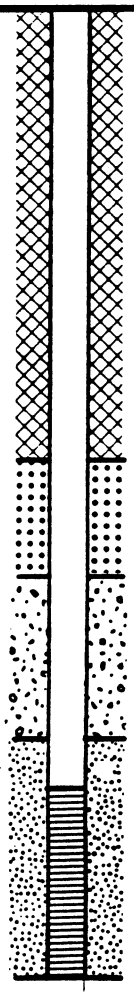
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location East of Salt Pad **Boring No.** 22-25

Surface Elevation 13.36 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/9/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25					This boring was not sampled It is located 5 feet east of well 22-50. See the log for 22-50 for a description of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location East of Salt Pad **Boring No.** 22-50

Surface Elevation 13.67 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/9/86 **Logged By** D.E. Mills

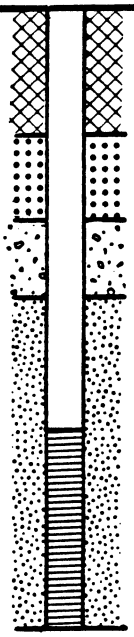
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				SP	0-9.5' SAND, brown to gray-brown, moist to 6.5 ft, saturated below 6.5 ft; loose. Gravelly at 2.5 to 3.0 ft, gravel subrounded, to 0.75-in dia. Trace gravel (to 0.5-in dia, subangular) from 7 to 9 ft. (FILL)	
	3-4-4-6		1	Split Spoon				
	6-4-5-6	5	2	"				
	2-3-5-5		3	"				
	3-3-4-5	10	4	"		SP-SM	9.5-15.5' Silty SAND, gray-brown, saturated, loose. Fine to medium. Thin (to 0.25-in), alternating layers of sand and silty sand, from 9.5-10 ft and 13.5-14 ft. Generally fining upward. Some shell fragments.	
	3-5-5-7		5	"				
	5-6-6-7	15	6	"				
	5-4-3-4		7	"		SP-SM	15.5-24.9' Silty SAND, brown, loose to medium dense, saturated. Fine to medium. Trace fine rounded gravel (to 0.75-in dia) at 17-19 ft and 23.5-23.8 ft. Trace coarse sand at 18 and 22.5 to 22.8 ft.	
	5-6-10-11	20	8	"				
	9-13-16-20		9	"				
	7-11-14-17	25	10	"				
			11	"		ML	24.9-27.7' Sandy SILT, gray, very stiff, trace clay, moist. Some shell fragments.	
	50/6"					SP-SM	27.7-33.5' Silty SAND, gray, saturated, medium dense. Laminated with silt beds between 32 and 33.5 feet.	
	12-14-14-20	30	12	"				
	5-8-16-20		13	"				
		35				SP	33.5-46.5' See description on following page.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 22-50

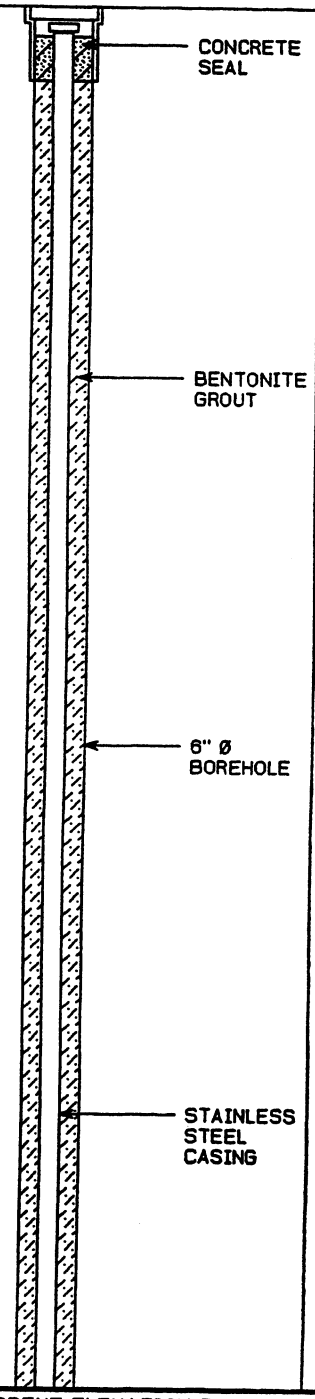
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	14-22 11-14	35	14	Split Spoon		SP	33.5-46.5' SAND, gray with abundant red grains, saturated, medium to very dense. Fine to medium. Trace silt at 42-44 ft. Some shell fragments.	
	16-12- 17-15		15	"				
	7-10- 16-20	40	16	"				
	17-32- 43-50/4"		17	"				
	12-40- 50/6"	45	18	"				
	5-11- 16-22		19	"		SM	46.5-51.5' Silty SAND, gray, medium to very dense, saturated. Fine. Thin layers of slightly silty sand grading upward to silty sand. Layer thickness to 1-inch.	
	5-10- 11-21	50	20	"			Bottom at 51.5 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - **TACOMA**
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 22-70
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*13.20* *12.0*					



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5
-35.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 22-70
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0			STAINLESS STEEL CASING				
42.5							
45.0			BENTONITE GROUT				
47.5			BENTONITE PELLETS				
50.0	SW-SAND (NATIVE), trace silt, loose, fine grained, well graded, dark gray, red sand grains, wet, shell material	-38.0					
		-40.0	SAND PACK				
52.5	SM-SAND, some silt, medium dense, poorly graded, dark gray, red sand grains, wet, sulfur-like odor			1CC			0
55.0							
57.5			WELL SCREEN				
			TAILPIPE				
60.0	ML-SILT, medium dense to dense, very fine grained, dark brown to dark gray, wet, sulfur-like odor	-48.0					
62.5				2CC			0
65.0			6" Ø BOREHOLE				
		-54.0					
67.5	ML/SM-SILT and SAND, medium dense, very fine grained, poorly graded, dark gray, red sand grains	-56.0					
70.0	SW-SAND, trace silt, loose to medium dense, fine grained, well graded, dark gray, red sand grains, wet	-58.0					
	END OF HOLE @ 70.0ft BGS						
72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 22-70
DATE COMPLETED: OCTOBER 10, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-77.5			SCREEN DETAILS Screened Interval: 53.5 to 58.5ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 50.0 to 70.0ft BGS Material: 20-40 Sand				
-80.0							
-82.5							
-85.0							
-87.5							
-90.0							
-92.5							
-95.0							
-97.5							
-100.0							
-102.5							
-105.0							
-107.5							
-110.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

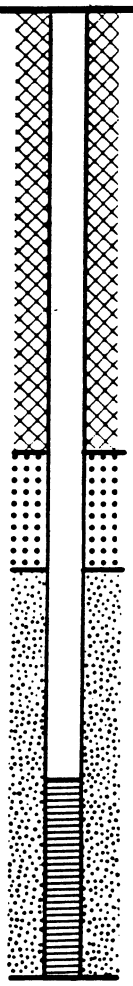
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location North of H-4 Cell Renewal Building **Boring No.** 23-25

Surface Elevation 13.99 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/8/86 **Logged By** D.E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled It is located 5 feet north of 23-50. See the log of 23-50 for details of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

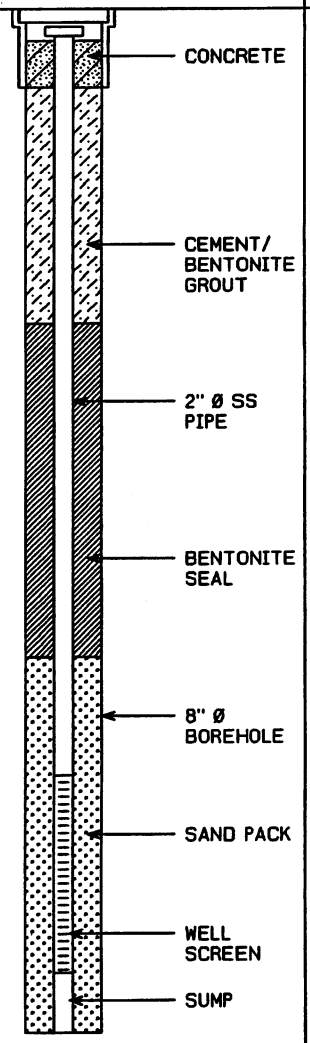
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-146)
Page 1 of 1

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 23-25R
DATE COMPLETED: MAY 21, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*12.2* *11.64*					
	Refer to 23-25 for stratigraphic details.						
20.0	SP-SAND (NATIVE), little silt, fine grained, black, trace red sand, wet	*-7.8*		1SS		21	
22.5	SW-SAND, medium grained, black, trace red sand, wet - some silt pockets - no silt pockets	*-9.8* *-12.3*		2SS		45	
25.0	- trace shells SW/SM/ML-SAND and SILT, trace shells, layers	*-12.8* *-13.8*		3SS		48	
27.5	SW-SAND, trace shells, medium grained, wet END OF HOLE @ 26.0ft BGS						
30.0							
32.5							



SCREEN DETAILS
Screened interval:
19.5 to 24.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
16.5 to 26.0ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location North of H-4 Cell Renewal Building **Boring No.** 23-50

Surface Elevation 13.96 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/5/86 **Logged By** D.E. Mills

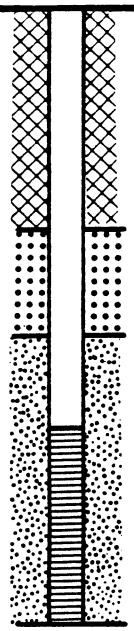
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				SP	0-5.0' Gravelly SAND, brown, dry, loose. Fine. gravel is 0.25 to 1.5-in dia, subrounded. Unsorted. (FILL)	
	6-3-4-6		1	Split Spoon				
	4-3-1-1	5	2	"		SP	5.0-13.3' SAND, dark brown-gray, moist to 6.5 ft, saturated below, very loose to loose. Fine to medium. Vaguely laminated with zones of fine sand (to 0.5-in thick). Some wood and shell fragments.	
	1-2-3-3		3	"				
	4-4-3-2	10	4	"				
	2-4-4-4		5	"		SP-SM	13.3-18.0' Silty SAND, brown, saturated, loose. Fine. Thin to (0.25-in) layers of sandy silt alternating with silty sand layers between 16 and 16.5 feet.	
	2-2-4-4	15	6	"				
	2-1-3-5		7	"		CL	18.0-19.9' Silty CLAY, gray-brown, saturated, soft laminated. Decayed grasses (?) present.	
	3-2-7-5	20	8	"		SP	19.9-34.0' SAND, gray-brown, saturated, loose to medium dense. Silty at 22-23.2 ft, 32-32.6 and 32.0-34 ft. Thin (to 0.25-in) laminae of fine sand grading upward to silty sand at 32.9-34 ft. Shells and shell fragments abundant.	
	3-3-10-14		9	"				
	10-15-21-27	25	10	"				
	8-12-15-17		11	"				
	3-2-5-11	30	12	"				
	8-10-11-14		13	"		ML	34.0-40.0' See description on following page.	
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 23-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	2-1-1-2	35	14	Split Spoon		ML	34.0-40.0' Sandy SILT, gray, saturated, very soft. Trace clay to slightly clayey from 34 to 39 ft. Increasing sand content with depth. Massive structure.	
	1-1-1-1		15	"				
	4-9-16-9	40	16	"		SP-SM	40.0-47.0' Silty SAND, gray, saturated, loose to medium dense. Fine-medium. Silty at 42 to 44.5 ft. Clam shells abundant.	
	2-2-3-8		17	"				
	14-20-23-27	45	18	"				
	10-12-17-29		19	"		ML	47.0-47.5' Clayey SILT, gray, saturated, stiff.	
	12-22-27-32	50	20	"		SP	47.5-51.5' Sand, gray, saturated, dense to very dense. Well graded (SW) at 49.5-51.5 feet.	
		55					Bottom at 51.5 feet.	
		60						
		65						
		70						

Sweet, Edwards & Associates, Inc.

BORING LOG

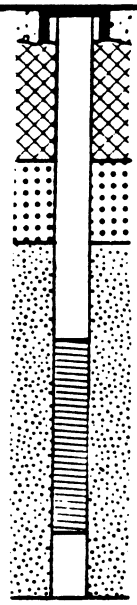
PROJECT Occidental Chemical Corporation - Tacoma, WA.

Location Southeast of OCC on Alex. Ave. **Boring No.** 24-15

Surface Elevation 11.87 FT. **Drilling Method** Hollow Stem Auger

Total Depth 15 feet **Drilled By** Tacoma Pump & Drilling Co.,

Date Completed 9/22/87 **Logged By** D. E. Mills

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not logged. It is located approx. 10 feet west of Well 24-50. See the log of that well for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

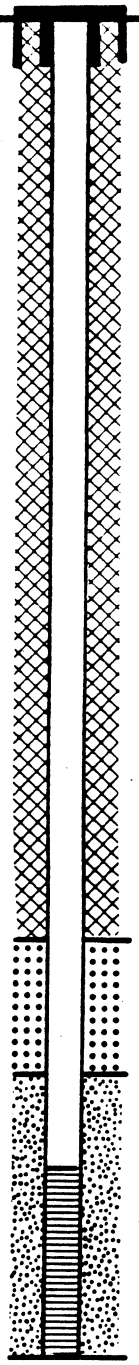
PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southwest of OCC on Alexander Ave. **Boring No.** 24-35

Surface Elevation 11.94 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 35 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/19/86 **Logged By** B.A. Butler

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30 35					This boring was not sampled. It is located 5 feet west of well 24-50. See the log of 24-50 for details of the geology in this vicinity. Bottom at 35 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Southwest of OCC on Alexander Ave. **Boring No.** 24-50

Surface Elevation 11.85 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 51.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/19/86 **Logged By** B.A. Butler

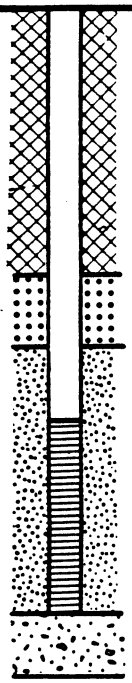
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0						
	5-7-8-11		1	Split Spoon			0-10.0' SAND, brown, moist to 9 ft, saturated below 9 ft, loose. Fine to medium. Trace rounded gravel at 2.5 ft. Trace coarse sand and silt. (FILL)	
	5-5-6-6	5	2	"		SP		
	4-5-6-7		3	"				
	2-4-5-4	10	4	"				
	2-5-3-4		5	"			10.0-51.5' Silty SAND, gray-brown, saturated, very loose to medium dense. Fine to medium. Thin (0.1-0.5 ft) layers of sand grading upward to sandy silt. Shell and wood fragments common.	
	1-3-2-2	15	6	"		SP-SM		
	1-1-2-2		7	"				
	2-3-3-5	20	8	"				
	8-9-6-8		9	"				
	8-9-7-12	25	10	"				
	1-1-2-3		11	"			Distinct laminations of sand grading upward to silt between 25 and 51.5 ft.	
	6-8-6-14	30	12	"		SP-SM		
	5-15-30-37		13	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 24-50

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	4-6-10-13	35	14	Split Spoon			See previous page for description.	
	6-12-22-20		15	"				
	8-8-15-18	40	16	"		SP-SM		
	6-10-15-9		17	"				
	7-20-23-20	45	18	"				
	9-13-20-26		19	"				
	3-5-6-9	50	20	"				
							Bottom at 51.5 feet.	
		55						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation - Tacoma, WA. **Page** 1 **of** 1

Location South of Alexander Ave., across from OCC main entrance

Boring No. 25-15

Surface Elevation 11.32 FT

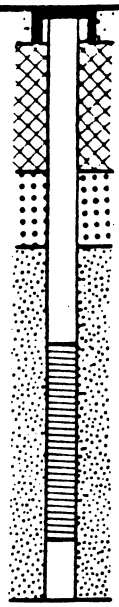
Drilling Method Hollow Stem Auger

Total Depth 15 feet

Drilled By Tacoma Pump & Drilling Co.,

Date Completed 9/22/87

Logged By D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled. It is located approx. 6 feet east of of well 25-50. See the log for that well for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Alexander Ave across from OCC main gate

Boring No. 25-25

Surface Elevation 11.06 ft. (Top of 2" steel casing)

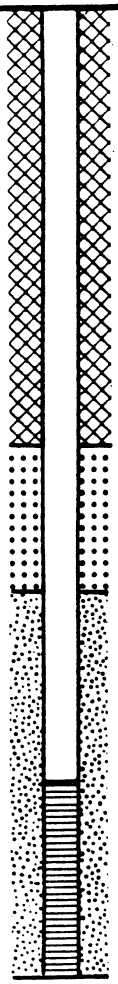
Drilling Method Hollow Stem Auger

Total Depth 25 feet

Drilled By Soil Sampling Services, Inc.

Date Completed 11/18/86

Logged By D.E. Mills DEM

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25 30 35					This boring was not sampled, but it is located five feet south of well 25-50. See the log of 25-50 for details of the geology in this vicinity. Bottom at 25 feet.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location West of Alexander Ave., across from OCC main entrance **Boring No.** 25-50

Surface Elevation 10.99 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Services, Inc.

Date Completed 11/18/86 **Logged By** B. A. Butler DOU & BAB ✓

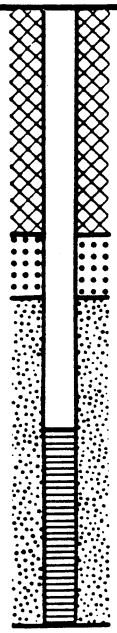
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
			1	Grab		SP	0-9', Gravelly SAND, moist to medium brown, loose, 7.5', saturated below, medium dense. Medium to coarse. Trace shell fragments.	
	10-10-9-7	5	2	Split Spoon				
	3-2-2-3		3	"				
	1-4-7-8		4	"		GP	9-10', GRAVEL, medium brown, saturated, loose. Fine (0.25-0.5" dia.), rounded gravel. Trace medium-coarse sand.	
	6-6-7-8	10	5	"		SM	10-16.2', Silty SAND, olive black, saturated, loose. Fine to coarse. Trace gravel. Trace shells. Silty Laminae at 14 ft.	
	4-5-8-10	15	6	"				
	1-1-2-2		7	"		SM	16.2-18.4', Silty SAND, olive gray, saturated. Very fine to fine. Trace shell fragments.	
	5-4-4-4		8	"		SP	18.4-23.5, SAND, brownish black, saturated, loose. Fine to medium, grading to coarse toward bottom. Trace silt and gravel from 22.5-23.5'.	
	4-5-8-10	20	9	"				
	3-8-12-16		10	"		SP-SM		
	4-10-16-18	25	11	"		SW	23.5-25', Silty SAND, medium brown, saturated, medium dense. Fine to medium. Variable silt/sand ratios. Trace wood chips @ 24'.	
	7-6-5-6		12	"				
	9-12 14-10	30	13	"			25-36', SAND, olive brown, saturated, medium to dense. Fine to coarse. Trace angular gravel. Abundant shell and wood fragments in 1"-3" layers. Olive gray silt laminae in bottom 2'.	
	10-11 19-12		14	"				
		35						

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 25-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35				SP	See preceding page for description	
	11-12-11-20		15	Split Spoon				
	10-6-10-II		16	"		SM	36-40.5', Silty SAND, olive brown, saturated, dense. Fine to medium sand. Trace wood and shell fragments.	
		40						
	3-2-1-5		17	"		ML	40.5-46.5', Sandy SILT, olive gray, saturated, soft to medium stiff. Variable silt/sand ratios, bedded. Trace shell and wood fragments.	
	1-2-4-4		18	"				
		45						
	6-7-10-11		19	"		SP	46.5-49.5', SAND, brownish black, saturated, medium dense. Fine to medium. Trace silt. Coarsens downward.	
	3-3-7 19		20	"				
		50					Bottom at 50 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-105)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 25A-25
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Curb Box)	*12.9* *12.83*					
	Refer to 25A-50 for stratigraphic details.		CONCRETE SEAL				
-2.5							
-5.0			BLACK CARBON STEEL CASING				
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0			BENTONITE PELLETS				
-17.5			SAND PACK				
-20.0			6" Ø BOREHOLE				
-22.5			WELL SCREEN				
-25.0	END OF HOLE @ 25.0ft BGS	*-12.1*	TAIL PIPE				
-27.5							
-30.0							
-32.5							

SCREEN DETAILS
Screened Interval:
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
15.5 to 25.0ft BGS
Material: #20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 25A-50
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: D.STEINER/J.SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Curb Box)	*12.8* *12.79*					
0	SW-SAND, some gravel, loose, medium to fine grained, well graded, brown/black and red, moist		CONCRETE SEAL				
2.5							
5.0	- gray/black, red, sulfur-like odor						
7.5							
10.0			BENTONITE GROUT				
12.5	- some silt and sand						
15.0	- trace gravel, sulfur-like odor						
17.5				CC			0
		-6.2					
20.0	SM-SAND (NATIVE), some silt, dense, gray, sulfur-like odor	*-7.2*	6" Ø BOREHOLE				
	SW-SAND, some silt, loose, gray/black, wet, sulfur-like odor						
22.5							
25.0	- gray/black and red, shell pieces, sulfur-like odor						
27.5							
30.0			BLACK CARBON STEEL CASING				
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 25A-50
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: D.STEINER/J.SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5	- dense, gray, moist, sulfur-like odor		BLACK CARBON STEEL CASING; BENTONITE GROUT				
40.0		-27.2	BENTONITE PELLETS				
	SM-SAND, some silt, dense, fine grained, poorly graded, gray, wet, sulfur-like odor, trace shell pieces						
42.5			SAND PACK	CC			0
45.0			WELL SCREEN				
47.5			6" Ø BOREHOLE				
50.0		-37.2	TAIL PIPE				
	END OF HOLE @ 50.0ft BGS						
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
43.5 to 48.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
40.5 to 50.0ft BGS
Material: #20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

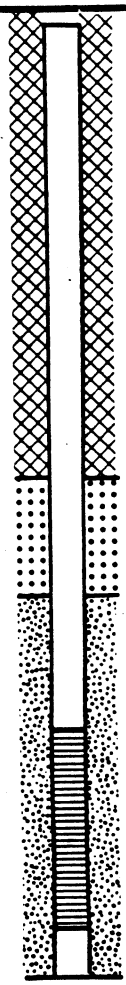
Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Approx. 110' west of Building H-25 on Port of Tacoma property
Surface Elevation 10.01 ft. (Top of 2" steel casing)
Total Depth 25 feet
Date Completed 12/11/86

Boring No. 26-25
Drilling Method Hollow Stem Auger
Drilled By Soil Sampling Services, Inc.
Logged By B. A. Butler DCM for SWC 1/7/87

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25 30 35					This boring was not sampled but it is located about 4' east of well 26-50. See the log of 26-50 for details of the geology in this vicinity. Bottom at 25 ft.	

SEA-300-02a

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 2

Location Approx. 110' west of Building H-25 on Port of Tacoma property **Boring No.** 26-50

Surface Elevation 10.12 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem auger

Total Depth 50 feet **Drilled By** Soil Sampling Services, Inc.

Date Completed 12-11-86 **Logged By** B. A. Butler DCN for BAB VERIFIED

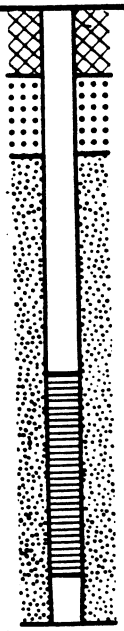
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	4-7-9 -10	5	1			SP	0-13.3', SAND, dusky yellowish brown, loose, saturated below 7.5', Medium-coarse, trace fine gravel. Silt stringers 9.0-9.5'. Trace wood debris.	
	2-3-2-3		2	"				
	3-7-6-7	10	3	"				
	4-7-7-9		4	"				
	6-9-8-11	15	5	"		SP-SM	13.3-14.5', Silty SAND, olive gray, saturated, loose. Fine. Individual beds to 0.5" thick.	
	5-7-8-3		6	"		SW	14.5-24.3', SAND, olive brown, saturated, loose. Fine to coarse. Coarsens downward. Trace angular gravel 21-22'. Trace silt.	
	3-3-4-6	20	7	"				
	3-3-6-10		8	"				
	5-3-2-7		9	"				
	1-1-1-1	25	10	"		ML	24.3-28', Sandy SILT, olive gray, saturated. Very soft to soft. Fine to medium sand. Trace fine sand stringers. Trace shell and wood fragments. Coarsens downward to silty sand 28-28.5'.	
	3-7-16 -19		11	"		SP	28.5-34.5', SAND, brownish-black, saturated, medium dense. Medium to coarse. Silt stringers 32.5-33.5'. Trace fine sand.	
	10-10-18-19	30	12	"				
	8-6-16-16		13					
		35				SP-SM	34.5-41.2', See next page	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 26-50

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		35						
	4-7-11 -21		14	Split Spoon		SP-SM	34.5-41.2' Silty SAND, olive brown, saturated, medium dense to dense. Fine to medium sand with stringers of olive gray, fine sandy silt. Trace wood and shell fragments.	
	10-17-18-27		15	"				
		40						
	3-7-9-15		16	"		ML	41.2-43.4', Sandy SILT, olive gray, saturated, very stiff. Fine sand. Trace fine to medium sand laminae.	
	3-9-16 -20		17	"		SP	43.4-48.7', SAND, olive brown, saturated, dense to very dense. Fine to medium. Trace laminated silt (to 1" thick). Trace shell fragments.	
		45						
	7-21-29 -30		18	"				
	4-4-5-7		19	"		SM	48.7-49.5', Silty SAND, olive gray, saturated, loose. Fine, trace medium. Occurring as thin layers. Trace wood.	
		50					Bottom at 50 feet	

Sweet, Edwards & Associates, Inc.

BORING LOC

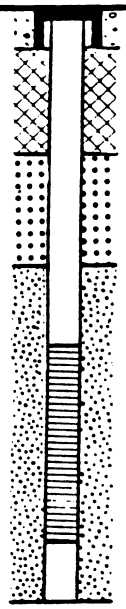
PROJECT Occidental Chemical Corporation - Tacoma, WA. **Page** 1 **of** 1
Approx. 300 ft. west of Building H-25

Location on Port of Tacoma property
Boring No. 27-15

Surface Elevation 10.88 FT
Drilling Method Hollow Stem Auger

Total Depth 15 feet
Drilled By Tacoma Pump & Drilling Co.,

Date Completed 9/22/87
Logged By D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled. It is located approx. 10 feet west of Well 27-50. See the log of that boring for details of the geology in this vicinity.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Approx. 300' NW of OCC Building (Port of Tacoma)

Boring No. 27-25

Surface Elevation 10.90 ft. (Top of 2" steel casing)

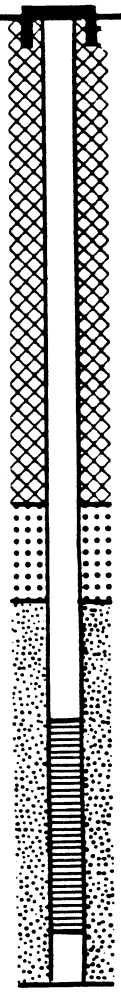
Drilling Method Hollow Stem Auger

Total Depth 25 feet

Drilled By Soil Sampling Service, Inc.

Date Completed 12/13/86

Logged By J. S. Bailey DCM for JSB

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15 20 25					This boring was not sampled, but it is located about 6' west of well 27-50. See the log of 27-50 for details of the geology in this vicinity. Bottom at 25 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-14)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 75' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 27–25R
DATE COMPLETED: JUNE 2, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.71* *11.0*				
2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 27.5	For stratigraphy refer to previous log 27–25		ROAD BOX CONCRETE SEAL CEMENT/ BENTONITE GROUT 8"ø BOREHOLE 2"ø BLACK IRON PIPE BENTONITE PELLET SEAL SAND PACK WELL SCREEN TAILPIPE			
30.0 32.5	END OF HOLE ● 28.0 FT. BGS	*-17.0*	SCREEN DETAILS: Screened Interval: 18.5 to 23.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 15.5 to 28.0' BGS Material –# 10–20 Sand			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Location Approx. 300' west of Building H-25 on Port of Tacoma property

Boring No. 27-50

Surface Elevation 11.16 ft. (Top of 2" steel casing)

Drilling Method Hollow Stem Auger

Total Depth 50 ft

Drilled By Soil Sampling Services, Inc.

Date Completed 12-12-86

Logged By B. A. Butler

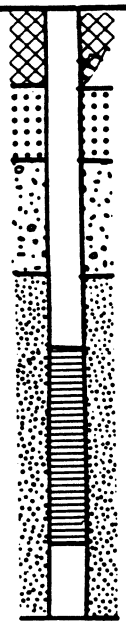
WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	5-10 13-12	5	1	Split Spoon		SP-SM	0-17.5' Silty SAND, dusky yellowish brown to olive brown, saturated at 10' loose. Thin layers of interbedded sand and silty sand. Fine to medium-coarse sand stringers 7.5-12', ½"-1" silty fine sand layers. Trace wood debris and shell fragments.	
	3-5-7-6		2	"				
	4-5-7-8	10	3	"				
	2-4-6-6		4	"				
	3-3-7-9	15	5	"				
	3-2-3-5		6	"				
	3-3-4-3	20	7	"		SP	17.5-22', SAND, olive brown, saturated, loose, Medium to coarse. Trace fine sand. Trace wood and shell fragments.	
	3-3-5-7		8	"				
	8-10-11 13	25	9	"		SW	22-25.4', SAND, olive brown, saturated loose. Fine to very coarse. Trace sandy silt nodules. Trace gravel.	
	1-1-2-1		10	"		ML	25.4-28', Sandy SILT, olive grey, saturated. Very soft. Fine to medium fine sandy silt. Trace shell fragments with sporadic stringers of abundant shells. Coarse sand and gravel stringers 27.5-28'	
	2-3-7-5	30	11	"		SP		
	4-9-12 16		12	"		SM		
	11-12-13-16	35	13	"		SP	28-29.1', SAND, brownish black, saturated. Loose. Fine to medium. Trace coarse sand. Irregular sandy silt laminae.	

Sweet, Edwards & Associates, Inc.

BORING LOG

PROJECT Occidental Chemical Corp.-Tacoma, WA

Boring No. 27-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	4-10-15-21	35	14	Split Spoon		SP	29.1-31', Silty SAND, olive grey, saturated. Medium dense. Very silty fine-medium sand. Trace shells.	
	6-16-35-33		15	"		SP	31-36', SAND, brownish black, medium dense. Saturated. Fine-medium. Medium dense. Trace very fine sand laminae 34-35.	
	13-16 18-25	40	16	"			36-49.5', SAND, brownish black, saturated. Dense to very dense. Fine to medium sand. Trace thin silty-sand laminae. Trace shell and wood debris.	
	9-18 32-28		17	"				
	9-29 32-40	45	18	"				
	8-17 22-29		19	"				
		50					Bottom at 50 feet	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-15)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 70' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 27–50R (Page 1 of 2)
DATE COMPLETED: JUNE 6, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.57* *11.0*				
	For stratigraphy refer to previous log 27–50		ROAD BOX CONCRETE SEAL 2"ø BLACK IRON PIPE 8"ø BOREHOLE CEMENT/ BENTONITE GROUT			
2.5						
5.0						
7.5						
10.0						
12.5						
15.0						
17.5						
20.0						
22.5						
25.0						
27.5						
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-'5)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 70' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 27–50R (Page 2 of 2)
DATE COMPLETED: JUNE 6, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0			CEMENT/ BENTONITE GROUT			
37.5			BENTONITE PELLET SEAL			
40.0			8"ø BOREHOLE			
42.5			2"ø BLACK IRON PIPE			
45.0			SAND PACK			
47.5			WELL SCREEN			
50.0	END OF HOLE @ 50.0 FT. BGS	-39.0	TAILPIPE			
52.5						
55.0						
57.5						
60.0						
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
37.6 to 50.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	1 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				5				The 0- to 50-foot interval of this boring was not sampled. This boring is located approximately 9 feet southeast of boring 27-50 which was continuously sampled and logged during previous drilling at this location. See the log for 27-50 for a description of the geology between 0- and 50-feet in this vicinity.
				10				
				15				
				20				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)
Developed: 12/28/89

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	2 OF 6
DRILLED BY	Holt Drilling; Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				25				See description on previous page.
				30				
				35				
				40				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	3 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
			See description on previous page.
1	SB	16-30-70	50.0 - 52.5 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shell fragments, silty sand between 51.5 and 51.7 feet, wood fragments @ 52 feet. (ZONE II)
2	SB		52.5 - 56.8 feet: SILTY SAND (SM), medium olive gray, very fine to medium, wet. -- interbedded with sandy silt, medium -- olive grey, soft, interbeds less common with depth (ZONE II)
3	SB	30-36-	
4	SB	72	
			56.8 - 62.0 feet: SAND (SP), black with red grains, trace fines, very fine to medium, wet. Trace shell fragments. (ZONE II)

45 50 55 60

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	4 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
5	SB	10-15-70	-- @ 60.8 - 61.2 feet: lense of fine silty sand, medium olive gray
6	SB		62.0 - 63.0 feet: SANDY SILT (ML), medium olive gray, very fine to fine sand, soft, wet. Thinly laminated, with sand. (ZONE II)
			63.0 - 75.6 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shell fragments. (ZONE II)
7	SB	10-23-60	
8	SB		-- @ 66.4 - 66.8 feet: laminated silt and sandy silt with fine sand
9	SB	16-25-42-70	-- 70 - 74 feet: faint sulfurous odor
10	SB	12-16-30-	75.6 - 84.5 feet: SANDY SILT (ML), medium olive gray, soft, wet. Interbedded with fine sand. (ZONE II ?)
11	SB	50	

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

65 70 75 80

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	5 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
12	SB	12-26-33-55		85				-- @ 83.5 feet: abundant shell fragments within sand interbeds
13	SB	25-50						84.5 - 100.0 feet: SILTY SAND (SM), medium olive gray to black, very fine to fine, wet. Interbedded silt and sandy silt abundant, few fine sand interbeds, thinly bedded silt between 97.7 and 100 feet. (ZONE II?)
14	SB	33-26-30-40		90				
15	SB	15-15-20-		95				
16	SB	50		100				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	27-100
LOCATION	Tacoma, Washington	PAGE	6 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	104.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/21/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
								Description on previous page.
				105				Total depth drilled: 104 feet Interval sampled: 50 - 100 feet WELL COMPLETION DETAILS: 0.9 - 95 feet: 2-inch black iron riser 95 - 100 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots 100 - 101.5 feet: 2-inch stainless steel sump 0 - 3 feet: concrete 3 - 9 feet: bentonite chips 9 - 90 feet: cement/bentonite grout 90 - 92 feet: bentonite pellets 92 - 104 feet: 10x20 Colorado silica sand
				110				
				115				
				120				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 10.20 feet (NGVD)

Sweet, Edwards & Associates, Inc.

BORING LOG

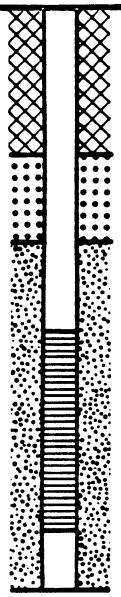
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location NW of Graphite Waste Pile **Boring No.** 28-15

Surface Elevation 13.03 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 15 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/13/86 **Logged By** J. S. Bailey DEM for SSB

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15				SP	SAND, gray, medium to coarse, saturated below 6'.	
							Bottom at 15 feet. NOTE: No samples were taken, but boring cuttings were logged.	

Sweet, Edwards & Associates, Inc.

BORING LOG

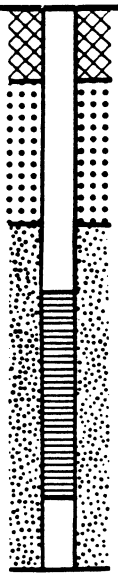
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location East of Graphite Waste Pile **Boring No.** 29-14

Surface Elevation 12.14 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 14.5 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/15/86 **Logged By** D. E. Mills

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5 10 15					This boring was not sampled, but it is located approximately 30 feet southwest of well 30-12. See the log of that well for details of the geology in this vicinity. Bottom at 14.5 feet.	

Sweet, Edwards & Associates, Inc.

BORING LOG

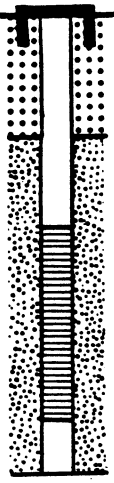
PROJECT Occidental Chemical Corp.-Tacoma, WA **Page** 1 **of** 1

Location Southeast of Graphite Waste Pile **Boring No.** 30-15

Surface Elevation 11.74 ft. (Top of 2" steel casing) **Drilling Method** Hollow Stem Auger

Total Depth 12 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 12/13/86 **Logged By** J.S. Bailey DEM for JSB

WELL DETAILS	PENE-TRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERME-ABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		5				SP	SAND, gray, medium to coarse, saturated below 5.5 feet.	
		10					Bottom at 12 feet.	
		15					NOTE: This boring was not sampled, instead boring cuttings were logged during drilling.	

SEA-300-02a

Sweet-Edwards / EMCON, Inc.

BORING LOG

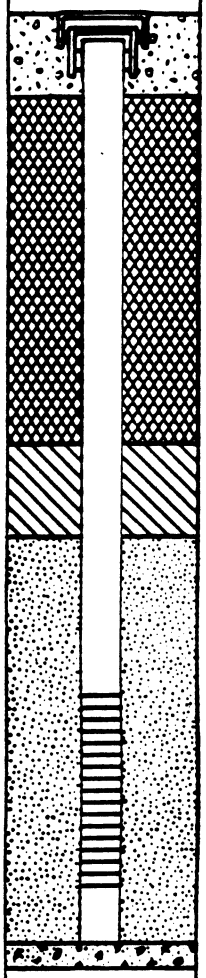
PROJECT Occidental Chemical Corporation, Tacoma WA **Page** 1 of 1

Location NW corner of Bldg 323, Port of Tacoma **Boring No.** 31-25

Surface Elevation 12.0 feet (q.s)* **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/15/88; 16:15 **Logged By** SEN

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30					Boring was not logged. Well is located 6 feet east of 31-50B. See the log of that boring for a description of the geology in this vicinity. Bottom at 25 feet.	9-9-88 10:30 ▽

Sweet-Edwards / EMCON, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation, Tacoma, WA **Page** 1 of 2

Location NW side Bldg 323, Port of Tacoma **Boring No.** 31-50B

Surface Elevation 12.1 feet **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/16/88; 15:30 **Logged By** SEN

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				GP	0-1 foot: Sandy GRAVEL, dark brown, moist, sub-angular gravel to 1/2 inch diameter. Asphaltic concrete top 4 inches.	
	3-9-10-11		1	Split Spoon			1-18.5 feet: SAND, olive grey, moist to 8 feet, saturated below, fine to medium loose. Trace sandy silt laminae; trace shell and wood fragments.	9/7/88 11:50
	1-4-7-8	5	2	SS				
	2-3-3-3		3	SS				Water levels are heavily influenced by tidal fluctuations in this area
	3-3-4-4	10	4	SS		SP		
	2-3-3-5		5	SS				
	2-3-3-2	15	6	SS				
	1-1-2-3		7	SS				
	2-2-3-3	20	8	SS		SM	18.5-21.0 feet: Silty SAND, light olive grey, saturated, very fine to fine, loose. Banded silt layers less than 1/2 inch throughout. 2 inch thick layer at 19.0 feet.	
	3-8-11-10		9	SS		SW		
		25	10	SS		SP		
	3-4-7-10		11	SS		SP-SM	21-22.5 feet: SAND; olive grey, saturated, fine to coarse, loose. Trace silt.	
	6-7-9-14	30	12	SS		SP	22.5-33.5 feet: SAND; olive grey, saturated, fine to medium, medium dense. Many silt beds (continued on next page)	
	4-11-15-11							

Sweet-Edwards / EMCON, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation

Boring No. 31-508

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	1-2-2-2		13	SS			and laminae at 24 to 26.5 feet. Shell fragments and coarse sand increasing from 30 to 33.5 feet.	
	1-4-11-12	35	14	SS		SP-SM	33.5-40.5 feet; SAND and Silty SAND, olive black to olive grey, saturated fine to medium, medium dense. Many thin (1 inch) silty sand layers, and organic debris associated with sand, decreasing below 38 feet increasing density below 38 feet.	
	10-19-20-12		15	SS				
	3-4-16-25	40	16	SS		SM		
	1-2-3-3		17	SS				
	6-8-11-19	45	18	SS				
	6-6-15-18		19	SS		SP-SM	40.5-41.5 feet; Silty SAND, olive grey, saturated, very fine, dense. Few sand interbeds containing abundant wood fragments.	
	5-15-20-17	50	20	SS			41.5-52 feet; SAND and Silty SAND, olive black to olive grey, saturated, fine to medium, medium dense. Some thin silty sand layers to 2 inches. Few shell fragments.	
		55					Bottom at 50 feet. Sample taken from 50 to 52 feet.	

Sweet-Edwards / EMCON, Inc.

BORING LOG

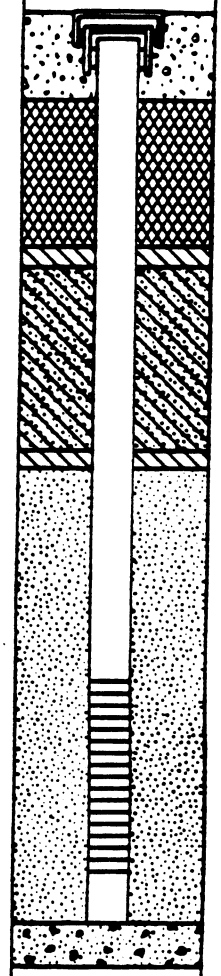
PROJECT Occidental Chemical Corporation, Tacoma, WA **Page** 1 of 1

Location Entrance to Port of Tacoma Alexander Ave. **Boring No.** 32-25

Surface Elevation 12.2 feet **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/16/88; 9:00 **Logged By** SEN

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30					Boring was not logged. Well is located 6 feet west of 32-50. See the log of that boring for a description of the geology in this vicinity. *note: Mixed layers of natural sand and bentonite chips. Bottom at 25 feet.	

*note

S-E/E 300-02a

BORING LOG

Sweet-Edwards / EMCON, Inc.

PROJECT Occidental Chemical Corporation, Tacoma, WA

Location Entrance to Port of Tacoma, Alexander Ave. **Boring No.** 32-50

Surface Elevation 12.2 feet **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/15/88; 9:00 **Logged By** SEN

WELL DETAILS	PENETRATION TIME/RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0	1	Split Spoon		GP	0-1 foot: Sandy GRAVEL, dark brown, moist, sub-angular gravel to 1/2 inch in diameter. Asphaltic concrete top 4 inches.	
	2-2-3-3	5	2	SS		SP	1-16 feet: SAND, olive black, moist to 12 inches, saturated below, fine - medium, loose. Trace silty sand laminae, some shell fragments and organic debris.	9/12/88 9:35
	3-7-8-10		3	SS				
	2-5-9-9	10	4	SS				
	2-6-7-9		5	SS				
	3-5-3-6	15	6	SS		SP-SM	16-18.5 feet: SAND and Silty SAND, olive black to olive grey, saturated, fine, loose. Interbedded layers of sand and silty sand to 4 inches.	
	2-4-4-6		7	SS		SP	18.5-33.8 feet: SAND, olive black, saturated, fine to medium, loose to medium dense. Few silty sand layers. 6-12 inches olive grey CLAY layers at 27.5, 30.5 and 32.5 feet. Trace shell fragments.	
	2-3-1-3	20	8	SS				
	3-2-3-3		9	SS				
	6-10-7-7	25	10	SS				
	3-6-12-12		11	SS		CL		
	2-5-8-12	30	12	SS		SP		
	4-3-6-9					CL		
						SP		
						CL		

Sweet-Edwards / EMCON, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation, Tacoma, WA

Boring No. 32-50

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	1-1-3-5		13	Split Spoon				
		35	14	SS		SM-ML	33-36.8 feet: Silty SAND, dark olive grey, saturated, very fine to fine, loose to medium dense. Many silty layers to 4 inches and shell fragments.	
	1-9-15 -12							
	9-19-14		15	SS		SP		
		40					36.8-40.8 feet: SAND, olive black, saturated, medium, medium dense. Few silty sand layers. Many wood fragments below 40 feet.	
	4-4-10 -16		16	SS		SP-SM		
	6-8-10 -12		17	SS				
		45	18	SS		SP	40.8-42.5 feet: SAND and Silty SAND, olive black to olive grey, saturated, fine, medium dense. Many silty sand layers to 1 inch.	
	8-17-21 -21							
	3-5-10 15		19	SS				
		50	20	SS			42.5-52 feet: SAND, olive black, saturated, medium, medium dense. Few silty sand layers to 1 inch and shell fragments decreasing, wood fragments increasing with depth. Thin (2 inches) silty sand layers at 50.4 feet.	
	7-18-21 -8							
		55					Bottom at 50 feet.	
							Sample taken from 50 to 52 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 32-50R
DATE COMPLETED: MAY 28, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*12.2* *11.75*					
	Refer to 32-50 for stratigraphic details.		CONCRETE				
-2.5							
-5.0							
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0							
-17.5							
-20.0			2" Ø SS PIPE				
-22.5							
-25.0							
-27.5							
-30.0			8" Ø BOREHOLE				
-32.5							

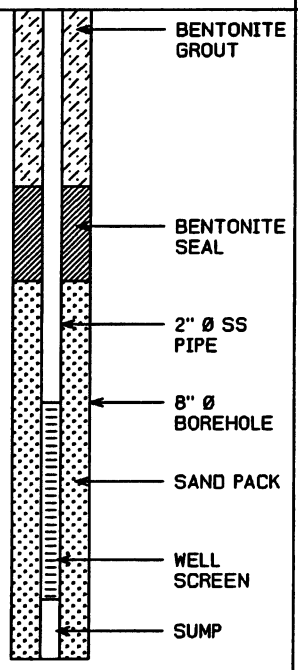
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 32-50R
DATE COMPLETED: MAY 28, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0							
-42.5							
-45.0	SP-SAND (NATIVE), medium grained, dark gray to black, trace red sand, wet	-31.8		1SS		32	
	ML-SILT, wet	-33.6					
-47.5	SM-SAND, trace to little silt, trace wood, fine grained, dark gray to black, wet	-33.7		2SS		22	
-50.0				3SS		70	
	END OF HOLE @ 51.5ft BGS	-39.3					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							



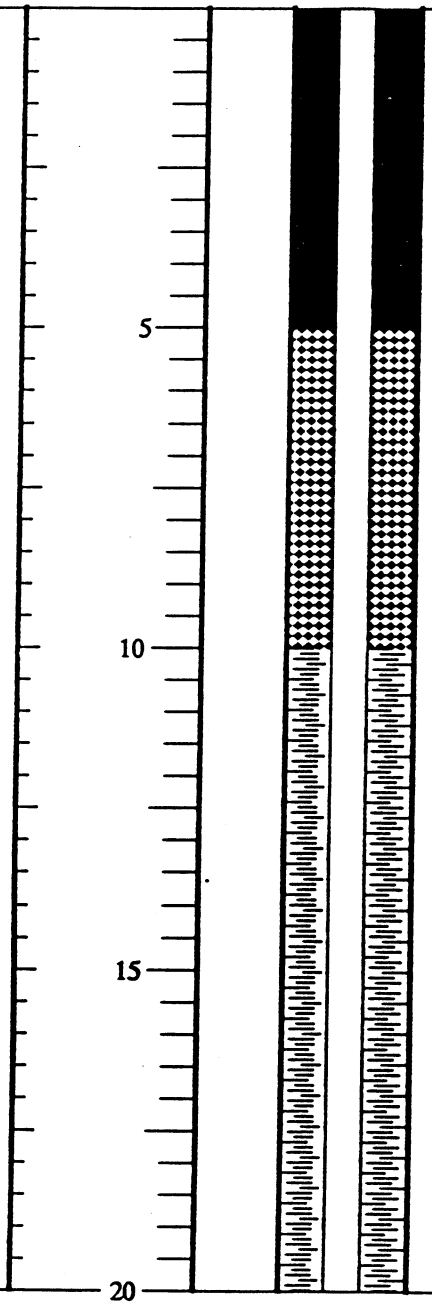
SCREEN DETAILS
Screened interval:
45.0 to 50.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
41.9 to 51.5ft BGS
Material: 10/20 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	1 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



The 0- to 50-foot interval of this boring was not sampled. This boring is located approximately 17 feet west of boring 32-50, which was continuously sampled and logged during previous drilling at this site. See the log for 32-50 for a description of the geology between 0 and 50 feet in this vicinity.

REMARKS

1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

Developed: 12/28/89

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	2 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				25				Description on previous page
				30				
				35				
				40				

REMARKS
1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

SWEET-EDWARDS/EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	3 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				45				Description on previous page
1	SB	35-50-50-60		50				50 - 63.5 feet: SAND (SP), black with red grains, trace fines, very fine to medium, wet. (ZONE II)
2	SB							-- @ 52.5 - 53 feet: sandy silt, medium yellow brown, some clay, some thinly laminated.
3	SB							
4	SB	9-28-48-75		55				
5	SB							-- @ 58.4 - 58.5 feet: gray silt, laminated
				60				

REMARKS
1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	4 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
6	SB	3-4-5-30	
7	SB		-- @ 62.5 - 63.5 feet: thinly laminated silt and sandy silt, gray
			63.5 - 65.0 feet: SILTY SAND (SM), medium gray, very fine to fine, wet. (ZONE II)
8	SB	6-12-30-38	65.0 - 71.0 feet: SANDY SILT (ML), medium gray, soft, wet. Fine sand, thinly bedded sand and silty sand between 67.5 and 68.5 feet. (ZONE II)
9	SB		
10	SB		
11	SB	10-20-	
12	SB	25-40	71 - 75 feet: SAND (SP), black, trace fines, fine to medium, wet. Thinly bedded silty sand and sandy silt common. (ZONE II)
13	SB	8-25-35-	75 - 76.5 feet: SANDY SILT (ML), brownish gray, soft, wet. (ZONE II)
14	SB	65	76.5 - 81 feet: SILTY SAND (SM), brownish gray, wet. Trace organic material (twigs, roots). (ZONE II)

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

65 70 75 80

REMARKS
1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	5 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
15	SB	20-8-	
16	SB	9-15	81.0 - 88.0 feet: CLAYEY SILT (ML), olive gray, trace sand, firm, wet. Occasional thin sand laminae. (ZONE II)
			-- @ 83 feet: wood fragments
17	SB	7-25-60-95	-- @ 87.5 - 88 feet: abundant shell fragments
18	SB		88 - 97.5 feet: SAND (SP), black with red grains, very fine to medium, wet. Common shell fragments, sand coarsening downward. (ZONE II)
19	SB	50-20-50-47	
20	SB		
21	SB	50-25-50-	-- @ 96 - 97 feet: some fines
22	SB	60	97.5 - 100 feet: SANDY SILT (ML), brownish gray, stiff, wet. (ZONE II ?)
23	SB		

REMARKS
1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	32-100
LOCATION	Tacoma, Washington	PAGE	6 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.30'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/22/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				105				Total depth drilled: 102 feet Interval sampled: 50 to 100 feet WELL COMPLETION DETAILS: 0.8 - 95 feet: 2-inch black iron riser 95 - 100 feet: 2-inch stainless steel wire-wrapped screen 100 - 101.5 feet: 2-inch stainless steel sump 0 - 5 feet: concrete 5 - 10 feet: hydrated bentonite chips 10 - 88.2 feet: cement/bentonite grout 88.2 - 91.5 feet: bentonite pellets 91.5 - 102 feet: 10x20 Colorado silica sand
				110				
				115				
				120				

REMARKS
1) Water added below 1 foot. 2) T.O.C. - 11.46 feet (NGVD).

Sweet-Edwards / EMCON, Inc.

BORING LOG

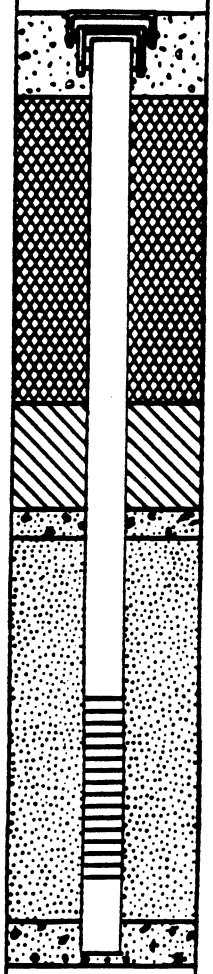
PROJECT Occidental Chemical Corporation, Tacoma, WA **Page** 1 of 1

Location 300' W of OCC 300' S of dock **Boring No.** 33-25

Surface Elevation 12.3 feet **Drilling Method** Hollow Stem Auger

Total Depth 25 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/20/88; 14:15 **Logged By** SEN

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0 5 10 15 20 25 30					Boring was not logged well is located 6 feet east of 33-50B. See the log for that boring for a description of the geology in this vicinity. Bottom at 25 feet.	9/20/88 11:15 ▽

S-E/E 100-02a

Sweet-Edwards / EMCON, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation, Tacoma, WA **Page** 1 of 2

Location 300' W of OCC 300' S of dock **Boring No.** 33-50B

Surface Elevation 12.2 feet **Drilling Method** Hollow Stem Auger

Total Depth 50 feet **Drilled By** Soil Sampling Service, Inc.

Date Completed 9/20/88; 14:30 **Logged By** KGL-SEN

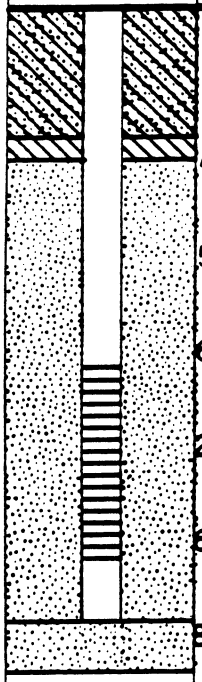
WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
		0				GP	0-1 foot: Sandy GRAVEL, dark brown, moist, sub-angular to 1/2 inch. Asphaltic concrete top 4 inches.	
	5-5-5-3		1	Split Spoon				
		5	2	SS			1-20 feet: SAND, black, moist to 10 feet, saturated below, fine to medium, loose. Trace shell fragments and rounded gravel. Few silty sand layers (1 inch) below 18 feet.	9/16/88 14:30
	1-2-3-9							
	1-2- -		3	SS				
		10	4	SS		SP		
	3-7-6-6							
	1-4-5-6		5	SS				
		15	6	SS				
	3-3-4-4							
			7	SS			20-23 feet: Silty SAND, dark grey. Saturated, fine, loose. Trace shell fragments.	
	3-2-3-1							
		20	8	SS		SM	23-26.5 feet: SAND, dark grey, saturated, medium, loose to medium dense. Trace coarse sand and shell fragments.	
	2-3-2-4							
			9	SS				
	1-4-6-7					SP	26.5-29 feet: SILT, dark grey, saturated, firm-medium. Some clay and shell fragments.	
		25	10	SS				
	2-3-3-2							
			11	SS			29-31.8 feet: Silty SAND, dark grey, saturated, fine to medium loose. Interbedded sandy silt and sands.	
	2-4-2-2							
		30	12	SS		SM		
	1-1-1-2							

Sweet-Edwards / EMCON, Inc.

BORING LOG

PROJECT Occidental Chemical Corporation

Boring No. 33-50B

WELL DETAILS	PENETRATION TIME/ RATE	DEPTH (FEET)	SAMPLE NO.	SAMPLE TYPE	PERMEABILITY TESTING	SYMBOL	LITHOLOGIC DESCRIPTION	WATER QUALITY
	5-12-15 -12	35	13	SS		SP	31.8-43 feet: SAND, olive black, saturated, medium, medium dense. Few thin (0.5 inches) silty sand layers. Trace wood and shell fragments. Some reddish coarse sand.	
	4-5-18 -11		14	SS				
	5-20-40 -35	40	15	SS				
	6-15-20 -15		16	SS				
	2-3-3-7	45	17	SS		SM	43-46 feet: Silty SAND, olive grey, saturated, fine, medium dense. Trace shell fragments, thin .5 inch sand layer at 45 feet.	
	6-15-20 -15		18	SS		SP-SM	46-49 feet: SAND, olive black to olive grey, saturated, fine to medium, medium dense. Many silty sand layers to 3 inches. Trace shell fragments.	
	8-10-18 -18	50	19	SS		SP	49-52 feet: SAND, olive black, saturated, medium, medium dense. Trace shell fragments.	
	7-14-21 -21		20	SS			Bottom at 50 feet. Sample taken from 50 to 52 feet.	

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-18)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 50' FROM SOUTH CORNER OF PORT OF TACOMA FENCE

HOLE DESIGNATION: 33-100
(Page 1 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*12.09* *12.3*				
	For stratigraphy from 0.0 to 50.0 ft BGS refer to log 33-50		ROAD BOX CONCRETE SEAL 2"ø BLACK IRON PIPE 6"ø BOREHOLE CEMENT/ BENTONITE GROUT			

2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-18)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 50' FROM SOUTH CORNER OF PORT OF TACOMA FENCE

HOLE DESIGNATION: 33–100 (Page 2 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0	SP–SAND, medium dense, medium grained, poorly graded, olive gray and dark gray, wet to saturated	-37.7	CEMENT/ BENTONITE GROUT	1CT		
52.5	– dense, chemical like odor			2CT		
55.0	– piece of wood – trace silt		6"ø BOREHOLE	3CT		
57.5				4CT		
60.0	SW–SAND, trace silt, shell pieces, dense, fine to medium grained, well graded, olive gray and dark gray, wet,	-45.7		6CT		
62.5	– very dense			7CT		
65.0	– medium dense			8CT		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

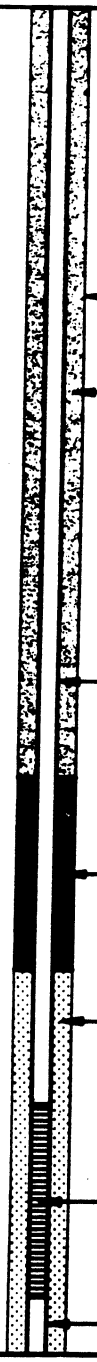
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-18)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: APPROXIMATELY 50' FROM SOUTH CORNER OF PORT OF TACOMA FENCE

HOLE DESIGNATION: 33–100 (Page 3 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	– medium dense					
67.5	– very dense			9CT		
70.0	– medium dense			10CT		
72.5	– some silt			11CT		
75.0	ML–SILT, trace fine grained sand, olive gray to dark gray, wet	-62.7	6"ø BOREHOLE; CEMENT/BENTONITE GROUT	12CT		
77.5						
80.0	SW–SAND, fine to medium grained, well graded, olive gray to dark gray, wet	-67.7		13CT		
82.5			2"ø BLACK IRON PIPE			
85.0				14CT		
87.5			BENTONITE PELLET SEAL			
90.0						
92.5			SAND PACK	15CT		
95.0	ML–SILT, dense, brown to dark gray, wet	-82.7				
97.5			WELL SCREEN	16CT		
			TAILPIPE			



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-18)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 33–100 (Page 4 of 4)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 4, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 6" CABLE TOOL
LOCATION: APPROXIMATELY 50' FROM SOUTH CORNER OF PORT OF TACOMA FENCE
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	SW–SAND, very dense, fine to medium grained, well graded, olive and dark gray, wet, chemical sheen	-87.7	6"ø BOREHOLE; TAILPIPE; SAND PACK	17CT	☒	
102.5	ML–SILT, very dense, brown to dark gray, wet	-88.7				
	END OF HOLE @ 101.5 FT. BGS	-89.2				
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

SCREEN DETAILS:
Screened Interval:
93.5 to 98.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
90.0 to 101.5' BGS
Material –# 10–20 Sand

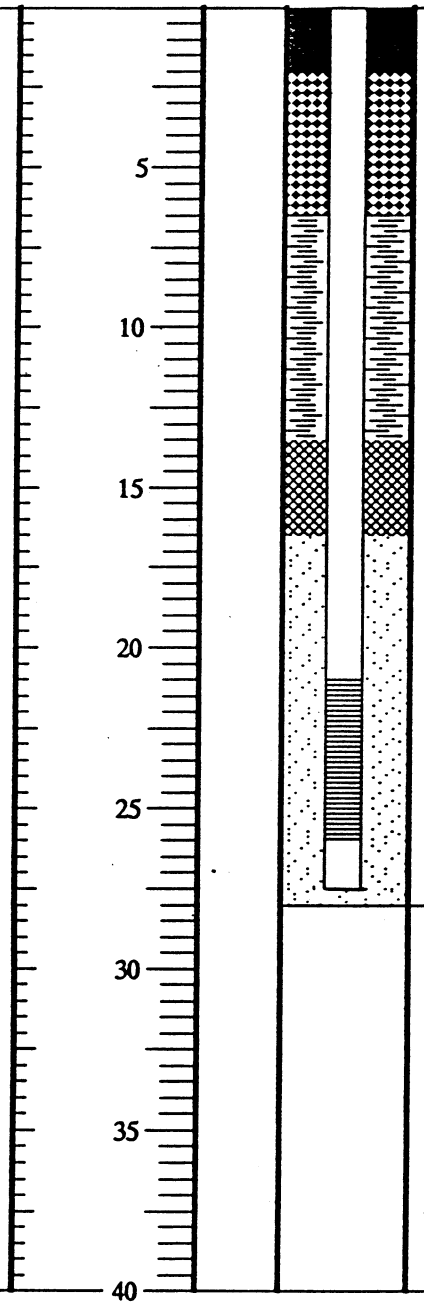
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-25
LOCATION	Tacoma, Washington	PAGE	1 OF 1
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.80'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	28.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/11/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



This boring was not sampled. It is located approximately 13 feet southeast of well 34-100 which was sampled and logged during drilling. See the log of 34-100 for a description of the geology in this vicinity.

Total depth drilled: 28 feet

WELL COMPLETION DETAILS:
0.8 - 21 feet: 2-inch black iron riser
21 - 26 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
26 - 27.5 feet: 2-inch stainless steel sump
0 - 2 feet: concrete
2 - 6.5 feet: hydrated bentonite chips
6.5 - 13.5 feet: cement/bentonite grout
13.5 - 16.5 feet: bentonite pellets
16.5 - 28 feet: 10x20 Colorado silica sand

REMARKS
1) T.O.C. = 11.04 feet (NGVD)
Developed: 1/2/90
Water Level Elevation: 2.36', 1/2/90

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-25R
DATE COMPLETED: August 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	14.63 11.82					
0	NOT SAMPLED (0 to 15ft BGS)		CONCRETE				
2							
4			2" PVC WELL CASING				
6			CEMENT/ BENTONITE GROUT				
8			6" BOREHOLE				
10							
12							
14							
16	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-3.18	BENTONITE CHIPS				
18	ML-SANDY SILT, soft, fine grained, dark gray, trace shell fragments, wet	-5.38					
	SP-SAND, compact, fine grained, well sorted,	-7.88					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-25R
DATE COMPLETED: August 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22	dark gray, trace red grains and white grains, trace shell fragments, wet		2" PVC WELL SCREEN; SAND PACK; NATIVE BACKFILL; SUMP	1RS		10.0	
24							
	END OF BOREHOLE @ 25.0ft BGS	-13.18					
26							
28							
30							
32							
34							
36							
38							

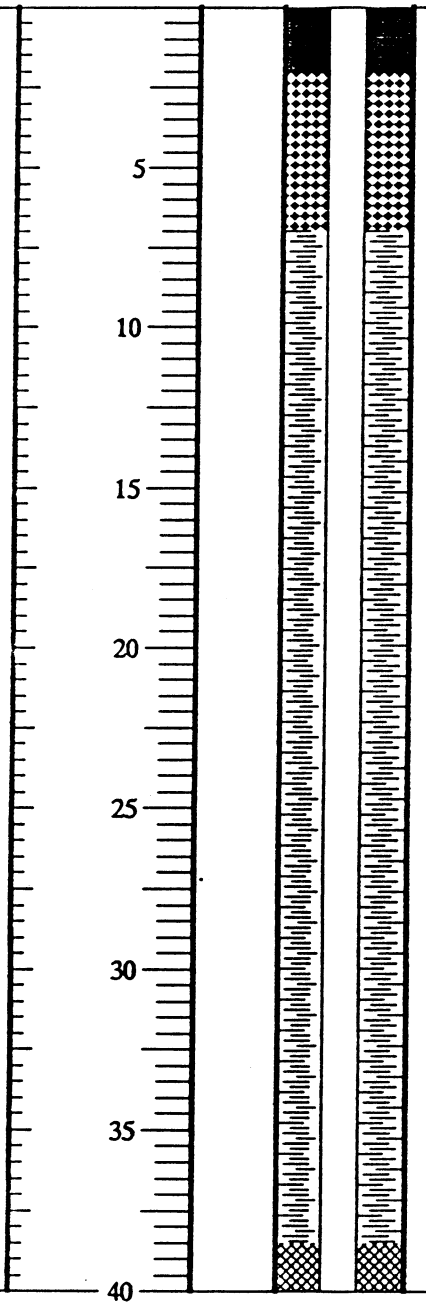
WELL DETAILS
Screened interval:
-7.68 to -12.68ft
19.50 to 24.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-2.68 to -4.68ft
14.50 to 16.50ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-4.68 to -12.68ft
16.50 to 24.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-50
LOCATION	Tacoma, Washington	PAGE	1 OF 2
DRILLED BY	Holt Drilling	REFERENCE ELEV.	11.80'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	52.50'
LOGGED BY	Mike Noll	DATE COMPLETED	12/12/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



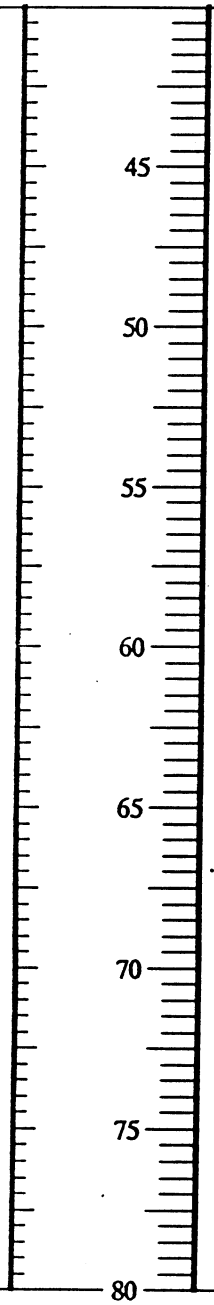
This boring was not sampled. It is located approximately 6 feet southeast of well 34-100 which was continuously sampled and logged during drilling. See the log of 34-100 for a description of the geology in this vicinity.

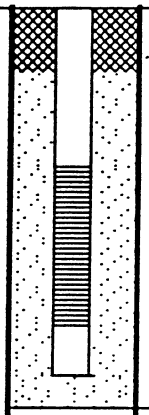
REMARKS
1) T.O.C. = 10.93 feet (NGVD)
Developed: 1/2/90
Water Level Elevation: 2.80', 1/2/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-50
LOCATION	Tacoma, Washington	PAGE	2 OF 2
DRILLED BY	Holt Drilling	REFERENCE ELEV.	11.80'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	52.50'
LOGGED BY	Mike Noll	DATE COMPLETED	12/12/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION





Description on previous page.

Total depth drilled: 52.5 feet

WELL COMPLETION DETAILS:

0.8 - 45.0 feet: 2-inch black iron riser
45.0 - 50.0 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
50.0 - 51.5 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 7 feet: hydrated bentonite chips
7 - 38.5 feet: cement/bentonite grout
38.5 - 42 feet: bentonite pellets
42 - 52.5 feet: 10x20 Colorado silica sand

REMARKS
1) T.O.C. = 10.93 feet (NGVD)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-50R
DATE COMPLETED: August 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	14.67 11.83					
	NOT SAMPLED (0 to 40ft BGS)		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-50R
DATE COMPLETED: August 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38			BENTONITE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-50R
DATE COMPLETED: August 7, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet - with silt, trace wood at 41.2ft BGS - no silt, no wood at 41.9ft BGS	-28.17	CHIPS	1RS		10.0	
44							
46	- trace silt at 45.3ft BGS		2" PVC WELL SCREEN				
48			SAND PACK				
50	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-36.37	NATIVE BACKFILL				
52	END OF BOREHOLE @ 50.0ft BGS	-38.17	SUMP				
54							
56							
58							

WELL DETAILS
Screened interval:
-31.92 to -36.92ft
43.75 to 48.75ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-26.92 to -28.92ft
38.75 to 40.75ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-28.92 to -36.92ft
40.75 to 48.75ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-75R
DATE COMPLETED: August 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	14.73 11.87					
	SEE 34C FOR STRATIGRAPHIC INFORMATION		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-75R
DATE COMPLETED: August 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-75R
DATE COMPLETED: August 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

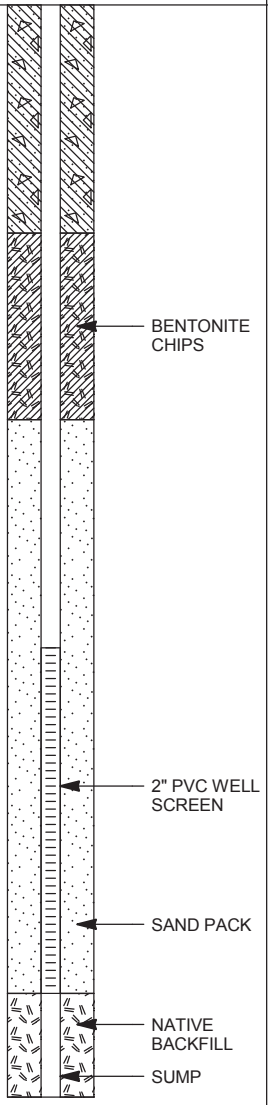
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-75R
DATE COMPLETED: August 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
62		
64		
		-53.13
66	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	
68		-56.13
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	
70		
		-59.63
72	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	
		-60.73
74	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	
		-63.13
76	END OF BOREHOLE @ 75.0ft BGS	
78		

MONITORING WELL



WELL DETAILS
Screened interval:
-57.43 to -62.43ft
69.30 to 74.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-51.43 to -54.13ft
63.30 to 66.00ft BGS
Material: BENTONITE CHIPS

SAMPLE			
NUMBER	INTERVAL	REC (ft)	'N' VALUE
1RS		10.0	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34-75R
DATE COMPLETED: August 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
82			Sand Pack: -54.13 to -62.43ft 66.00 to 74.30ft BGS Material: SAND				
84							
86							
88							
90							
92							
94							
96							
98							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	14.21 11.80						
	ASPHALT							
	SP-GRAVELLY SAND (FILL), trace silt, compact, fine to medium grained, poorly sorted, brown, moist, gravel subangular to subrounded, fine to coarse grained	11.30						
	SP-SAND (FILL), trace silt, compact, fine to medium grained, well sorted, brown and gray, moist, shell fragments throughout	10.60						
2								0.0
4								
	- dark gray, with red grains and white grains at 5.0ft BGS			1RS		10.0		
6								
	- moist to very moist at 7.0ft BGS							0.0
8								
	- loose, wet at 9.0ft BGS							
10								
	- piece of angular gravel 5/8" at 10.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
12	- piece of wood 1/2x1/2" at 11.0ft BGS - intact shell 3/4x1-1/2" at 12.7ft BGS							0.0
	ML-SANDY SILT, trace clay, loose, no plasticity, light gray, wet, rapid dilatancy, several sand laminations, rootlets throughout	-1.70 -2.10						
14	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet			2RS		10.0		
16								
	ML-SANDY SILT, compact, very fine grained sand, low plasticity, light gray, wet, rapid dilatancy, several sand laminations and silty clay laminations, scattered sliver size wood pieces	-5.10 -5.70						0.0
18	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-6.50						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - 3/4" silty clay at 18.6ft BGS	-7.00						
20	SP-SAND, trace to with silt, loose, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - sand, trace silt at 20.0ft BGS - 2-1/2" soft silty clay at 20.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-10.70						0.0
	SC-SILTY CLAYEY SAND, very loose, very fine grained sand, slight to low plasticity, gray, wet, shell fragments throughout, 2-1/2x0.3" shell fragment at base contact - 1" silty clay at 23.3ft BGS - 1/2" silty clay at 23.5ft BGS	-11.80						
24	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, numerous small to large shell fragments at base contact	-12.70						
	CI-SILTY CLAY, soft, medium plasticity, light gray, very moist, moderate dilatancy, shell fragments throughout							
26	CL-SILTY SANDY CLAY, soft, low plasticity, light gray, very moist, moderate dilatancy, clay laminations and sand laminations and lenses up to 1/2" thick, shell fragments throughout	-14.20						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - 1" silty clay at 26.8ft BGS	-14.70						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout - very fine grained at 27.5ft BGS	-15.20						0.0
28								
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, numerous wood pieces from sliver size up to 2-1/2x1/4" diameter throughout	-17.60						
30		-18.10		3RS		20.0		
	ML/CL-CLAYEY SILT/SILTY CLAY, trace very fine grained sand, soft, low to medium plasticity, rapid to moderate dilatancy, gray, wet	-18.40						
	ML-SANDY SILT, few clay, very loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-19.20						
32	ML-CLAYEY SILT, trace very fine grained sand, loose, low plasticity, gray, wet, rapid dilatancy							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-21.70						
34	SM/ML-SILTY SAND/SANDY SILT, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, 1/2x1-1/2" to sliver size wood pieces throughout	-22.20						
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout - 1" sandy silt at 35.2ft BGS	-23.50						
36	SM-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, several rootlet size wood pieces	-25.00						
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							0.0
38								
	- slight increase in grain size at 39.8ft BGS							
40	SM-SILTY SAND, very loose, fine grained, well sorted, light gray,w et, scattered sliver size wood pieces	-28.20 -28.60						
	SP-SAND, trace silt, very loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-29.20						
	ML-SANDY SILT, trace clay, very loose, very fine grained sand, dark gray, with red grains and white grains, wet, rapid dilatancy							0.0
42								
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white	-31.70						5.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, wet							
		-32.70						
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, scattered wood pieces sliver size to 1/2x1"							
	- laminated sandy silt at 45.2ft BGS							
46								
	- 1" section with numerous wood pieces up to 1/4x2-1/4" at 46.2ft BGS		BENTONITE GRAVEL					1.1
	- laminated sandy silt at 46.8ft BGS							
48								
								1.1
		-38.10						
50	SM-SILTY SAND, very loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments and numerous sliver to twig size wood pieces throughout	-38.50		4RS		20.0		
	ML-SANDY SILT, trace clay, very loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-39.00						
	SP-SAND, trace silt, very loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, uniform grain size							4.2
52								
	- 2" sandy silt, trace clay at 53.5ft BGS							5.3
54								
	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains and white	-42.70						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, wet, shell fragments throughout							
56								9.2
	SM/ML-SAND AND SILT, very loose, very fine grained, gray, wet	-44.70						
	- 1-1/2" silty clay at 57.2ft BGS							
	SC-SILTY CLAYEY SAND, very loose, very fine grained, slight plasticity, gray, wet	-45.70 -46.00						
58	CL-SILTY CLAY, trace sand, soft, low plasticity, light gray, very moist, few shell fragments, several sliver to twig size wood pieces	-46.20						
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							6.8
	- 3/4x4" piece of wood at 59.5ft BGS							
	- scattered sliver size to twig size wood pieces at 59.8ft BGS							
60		-48.20						
	CL-SILTY CLAY, firm, low plasticity, gray, moist to very moist	-48.50						
	ML-SANDY CLAYEY SILT, loose, very fine grained sand, slight to low plasticity, gray, wet, rapid to moderate dilatancy, shell fragments throughout	-49.10						
	CL-SILTY CLAY, trace sand, soft, low plasticity, gray, wet, moderate dilatancy							
62								0.0
	ML-SANDY SILT, trace clay, loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, scattered sliver size wood pieces	-51.20						
64								
	- 2" silty sand, several twig size wood pieces at 65.3ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-55.50						0.0
68	ML-SANDY CLAYEY SILT, loose, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout, several clay laminations and lenses up to 1/4" thick							
70				5RS		20.0		
		-58.80						
72	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - 1" silty clay at 73.0ft BGS							0.0
74		-62.20						
	ML-CLAYEY SILT, few sand, compact, low plasticity, gray, wet, moderate dilatancy, numerous pieces of wood throughout greater than 1/2x1-1/2" - 2-1/2x2-1/2" piece of wood, numerous wood fibers at 75.5ft BGS							
76		-64.20						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
78								
	- reducing silt content at 79.5ft BGS							
80	ML-SILT, few clay, trace sand, loose, slight plasticity, gray, wet, moderate to rapid dilatancy, several clay laminations and sand laminations	-68.20						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-69.70						
82	CL-SILTY CLAY, firm, low plasticity, gray, very moist, moderate dilatancy	-70.20 -70.50						0.0
	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout							
84								
86								
	ML-SILT, few clay, trace sand, compact, slight to low plasticity, gray, very moist, rapid dilatancy, shell fragments throughout	-74.70						
	- clayey silt at 87.5ft BGS							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SILT, few sand, trace clay, very loose, slight plasticity, gray, wet, numerous wood pieces up to 1-1/4x1.6" to sliver size	-76.80						
	ML/CL-SILTY CLAY/CLAYEY SILT, firm, low plasticity, gray, very moist, moderate dilatancy	-77.10						
90	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 1/2" silty clay at 89.9ft BGS - silt laminations throughout at 90.0ft BGS	-77.70		6RS		20.0		
92	SM/ML-SAND AND SILT, loose, very fine grained, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy	-80.70	PORT 1/2 SCREEN 1 PORT 1/2 SCREEN 2					0.0
94	CL-SILTY CLAY, trace sand, firm, low plasticity, gray, very moist, moderate dilatancy	-82.70	SAND PACK PORT 1/2 SCREEN 3 PORT 1/2 SCREEN 4					
96	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, wet, shell fragments throughout	-83.40	PORT 1/2 SCREEN 5 PORT 1/2 SCREEN 6					
98	ML-SILT, few clay, trace sand, compact, low to slight plasticity, gray, very moist, moderate dilatancy	-85.70						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
100	ML-SANDY SILT, compact, very fine grained, no plasticity, gray, wet, rapid dilatancy - 2" silty sand at 100.5ft BGS	-88.20						
102	- 3" silty sand at 102.0ft BGS							
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-90.70						0.0
	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, wet, several sand laminations	-91.20						
104	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-92.00						
	CL-SILTY CLAY, soft, low plasticity, gray, moist, moderate dilatancy	-92.90						
	SC-CLAYEY SILTY SAND, loose, very fine grained, gray, wet	-93.50						
106	SM-SILTY SAND, compact, very fine grained, dark gray, with red grains and white grains, wet	-94.50						0.0
108	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-96.20						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-98.20		7RS		20.0		
	- 1-1/2" silty clay at 111.0ft BGS		COATED BENTONITE PELLETS					
112								
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-100.70						0.0
	- very fine grained at 113.0ft BGS							
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-101.80						
114								
	- silt laminations throughout at 115.0ft BGS							
116								
	ML-SANDY SILT, compact, very fine grained, no plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-105.20						
		-105.70						0.0
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, sandy silt laminations and lenses up to 5/16" thick							
118								
120								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
122			PORT 3/4 SCREEN 1					
			PORT 3/4 SCREEN 2					0.0
			PORT 3/4 SCREEN 3 SAND PACK					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-111.50						
124			PORT 3/4 SCREEN 4					
			PORT 3/4 SCREEN 5					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-113.70						
126			PORT 3/4 SCREEN 6					
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout	-115.50						0.0
		-115.90						
128	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, several sandy silt laminations							
130				8RS		20.0		
	ML-CLAYEY SILT, with sand laminations, loose, low plasticity, light gray, very moist, moderate dilatancy	-119.20						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white	-119.80						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, shell fragments throughout	-120.30						
	ML-SANDY SILT, trace clay, compact, very fine grained, slight plasticity, gray, wet, shell fragments throughout							0.0
134								
	- 1/2" silty clay at 134.9ft BGS							
136								
								0.0
138								
	ML-CLAYEY SANDY SILT, compact, slight to low plasticity, gray, very moist, moderate dilatancy, shell fragments throughout	-127.20						
140	ML-CLAYEY SILT, compact, slight to low plasticity, gray, moist, moderate to slow dilatancy, shell fragments throughout	-128.20						
	CL-SILTY CLAY, firm, low plasticity, gray, moist to very moist, slow dilatancy, shell fragments throughout	-128.70						
142								
	CL-SANDY SILTY CLAY, soft, low plasticity, gray, wet, moderate dilatancy, shell fragments	-130.70						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	throughout							
144								
	CL-SILTY CLAY, few sand, soft, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-132.70						
146			COATED BENTONITE PELLETS					
148								0.0
150				9RS		20.0		
152								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 9/18/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
156								0.0
158								
160	SM/CL-SILTY SAND, with silty clay lenses, very loose, very fine grained, gray, wet, very poor recovery from 160-170'	-148.20	SAND PACK PORT 5/6 SCREEN 1 PORT 5/6 SCREEN 2 PORT 5/6 SCREEN 3 PORT 5/6 SCREEN 4 PORT 5/6 SCREEN 5					
162								0.0
164								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
166			PORT 5/6 SCREEN 6	10RS		1.5		0.0
168								
170	OL-ORGANIC SILTY CLAY, few sand, soft, low plasticity, dark gray, wet, weight of drill rods to get to depth	-158.20						0.0
172								
174			COATED BENTONITE PELLETS CMT ANCHOR	11RS		10.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
178								0.0
180	END OF BOREHOLE @ 180.0ft BGS	-168.20						0.0
	NOTE:							
	PORT 1/2 SAND PACK 93.0 TO 100.0FT BGS (-81.20 TO -88.20FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 91.60, 92.60, 93.60, 94.60, 95.60 AND 96.60FT BGS (-78.80, -79.80, -80.80, -81.80, -82.80 AND -83.80FT NGVD) TRANSDUCER (# 1203042) 94.10FT BGS (-82.30FT NGVD)							
182	COATED BENTONITE PELLETS 100.0 TO 123.0FT BGS (-88.20 TO -111.20FT NGVD)							
	PORT 3/4 SAND PACK 123.0 TO 130.1FT BGS (-111.20 TO -1118.30FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 121.39, 122.39, 123.39, 124.39, 125.39 AND 126.39FT BGS (-109.50, -110.59, -111.59, -112.59, -113.59 AND -114.59FT NGVD)							
184								
186	TRANSDUCER (# 1140297) 123.89FT BGS (-112.09FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 34C
DATE COMPLETED: May 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	COATED BENTONITE PELLETS 130.1 TO 160.0FT BGS (-118.30 TO -148.20FT NGVD)							
188	PORT 5/6 SAND PACK 160.0 TO 170.0FT BGS (-148.20 TO -158.20FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 160.82, 161.82, 162.82, 163.82, 164.82 AND 165.82FT BGS (-149.02, -150.02, -151.02, -152.02, -153.02 AND -154.02FT NGVD) TRANSDUCER (# 1204314) 163.32FT BGS (-151.52FT NGVD)							
190	COATED BENTONITE PELLETS 170.0 TO 180.0FT BGS (-158.20 TO -168.20FT NGVD) CMT ANCHOR 175.0FT BGS (-163.20FT NGVD)							
192								
194								
196								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	1 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
1	SB	80/6"	0 - 0.2 feet: ASPHALT.
			0.2 - 3.5 feet: SAND (SW), moderate yellow brown to dark gray, very fine to coarse, some subangular to subrounded fine to medium gravel, compacted, dry. (FILL)
2	SB	12- 26- 30- 31	3.5 - 17 feet: SAND (SP), moderate yellow brown to dark gray, very fine to medium. Common shell fragments, quantity of shell fragments decreasing downward. (FILL)
3	SB	18- 16- 20- 17	-- @ 9 feet: trace subangular medium gravel
			-- @ 10 - 10.2 feet: very thin silt laminae
4	SB		
5	SB	9- 25- 10- 16	
			-- @ 15.5 - 16.0 feet: brownish gray sandy silt
6	SB	3- 1/3'	17.0 - 21.0 feet: SILTY SAND (SM), grayish brown, some nonplastic fines, very fine to medium, wet. (ZONE I)
7	SB		

REMARKS
1) Water added below 1 foot 2) T.O.C. = 1[illegible] feet (NGVD)
Developed: 1/3/90
Water Level Elevation: 1.91', 1/3/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	2 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
8	SB	12-27-47-						Description on previous page.
9	SB	30						21.0 - 28.0 feet: SAND (SW), black with red grains, very fine to coarse, wet. (ZONE II)
10	SB	17-15-14-21		25				
11	SB	6-19-30-45						28.0 - 39.1 feet: SAND (SP), black with red grains, very fine to medium, wet. (ZONE II)
12	SB	22-22-12-21		30				
13	SB							
14	SB			35				-- @ 34.2 - 34.9 feet: moderate yellow brown silt interbeds to 1-inch thick, trace clay, trace very fine sand
		13-30-43-50						
15	SB			40				39.1 - 41.8 feet: Description on following page.

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.23 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	3 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
16	SB	13-20-						39.1 - 41.8 feet: SILT (MH), moderate yellow brown to brownish gray, soft, wet. Organic material abundant, sand interbeds common. (ZONE II)
17	SB	30-63						
18	SB							41.8 - 49.7 feet: SAND (SP), black with red grains, very fine to medium, wet. Shell fragments abundant. (ZONE II)
19	SB	21-30-55-75		45				-- gray silt laminated with orange-brown organic debris @ 46.8 - 46.9 feet
20	SB	22-50						
21	SB	15-17-35-65		50				49.7 - 55.0 feet: SILT (ML), medium gray to brownish gray, trace clay, trace very fine to fine sand, soft, wet. Thin interbeds of very fine and fine black sand abundant. Laminated with orange-brown organic debris between 49.7 and 50 feet. (ZONE II)
22	SB	10-24-29-50		55				55.0 - 57.0 feet: SILTY SAND (SM), black, very fine to fine. (ZONE II)
23	SB							57.0 - 58.0 feet: SAND (SP), black with red grains, very fine to medium, wet. (ZONE II)
								58.0 - 72.5 feet: SAND (SP-SM), black, very fine to medium, wet. Interbedded with silt. (ZONE II)
				60				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.23 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	4 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

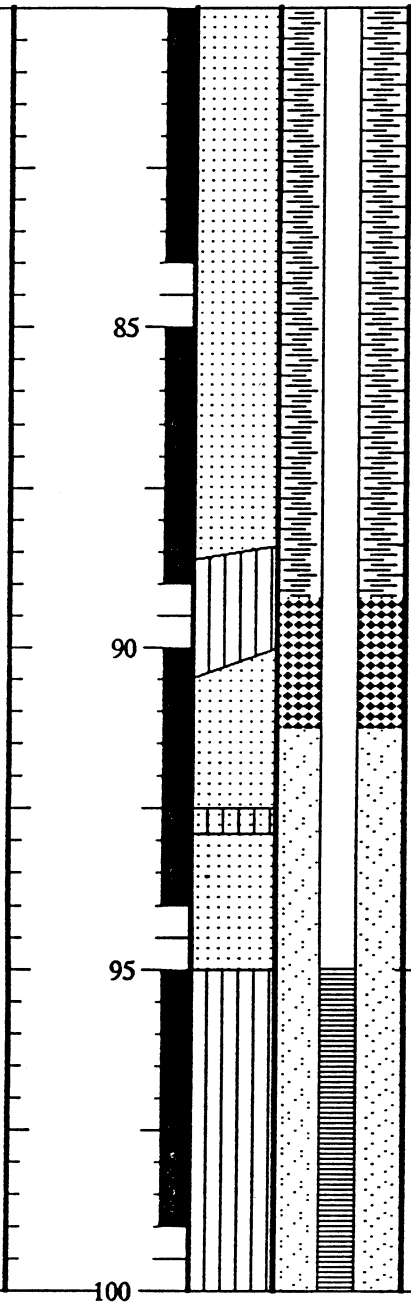
SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
24	SB	5- 10- 13- 13- 10						Description on preceding page.
25	SB	8- 16- 27-		65				-- @ 65.0 - 66.0 feet: abundant wood fragments
26	SB	45						
27	SB	20- 20- 30- 23		70				
28	SB							72.5 - 74.0 feet: CLAYEY SILT (ML), medium gray, soft, wet. (ZONE II)
								74.0 - 79.5 feet: SANDY SILT (ML), medium gray, trace clay, soft, wet. Thinly laminated. (ZONE II)
29	SB	20- 20- 30- 50		75				
								79.5 - 88.4 feet: Description on following page.
				80				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.23 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	5 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
30	SB	6- 10- 14- 45	79.5 - 88.4 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shell fragments. (ZONE II) -- @ 82 feet: thin gray silt laminae
31	SB	8- 8- 8- 50	
32	SB		88.4 - 90.0 feet: SILT (ML), medium gray, trace clay, trace very fine sand, firm, wet. (ZONE II)
33	SB	10- 20- 25- 50	90.0 - 95.0 feet: SAND (SP), black with red grains, very fine to medium, wet. Silty sand bed at 92.5 to 92.8 feet. -- @ 91.4 - 91.5 feet: trace wood fragments, very thin gray silt interbeds
34	SB		
35	SB	6- 12- 12- 14	95.0 - 99.0 feet: SILT (ML), medium gray, trace clay, trace very fine sand, soft, wet. Thinly laminated. (ZONE III ?)



REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.23 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	34-100
LOCATION	Tacoma, Washington	PAGE	6 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/8/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
								Description on previous page.

105

110

115

120

Total depth drilled: 102 feet
Interval sampled: 50 - 99 feet

WELL COMPLETION DETAILS:

0.8 - 95 feet: 2-inch black iron riser
95 - 100 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
100 - 101.5 feet: 2-inch stainless steel sump

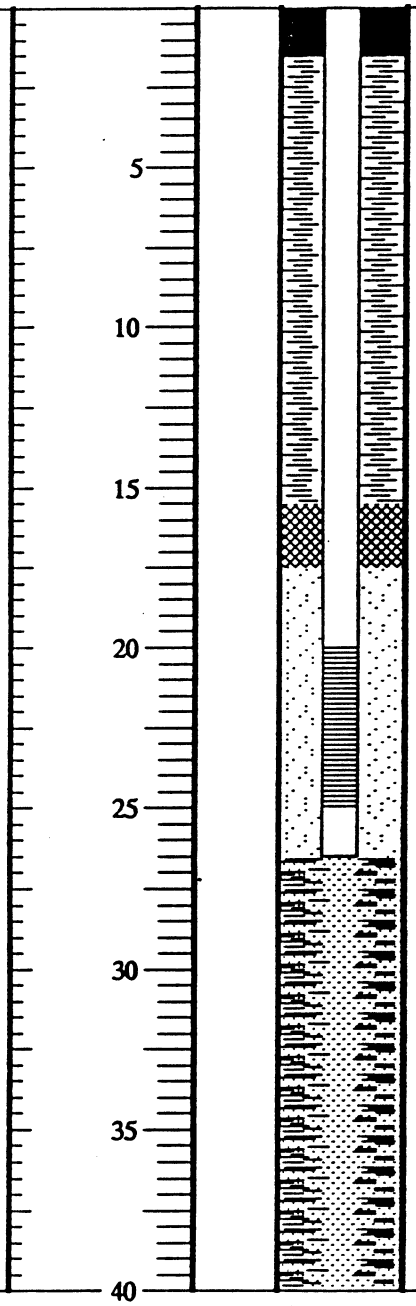
0 - 2 feet: concrete
2 - 10 feet: hydrated bentonite chips
10 - 89.2 feet: cement/bentonite grout
89.2 - 91.3 feet: bentonite pellets
91.3 - 102 feet: 10x20 Colorado silica sand

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.23 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-25
LOCATION	Tacoma, Washington	PAGE	1 OF 3
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	97.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/2/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



This boring was not sampled from 0 to 95.5 feet. It is located 11 feet southwest of boring 35-50 which was continuously sampled and logged during drilling. See the log for 35-50 for a description of the geology between 0 and 95.5 feet in this vicinity.

REMARKS

1) T.O.C. = 11.67 feet (NGVD) 2) Water added below 10 feet 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 26.5 feet and a 25-foot well was installed.

Developed: 1/4/90

Water Level Elevation: approx. 9', 1/4/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-25
LOCATION	Tacoma, Washington	PAGE	2 OF 3
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	97.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/2/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				45				See previous page for description.
				50				
				55				
				60				
				65				
				70				
				75				
				80				

REMARKS

1) T.O.C. = 11.67 feet (NGVD) 2) Water added below 10 feet 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 26.5 feet and a 25-foot well was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-25
LOCATION	Tacoma, Washington	PAGE	3 OF 3
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	97.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/2/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				85				See page 1 for description.
				90				
				95				
52	SS	14- 12- 22						95.5 - 97 feet: SAND (SP), black with red grains, trace fines, very fine to medium, dense, wet. Trace wood fragments. (ZONE II)
				100				Total depth drilled: 95.5 feet Interval sampled: 95.5 to 97 feet WELL COMPLETION DETAILS: 0.3 - 20.0 feet: 2-inch black iron riser 20.0 - 25.0 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots 25.0 - 26.5 feet: 2-inch stainless steel sump 0 - 1.5 feet: concrete 1.5 - 15.5 feet: cement/bentonite pellets 15.5 - 17.5 feet: bentonite pellets 17.5 - 26.5 feet: 10x20 Colorado silica sand 26.5 - 97.0 feet: native caved material
				105				
				110				
				115				
				120				

REMARKS

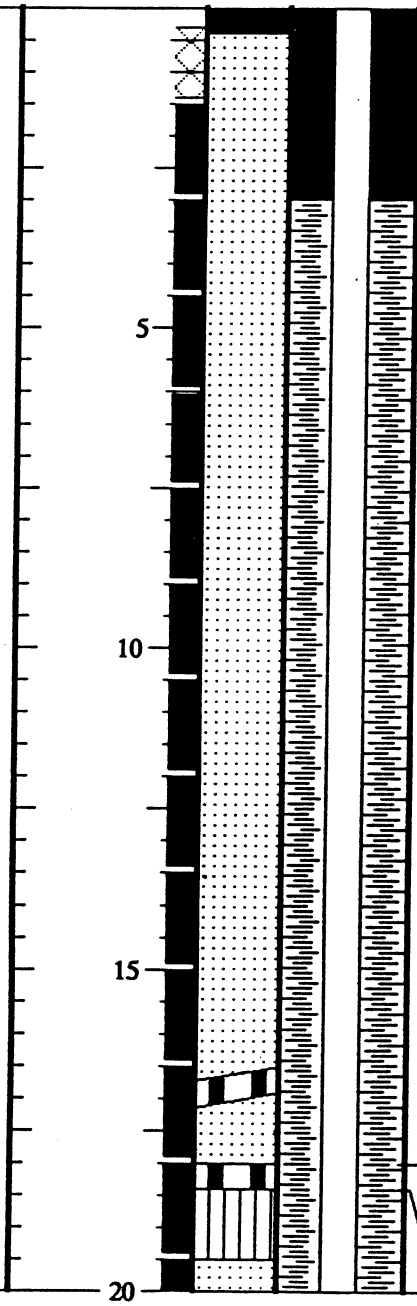
1) T.O.C. = 11.67 feet (NGVD) 2) Water added below 10 feet 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 26.5 feet and a 25-foot well was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-50
LOCATION	Tacoma, Washington	PAGE	1 OF 5
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	95.50'
LOGGED BY	A. Udaloy	DATE COMPLETED	10/28/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
1	G		0 - 0.3 feet: ASPHALT.
2	SS	5-6-7	0.3 - 18 feet: SAND (SP), moderate yellow brown to black, very fine to medium, loose to medium dense, moist to 7.5 feet, wet below. Abundant shell fragments between 3 and 18 feet. (FILL)
3	SS	3-4-5	
4	SS	3-6-7	
5	SS	6-6-6	-- @ 6 - 7.5 feet: trace coarse sand
6	SS	3-3-5	
7	SS	0-1-1	
8	SS	1-2-3	
9	SS	1-2-2	
10	SS	1-2-2	
11	SS	1-3-2	
12	SS	1-2-1	-- @ 16.5 - 16.6 feet: sandy silt, abundant organic material (grasses, roots)
13	SS	0/12"-2	18 - 18.3 feet: SANDY SILT (MH), gray, abundant organic material. (ZONE I)
14	CB		18.3 - 19.5 feet: Description on following page.

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS



REMARKS

1) Water added below 12 feet 2) T.O.C. = 11.31 feet (NGVD) 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 47 feet and well 35-50 was installed.

Developed: 1/4/90.
Water Level Elevation: 2.82', 1/4/90

SWEET-EDWARDS/EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-50
LOCATION	Tacoma, Washington	PAGE	2 OF 5
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	95.50'
LOGGED BY	A. Udaloy	DATE COMPLETED	10/28/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
15	CB	
16	CB	
17	CB	
	CB	
18	SS	3-9-22
19	SS	1-2-7
20	SS	1-2-3
21	SS	1-3-9
22	SS	1-9-25
23	SS	2-12-26
24	SS	1-5-6
25	SS	3-5-

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

25
30
35
40

LITHOLOGIC DESCRIPTION

18.3 - 19.5 feet: CLAYEY SILT (ML), light gray to black, some fine sand, soft, wet. (ZONE I)

19.5 - 23.5 feet: SAND (SP), black with red grains, very fine to medium, trace fines, wet. Contains numerous entire clam shells. (ZONE II)

23.5 - 34.5 feet: SILTY SAND (SM), moderate yellow brown to brownish gray, some fines, very fine to medium, wet. Abundant shell fragments. (ZONE II)

REMARKS

1) Water added below 12 feet 2) T.O.C. = 11.31 feet (NGVD) 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 47 feet and well 35-50 was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-50
LOCATION	Tacoma, Washington	PAGE	3 OF 5
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	95.50'
LOGGED BY	A. Udaloy	DATE COMPLETED	10/28/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
26	SS	9 3- 7- 11
27	SS	3- 5-
28	SS	7 2- 12-
29	SS	13 2- 7- 13
30	SS	1- 3-
31	SS	6 1/12"
32	SS	2/18"
33	SS	0- 1-
34	SS	1 3- 5-
35	SS	7 5- 9-
	SS	13 1/12"
36	SS	3 0/12"

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

45

50

55

60

LITHOLOGIC DESCRIPTION

39.5 - 43.5 feet: SANDY SILT (ML), dark gray to moderate olive gray, very fine and fine sand, soft, wet.
-- @ 41.3 - 41.7 feet: silty sand

43.5 - 44.5 feet: SILTY SAND (SM), gradational contact between overlying sandy silt and underlying sand. (ZONE II)

44.5 - 50.5 feet: SAND (SP), black with red grains, very fine to medium, medium dense, wet. Occasional shell fragments. (ZONE II)

50.5 - 54.0 feet: SANDY SILT (ML), medium olive gray to dark gray, trace clay, very fine and fine sand, soft, wet. Thinly laminated. (ZONE II)

54.0 - 55.0 feet: SILTY SAND (SM), dark gray, very fine to medium, wet. Abundant shell fragments. (ZONE II)

55.0 - 65.0 feet: SAND (SP), black with red grains, very fine to medium, wet. Occasional shell fragments. (ZONE II)

REMARKS

1) Water added below 12 feet 2) T.O.C. = 11.31 feet (NGVD) 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 47 feet and well 35-50 was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-50
LOCATION	Tacoma, Washington	PAGE	4 OF 5
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	95.50'
LOGGED BY	A. Udaloy	DATE COMPLETED	10/28/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
		3	
37	SS	3-14-44	-- @ 61 - 62.5 feet: trace fine gravel
38	SS	3-5-5	
39	SS	1-4-15	
40	SS	5-5-14	65 - 67.5 feet: CLAY (CL), medium olive gray, firm, wet. Thinly laminated with sand, sand increasing downward. (ZONE II)
41	SS	6-9-10	67.5 - 70.5 feet: SILTY SAND (SM), dark gray, very fine to medium, medium dense, wet. (ZONE II)
42	SS	4-9-9	-- @ 69.2 feet: thin gray clay interbeds
43	SS	3-4-4	70.5 - 95.5 feet: SAND (SP), black with red grains, very fine to medium, very loose to dense, wet. Occasional shell fragments. (ZONE II)
44	SS	3-1/12"	
	SS	1-1-1	
45	SS	2-3-7	
46	SS	5-9-20	
47	SS	6-11-22	
	SS	3/12"	
		3	

65 70 75 80

REMARKS

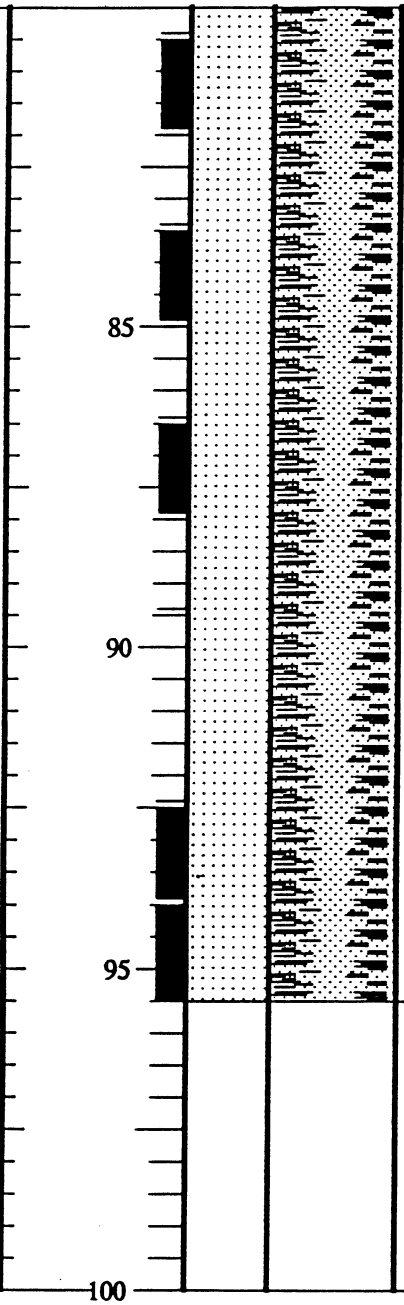
1) Water added below 12 feet 2) T.O.C. = 11.31 feet (NGVD) 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 47 feet and well 35-50 was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-50
LOCATION	Tacoma, Washington	PAGE	5 OF 5
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	11.90'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	95.50'
LOGGED BY	A. Udaloy	DATE COMPLETED	10/28/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
48	SS	3-4-3
	SS	2-3-4
	SS	3-5-4
	SS	0/18"
49	SS	3-4-5
	SS	0/18"
	SS	5-8-12
50	SS	4-10-13
51	SS	3-18-27

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHO-LOGIC COLUMN | WELL DETAILS



LITHOLOGIC DESCRIPTION

Description on preceding page.

-- @ 81.5 - 81.8 feet: thinly interbedded silty sand, olive grey

WELL COMPLETION DETAILS:

0.6 - 39.8 feet: 2-inch black iron riser
39.8 - 44.8 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
44.8 - 46.3 feet: 2-inch stainless steel sump

0 - 3 feet: concrete
3 - 33 feet: cement/bentonite grout
33 - 35.5 feet: bentonite pellets
35.5 - 46.5 feet: 10x20 Colorado silica sand
46.5 to 47 feet: 10x20 Colorado silica sand, bentonite pellets, and native caved materials
47 - 94 feet: native caved materials

Total depth drilled: 94 feet
Interval sampled: 0 - 95.5 feet

REMARKS

1) Water added below 12 feet 2) T.O.C. = 11.31 feet (NGVD) 3) Borehole initially drilled for a 100-foot well (35-100) but heaving sand could not be controlled. Boring was allowed to cave in to 47 feet and well 35-50 was installed.

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-100
LOCATION	Tacoma, Washington	PAGE	1 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	100.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/14/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				5 10 15 20 25 30 35 40				This boring was not sampled between 0 and 97 feet. It is located 5 feet northwest of boring 35-50, and 16 feet north of boring 35-25. Boring 35-50 was continuously sampled and logged from 0 to 95.5 feet. Boring 35-25 was sampled and logged from 95.5 to 97 feet. See the logs for 35-25 and 35-50 for a description of the geology between 0 and 97 feet in this vicinity.

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.26 feet (NGVD)
Developed: 1/3/90
Water Level Elevation: 2.48', 1/3/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-100
LOCATION	Tacoma, Washington	PAGE	2 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	100.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/14/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				45				See description on previous page.
				50				
				55				
				60				
				65				
				70				
				75				
				80				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.26 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	35-100
LOCATION	Tacoma, Washington	PAGE	3 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.00'
DRILL METHOD	Cable Tool	TOTAL DEPTH	100.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/14/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				85				0 - 97.0 feet: See explanation on page 1.
				90				
				95				
53	SB							97.0 - 99.7 feet: SAND (SP), black with red grains, very fine to medium, wet. Wood fragments at 99.7 feet. (ZONE II)
54	SB			100				99.7 - 100 feet: SILTY SAND (SM), medium gray, some very fine to fine sand, soft, wet. (ZONE II)
				105				Total drilled depth: 100 feet Interval sampled: 97 - 100 feet
				110				WELL COMPLETION DETAILS: 0.7 - 93 feet: 2-inch black iron riser 93 - 98 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots 98 - 99.5 feet: 2-inch stainless steel sump
				115				0 - 1.0 feet: concrete 1.0 - 87.5 feet: cement/bentonite grout 87.5 - 89.5 feet: bentonite pellets 89.5 - 98.5 feet: 10x20 Colorado silica sand 98.5 - 100 feet: native caved materials
				120				

REMARKS
1) Water added below 1 foot 2) T.O.C. = 11.26 feet (NGVD)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site

HOLE DESIGNATION: 35-100R
DATE COMPLETED: November 19, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF CASING	11.85 11.05					
	0-100' BGS - See Logs from 35-25, 35-50 and 35-100 for Stratigraphy		2"Ø STEEL RISER				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site

HOLE DESIGNATION: 35-100R
DATE COMPLETED: November 19, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42							
44			CEMENT / BENTONITE GROUT				
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site

HOLE DESIGNATION: 35-100R
DATE COMPLETED: November 19, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72							
74							
76							
78							
80							
82							
84							
86							
88			BENTONITE				
90							
92							
94			2"Ø SS SCREEN				
96							
98							
100	END OF BOREHOLE @ 100.0ft BGS	-88.15	SAND PACK				
102			WELL DETAILS Screened interval: -81.65 to -86.65ft NGVD 93.50 to 98.50ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: Stainless Steel				
104							

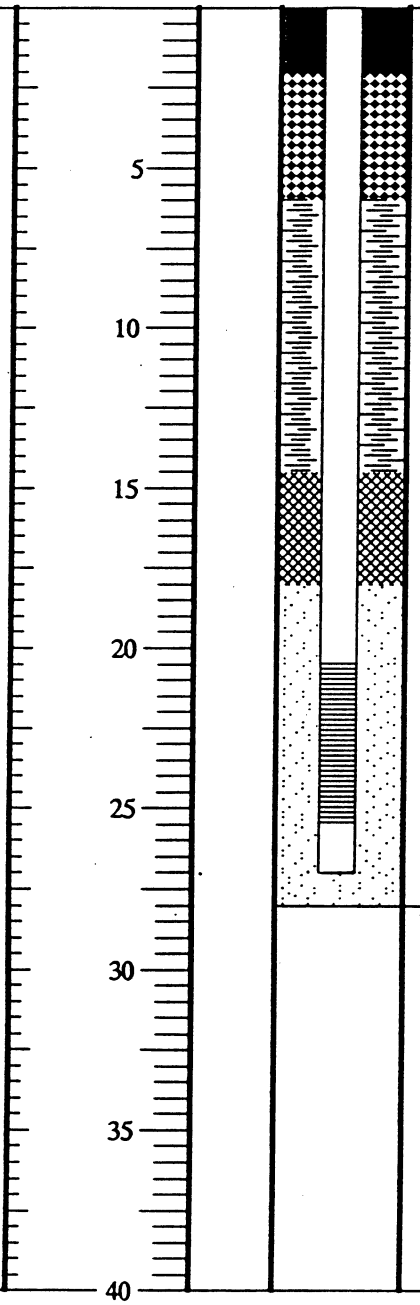
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-25
LOCATION	Tacoma, Washington	PAGE	1 OF 1
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.60'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	28.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/13/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



This boring was not sampled. It is located approximately 8 feet north of well 36-100 which was continuously sampled and logged during drilling. See the log of 36-100 for a description of the geology in this vicinity.

WELL COMPLETION DETAILS:

1.0 - 20.5 feet: 2-inch black iron riser
20.5 - 25.5 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
25.5 - 27 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 6 feet: hydrated bentonite chips
6 - 14.5 feet: cement/bentonite grout
14.5 - 18 feet: bentonite pellets
18 - 28 feet: 10x20 Colorado silica sand

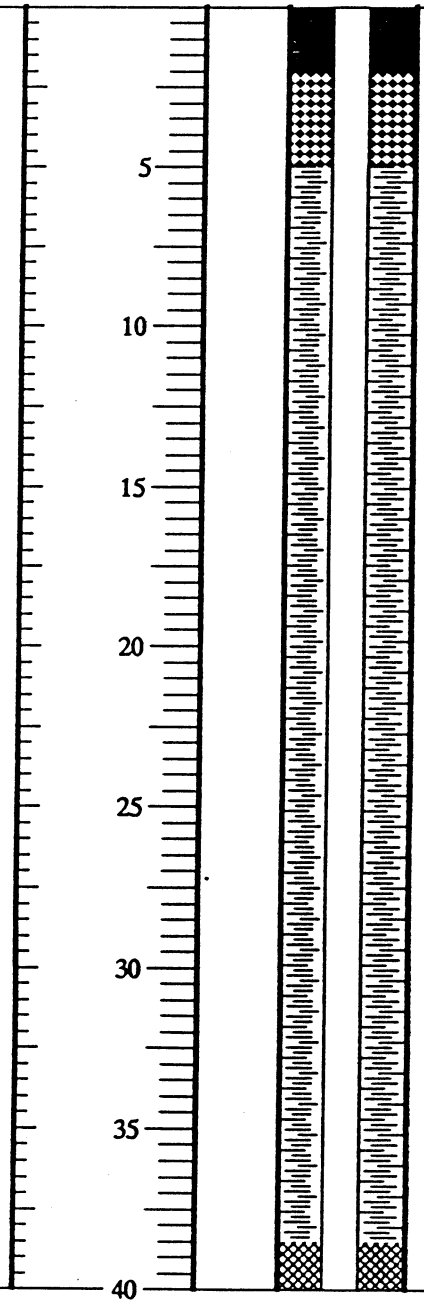
Total depth drilled: 28 feet

REMARKS
1) T.O.C. = 9.68 feet (NGVD)
Developed: 1/5/90
Water Level Elevation: 3.30', 1/5/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-50
LOCATION	Tacoma, Washington	PAGE	1 OF 2
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	53.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/14/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



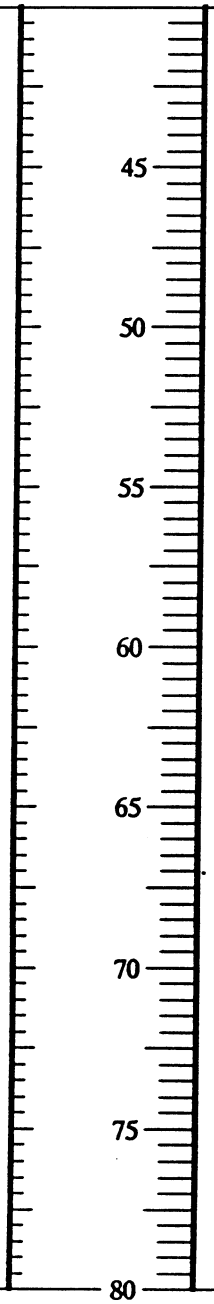
This boring was not sampled. It is located approximately 10 feet north of boring 36-100 which was continuously sampled and logged during drilling. See the log of 36-100 for a description of the geology in this area.

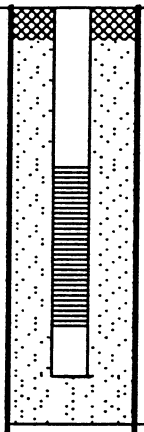
REMARKS
1) T.O.C. = 9.91 feet (NGVD)
Developed: 1/5/90
Water Level Elevation: 4.09', 1/5/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-50
LOCATION	Tacoma, Washington	PAGE	2 OF 2
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	53.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/14/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION





Description on previous page.

Total depth drilled: 53 feet

WELL COMPLETION DETAILS:

0.8 - 45 feet: 2-inch black iron riser
45 - 50 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
50 - 51.5 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 5 feet: hydrated bentonite chips
5 - 38.5 feet: cement/bentonite grout
38.5 - 41 feet: bentonite pellets
41 - 53 feet: 10x20 Colorado silica sand

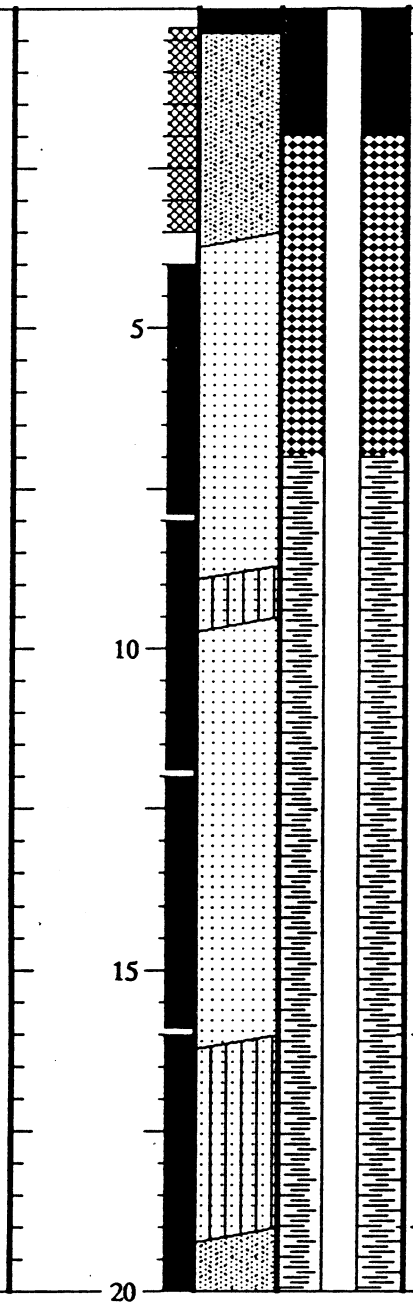
REMARKS
1) T.O.C. = 9.91 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	1 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
1	G		0 - 0.3 feet: ASPHALT 0.3 - 3.5 feet: SAND (SW), moderate yellow brown to dark yellow brown, some subangular to subrounded fine to coarse gravel, compacted, dry. (FILL)
2	SB	31- 32- 37- 27	3.5 - 16.0 feet: SAND (SP), moderate yellow brown to dark yellow brown with red grains, very fine to medium. Trace shell fragments. (FILL)
3	SB	11- 10-	-- @ 8.7 - 9.3 feet: medium olive gray silty sand laminae with abundant wood fragments at 9.0 feet
4	SB	17- 20	silty sand laminae between 9.6 and 9.8 feet
5	SB	24- 15- 7- 5	-- @ 12.0 - 16.0 feet: trace coarse sand
6	SB	5- 8- 14- 26	16.0 - 19.0 feet: SILTY SAND (SM), medium olive gray, very fine to medium. Trace shell fragments. (ZONE I) -- @ 16.0 feet: thin medium olive gray silt bed
7	SB		19.0 - 28.0 feet: Description on following page.

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS



REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)
Developed: 1/5/90
Water Level Elevation: 3.77', 1/5/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	2 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
8	SB	22-16-20-40	19.0 - 28.0 feet: SAND (SW), black with red grains, very fine to coarse, wet. Trace shell fragments. (ZONE II)
9	SB		-- @ 22.5 - 24.0 feet: abundant thin interbeds of medium olive gray silty sand
10	SB	10-20-40-60	-- @ 27.0 - 28.0 feet: abundant shell fragments
11	SB	45-85	28.0 - 36.3 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shell fragments. (ZONE II)
12	SB	20-50-60-100	-- @ 30.5 feet: thin gray silt bed
13	SB		-- @ 33.2 - 33.8 feet: silty sand laminae, trace shell fragments
14	SB	22-35-36-21	-- @ 36.3 feet: abundant wood and bark fragments
15	SB		36.3 - 42.5 feet: SAND with SILTY SAND interbeds (SP/SM), sand is black with red grains, very fine to medium, wet. Thinly bedded with silty sand medium olive grey. (ZONE II)
16	SB	7-8-20-45	

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

25 30 35 40

REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	3 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
17	SB		
18	SB	45- 75-	-- @ 42.0 - 42.5 feet: abundant shell fragments
19	SB		42.5 - 61.5 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shall fragments. (ZONE II)
20	SB	9- 22- 58- 100	-- @ 44.0 - 45.0 feet: abundant shell fragments
21	SB	9- 27- 63 50/6"	
22	SB	15- 55	-- @ 52 - 54 feet: trace coarse sand
23	SB	10/3' 55	

45 50 55 60

REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	4 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
			Description on preceding page.
24	SB	33-35	61.5 - 71.0 feet: SILTY SAND (SM), moderate yellow brown, very fine to medium, wet. (ZONE II)
25	SB	10-20-60	
26	SB	14-15-	71.0 - 75.0 feet: SANDY SILT (ML), medium olive gray, soft, wet. Thin interbeds of moderate yellow brown silty sand, faint sulfur odor, trace wood fragments. (ZONE II)
27	SB	38-50	
28	SB		
29	SB		75.0 - 84.5 feet: SILTY SAND (SM), moderate yellow brown, very fine to medium, wet. (ZONE II)
30	SB	10-20-	-- @ 77.5 - 81.0 feet: thin interbeds of sand
31	SB	50	

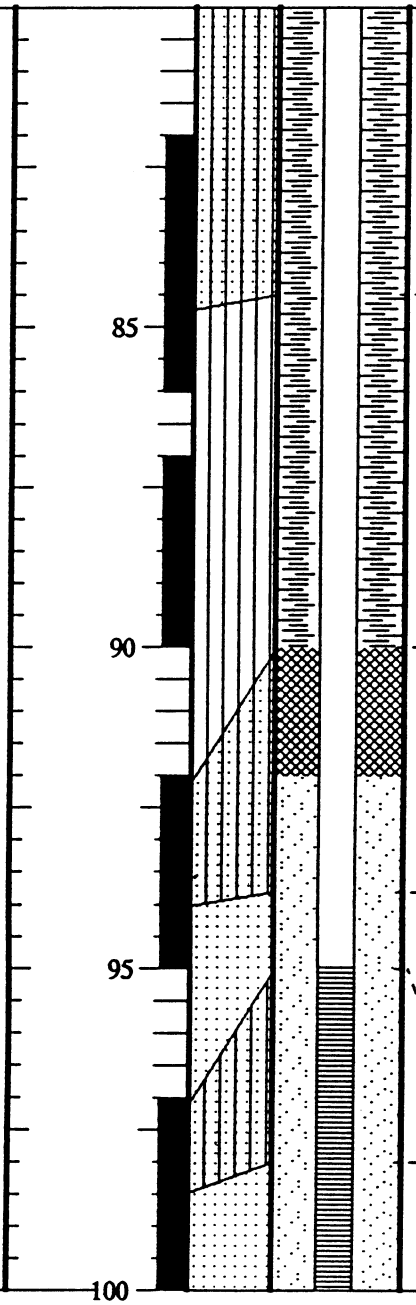
65 70 75 80

REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	5 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
32	SB	24-26-22-50	-- @ 82.0 - 84.5 feet: trace very thin silt interbeds
33	SB		84.5 - 91.0 feet: SILT (ML), medium olive gray, trace fine sand, stiff, wet. Thinly laminated moderate yellow brown sandy silt. (ZONE II)
34	SB	20-42-60	-- @ 87.0 - 90.0 feet: faint sulfur odor
35	SB		
36	SB		-- @ 88.6 - 89.0 feet: silty sand, black, very fine to fine, faint sulfur odor
37	SB	13-30-57	91.0 - 93.8 feet: SILTY SAND (SM), moderate yellow brown, very fine to fine, wet. (ZONE II)
38	SB		93.8 - 96.0 feet: SAND (SP), black with red grains, very fine to medium, trace shell fragments, wet. (ZONE II)
39	SB	12-42-25	96.0 - 98.0 feet: SILTY SAND (SM), moderate yellow brown, very fine to medium, wet. (ZONE II)
40	SB		98.0 - 100.0 feet: SAND (SP), black with red grains, very fine to medium, trace shell fragments, wet. (ZONE II)



REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	36-100
LOCATION	Tacoma, Washington	PAGE	6 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	10.70'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	1/2/90

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				105				Description on previous page. Total depth drilled: 102 feet Interval sampled: 0 - 100 feet WELL COMPLETION DETAILS: 0.7 - 95.0 feet: 2-inch black iron riser 95.0 - 100.0 feet: stainless steel wire-wrapped screen with 0.010-inch slots 100.0 - 101.5 feet: 2-inch stainless steel sump 0 - 2.0 feet: concrete 2.0 - 7.0 feet: hydrated bentonite chips 7.0 - 89.8 feet: cement/bentonite grout 89.8 - 91.8 feet: bentonite pellets 91.8 - 102.0 feet: 10x20 Colorado silica sand
				110				
				115				
				120				

REMARKS
1) Water added below 0.5 feet 2) T.O.C. = 9.93 feet (NGVD)

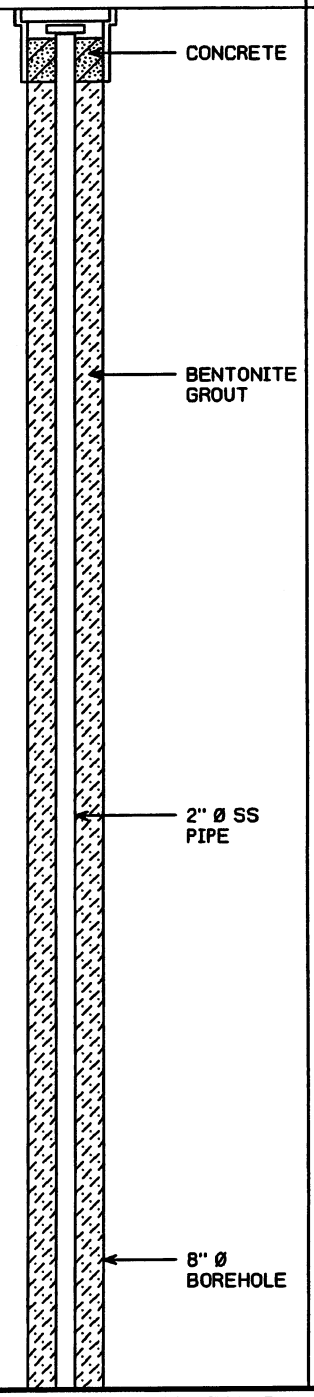
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-157)
Page 1 of 3

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 36-100R
DATE COMPLETED: JUNE 1, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDERLINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*10.7* *10.17*					
	Refer to 36-100 for stratigraphic details.		CONCRETE				
-2.5							
-5.0							
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0							
-17.5							
-20.0							
-22.5			2" Ø SS PIPE				
-25.0							
-27.5							
-30.0							
-32.5							
-35.0			8" Ø BOREHOLE				



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 36-100R
DATE COMPLETED: JUNE 1, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDERLINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0			BENTONITE GROUT				
-42.5							
-45.0							
-47.5							
-50.0							
-52.5							
-55.0			2" Ø SS PIPE				
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0			8" Ø BOREHOLE				
-72.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 36-100R
DATE COMPLETED: JUNE 1, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDERLINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
77.5			BENTONITE GROUT				
80.0							
82.5			2" Ø SS PIPE				
85.0							
87.5			8" Ø BOREHOLE				
90.0			BENTONITE SEAL				
92.5							
95.0	SW-SAND (NATIVE), medium grained, black, trace red and white grains, wet, subangular to subrounded – no sample taken due to heaving sands	-83.3	SAND PACK	1SS		13	0
97.5			WELL SCREEN	2SS		–	–
100.0				3SS		30	0
102.5	END OF HOLE @ 101.5ft BGS	-90.8	SUMP NATIVE MATERIAL				
105.0							
107.5							
110.0							

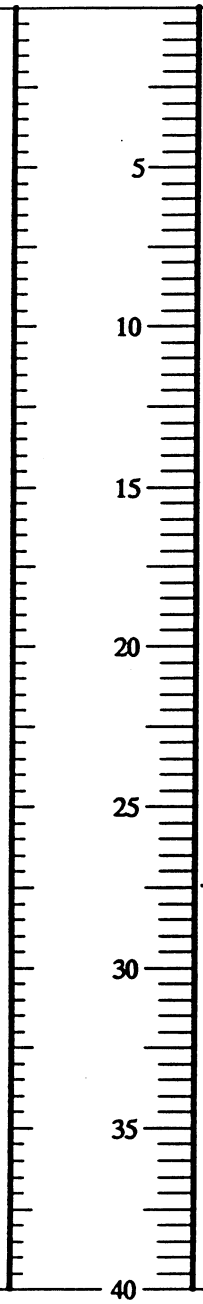
SCREEN DETAILS
Screened interval:
95.0 to 100.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
91.8 to 100.8ft BGS
Material: 10/20 Silica Sand
Native Pack:
100.8 to 101.5ft BGS

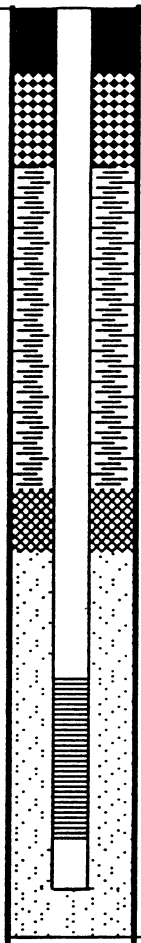
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-25
LOCATION	Tacoma, Washington	PAGE	1 OF 1
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	29.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/20/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION





This boring was not sampled. It is located approximately 11 feet northeast of boring 37-100 which was continuously sampled and logged during drilling. See the log of 37-100 for a description of the geology in this vicinity.

WELL COMPLETION DETAILS:

0.8 - 21 feet: 2-inch black iron riser
21 - 26 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
26 - 27.5 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 5 feet: hydrated bentonite chips
5 - 15 feet: cement/bentonite grout
15 - 17 feet: bentonite pellets
17 - 29 feet: 10x20 Colorado silica sand

Total drilled depth: 29 feet

REMARKS
1) T.O.C. = 10.31 feet (NGVD)
Developed: 12/22/89

SWEET-EDWARDS/EMCON

T25-02.01.0XCHM.13A/me:2.01/31/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-50
LOCATION	Tacoma, Washington	PAGE	1 OF 2
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	53.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/19/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				5, 10, 15, 20, 25, 30, 35, 40				This boring was not sampled. It is located approximately 5 feet east of well 37-100 which was continuously sampled and logged during drilling. See the log of 37-100 for a description of the geology in this vicinity.

REMARKS
1) T.O.C. = 10.60 feet (NGVD)
Developed: 12/22/89

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-50
LOCATION	Tacoma, Washington	PAGE	2 OF 2
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	53.00'
LOGGED BY	Mike Noll	DATE COMPLETED	12/19/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				45 50 55 60 65 70 75 80				Description on previous page.

Total depth drilled: 53 feet

WELL COMPLETION DETAILS:

0.8 - 45 feet: 2-inch black iron riser
45 - 50 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
50 - 51 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 9 feet: hydrated bentonite chips
9 - 40 feet: cement/bentonite grout
40 - 42 feet: bentonite pellets
42 - 53 feet: 10x20 Colorado silica sand

REMARKS
1) T.O.C. = 10.60 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	1 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
1	G		0 - 5.0 feet: GRAVELLY SAND (SW), dark yellow brown to moderate yellow brown, fine to coarse, some subrounded to subangular fine to coarse gravel, compacted, dry. (FILL)
2	SB	25- 25- 23- 28	5.0 - 11.6 feet: SAND (SW), moderate yellow brown, very fine to coarse, trace fine subrounded gravel. (FILL)
3	SB	11- 15- 18- 20	
4	SB		-- @ 11.5 - 11.6 feet: silty sand bed, medium olive gray, very fine to fine, trace wood debris (twigs)
5	SB	5- 5- 8- 11	11.6 - 19.0 feet: SAND (SP), grayish black to black with red grains, very fine to medium, wet. (FILL ?)
6	SB	5- 4- 9- 21	
7	SB		19.0 - 20.0 feet: Description on following page.

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

5 10 15 20

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)
Developed: 12/27/89

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	2 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
8	SB	19-30-24-15	19.0 - 20.0 feet: SILTY SAND, medium olive gray, very fine to medium. (ZONE I)
9	SB	5-15-25-	20.0 - 25.5 feet: SAND (SP), black with red grains, very fine to medium, wet. Trace shell fragments. Thin interbeds of grayish black silty sand, trace organic material (grasses, twigs) between 22.2 and 24.0 feet) trace coarse sand from 23 to 23.6 feet. (ZONE II)
10	SB	33	25.5 - 28.0 feet: SANDY SILT (ML), light olive gray to medium olive gray, very fine to fine sand, very thin and thin interbeds of medium gray silty sand, and thin interbeds of black sand. (ZONE II)
11	SB	2-5-24-26	28.0 - 35.6 feet: SAND (SP), black with red grains, very fine to medium, wet, trace shell fragments. (ZONE II)
12	SB		-- 30.4 - 31.5 feet: medium gray silty sand interbeds
13	SB		-- 31.5 - 32.0 feet: thin interbeds of medium olive gray sandy silt interbeds
14	SB	3-23-40-39	
15	SB		35.6 - 37.7 feet: SILTY SAND (SM), medium olive gray, very fine to medium, wet. (ZONE II)
16	SB	6-11-50-	
17	SB	60	37.7 - 48.0 feet: SILTY SAND (SM), black with red grains, very fine to medium, wet. (ZONE II)

25 30 35 40

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	3 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
18	SB	16- 23- 33- 33	Description on preceding page.
19	SB	13- 7- 26- 33	-- @ 43 - 43.2 feet: medium olive gray, some fines -- @ 43.5 feet: thin olive gray silt laminae -- @ 44.5 - 44.7 feet: olive gray sandy silt, soft -- @ 46.2 - 46.5 feet: olive gray sandy silt, soft.
20	SB	10- 15	48.0 - 62.0 feet: SAND (SP), black with red grains, very fine to medium, trace shell fragments, wet. (ZONE II)
21	SB	15 25 50 50/1"	
22	SB	9- 26- 60	-- @ 56.5 feet: thin olive gray silt laminae

45 50 55 60

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	4 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
23	SB	10- 30- 55/6"	Description on preceding page. -- @ 60 - 62 feet: very fine to coarse sand, trace subangular and subrounded fine gravel
24			62.0 to 63.8 feet: SANDY SILT (ML), brownish gray, soft, wet. Faint sulfur odor, common wood fragments. (ZONE II)
25	SB	15- 32- 50	63.8 - 100 feet: SAND (SP), black with red grains, very fine to medium, wet. Occasional shell fragments. (ZONE II)
26	SB	8- 16- 26- 40	-- @ 72 - 73 feet: common wood fragments -- @ 73.5 feet: thin gray silt laminae
27	SB	23- 16- 26- 33	-- @ 75 - 79 feet: trace wood fragments

65 70 75 80

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	5 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

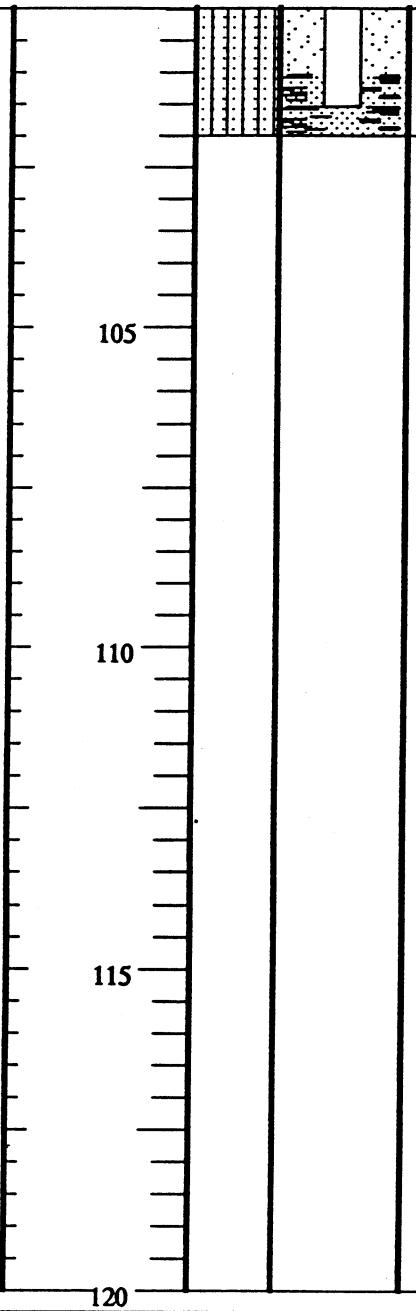
SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
28	SB	1- 2- 5- 10- 10						Description on preceding page.
29	SB	34- 24- 36- 25		85				
30	SB	14- 30- 50		90				
				95				
31	SB	20- 40- 46						-- @ 98 - 100 feet: thin interbeds of gray silt and sandy silt
				100				

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	37-100
LOCATION	Tacoma, Washington	PAGE	6 OF 6
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	11.10'
DRILL METHOD	Cable Tool	TOTAL DEPTH	102.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	12/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION



Total depth drilled: 102 feet
Interval sampled: 0 - 100 feet

WELL COMPLETION DETAILS:

0.8 - 95 feet: 2-inch black iron riser
95 - 100 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
100 - 101.5 feet: 2-inch stainless steel sump

0 - 2 feet: concrete
2 - 9 feet: hydrated bentonite chips
9 - 90 feet: cement/bentonite grout
90 - 92 feet: bentonite pellets
92 - 101 feet: 10x20 Colorado silica sand
101-102 feet: 10x20 Colorado silica sand mixed with native caved materials

REMARKS
1) Water added below 2 feet 2) T.O.C. - 10.29 feet (NGVD)

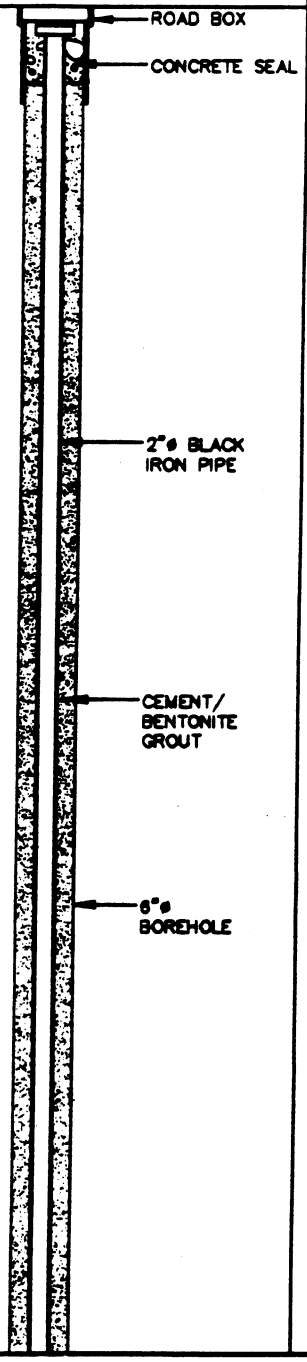
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTH OF BUILDING # 9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 37-170 (Page 1 of 6)
DATE COMPLETED: JUNE 10, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.05* *11.2*				
25.0	ML–SILT, some fine grained sand, loose, olive gray to dark gray, wet – some fine to medium grained sand	*–13.8*		1CT		



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTH OF BUILDING # 9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 37–170 (Page 2 of 6)
DATE COMPLETED: JUNE 10, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0	SM–SAND, some silt, loose, fine to medium grained, olive gray, wet	-38.8	CEMENT/ BENTONITE GROUT	2CT		
52.5						
55.0			6"ø BOREHOLE			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ⧗

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTH OF BUILDING # 9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 37–170 (Page 3 of 6)
DATE COMPLETED: JUNE 10, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0						
72.5						
75.0			2"ø BLACK IRON PIPE			
77.5						
80.0						
82.5			CEMENT/ BENTONITE GROUT			
85.0						
87.5			6"ø BOREHOLE			
90.0						
92.5						
95.0						
97.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTH OF BUILDING # 9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 37-170 (Page 4 of 6)
DATE COMPLETED: JUNE 10, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	SM–SAND, some silt, medium dense, medium grained, olive gray to dark gray, wet			3CT		
102.5						
105.0	SP–SAND, medium dense, medium grained, olive gray and dark gray, wet	-93.8	2"ø BLACK IRON PIPE	4CT		
107.5						
110.0				1ST		
112.5						
115.0	– some silt		CEMENT/ BENTONITE GROUT	5CT		
117.5						
120.0	– no silt		6"ø BOREHOLE	6CT		
122.5						
125.0	ML–SILT, trace fine to medium grained sand, loose, olive gray to dark gray, wet	-113.8		7CT		
127.5						
130.0	SM–SAND, some silt	-118.8		8CT		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

Well 37-170

Page 5 of 6 missing

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-19)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 10' SOUTH OF BUILDING # 9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: 37–170 (Page 6 of 6)
DATE COMPLETED: JUNE 10, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
165.0			6"ø BOREHOLE; SAND PACK; WELL SCREEN; TAILPIPE	14CT		
167.5	SP–SAND, trace silt, trace clay, dense, medium grained, olive and dark gray, moist to wet	–156.8				
170.0	GP–GRAVEL(TILL), some cobbles, shells, grenish gray	–158.8 –159.3		15CT		
172.5	END OF HOLE ● 170.5 FT. BGS					
175.0						
177.5						
180.0						
182.5						
185.0						
187.5						
190.0						
192.5						
195.0						

SCREEN DETAILS:
Screened Interval:
163.5 to 168.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
156.0 to 170.5' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

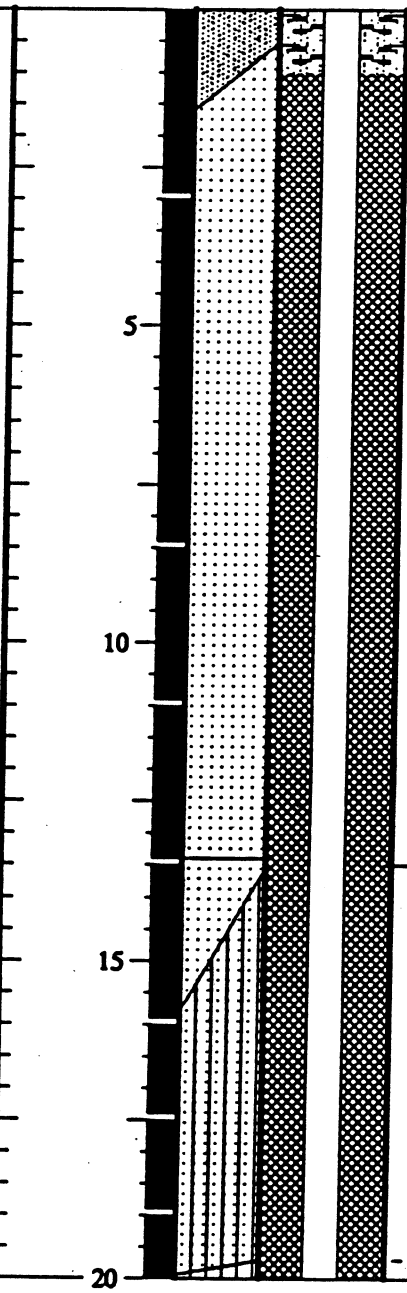
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	38-55
LOCATION	Tacoma, Washington	PAGE	1 OF 4
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	12.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	60.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
1	CB	
2	CB	
3	CB	
4	CB	
5	CB	
6	CB	
7	CB	
	CB	
8	SS	3-5-4
9	SS	3-3-5
10	SS	1-2-

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS



LITHOLOGIC DESCRIPTION

0 - 1.0 foot: SAND (SP), brown, few fines, very fine to medium, few subrounded to subangular fine to coarse gravel, dry, compacted. (FILL)

1.0 - 13.5 feet: SAND (SP), black to brown, trace to few fines, very fine to medium, loose, trace shell fragments below 3.5 feet. (FILL)

-- moist below 6 feet

-- wet below 11 feet

13.4 - 14.5 feet: SILTY SAND (SM), light brown, some non-plastic fines, very fine to fine, soft, wet. (ZONE I)

-- no recovery 13.5-16 feet

14.5 - 19.7 feet: SAND (SP-SM), black with red grains, very fine to medium, very loose to loose, wet, Occasional silty sand interbeds, trace shell fragments. (ZONE I)

REMARKS

1) T.O.C. = 14.19 feet (NGVD) 2) Water added below 11 feet

SWEET-EDWARDS/EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	38-55
LOCATION	Tacoma, Washington	PAGE	2 OF 4
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	12.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	60.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
		1						19.7 - 21.8 feet: SANDY SILT (ML), moderate brown, some very fine to fine sand, soft, wet. (ZONE I)
11	SS	1-						
12	SS	5-						
		11						21.8 - 24.7 feet: SAND (SP), black with red grains and white shell fragments, medium dense, wet. (ZONE II ?)
	SS	3-						-- @ 21.8 - 22 feet: abundant wood debris
		3-						
		8						
13	SS	3-						
		3-		25				24.7 - 27.2 feet: SILTY CLAY (CL), light olive grey, soft to firm, wet. (ZONE II ?)
		3-						-- 24.7 - 26.0 feet: 10-20% shell fragments
14	SS	0-						
		1-						
		1						
15	SS	3-						27.2 - 32.0 feet: SAND (SP), black with trace red grains, very fine to medium, medium dense to dense, wet. (ZONE II)
		9-						
		11						
16	SS	5-						
		15-						
		23		30				-- 30 - 31 feet: wood fragments
17	SS	15-						
		13-						
		8						
18	SS	0-						
19	SS	1-						32.0 - 35.3 feet: SILTY CLAY (CL), light olive grey, trace sand, few to some silt, very soft to soft, wet. (ZONE II)
		2						
20	SS	1-						-- 1-inch thick sand lenses at 35.0 to 35.3 feet
		1-						
		2						
21	SS	3-		35				
		5-						
22	SS	6						35.3 - 42 feet: SANDY SILT (ML), light grey, some very fine to fine sand, firm, wet. (ZONE II)
		5-						-- thin interbeds of black to brown silty sand at 35.3 to 37 feet
		3-						-- thin interbeds of dark grey silty sand with occasional shell fragments at 38.3 to 40.5 feet
		3						
23	SS	4-						
		8-						
24	SS	8						
		4-						
		5-		40				

REMARKS
1) T.O.C. = 14.19 feet (NGVD) 2) Water added below 11 feet

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	38-55
LOCATION	Tacoma, Washington	PAGE	3 OF 4
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	12.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	60.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/15/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	DEPTH IN FT.	LITHOLOGIC DESCRIPTION
25	SS	8 9- 7- 16		-- @ 40.5 - 42 feet: abundant shell fragments
26	SS	10- 17- 19		42 - 55 feet: SAND (SW), black with red grains, very fine to coarse, dense, wet. Trace shell fragments. (ZONE II)
27	SS	10- 18- 23		
28	SS	10- 25- 18	45	-- @ 44.5 feet: trace wood fragments
	SS	19- 50/6"		
29	SS	17- 28- 50		
30	SS	30- 50/6"	50	
31	SS	19- 20- 34		-- trace wood fragments @ 51 feet
32	SS	28- 34- 36		
33	SS	30- 50/4"	55	
				Description continued on next page.
			60	

REMARKS
1) T.O.C. = 14.19 feet (NGVD) 2) Water added below 11 feet

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	38-55
LOCATION	Tacoma, Washington	PAGE	4 OF 4
DRILLED BY	GeoTech Explorations	REFERENCE ELEV.	12.30'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	60.00'
LOGGED BY	A. Udaloy	DATE COMPLETED	11/15/89

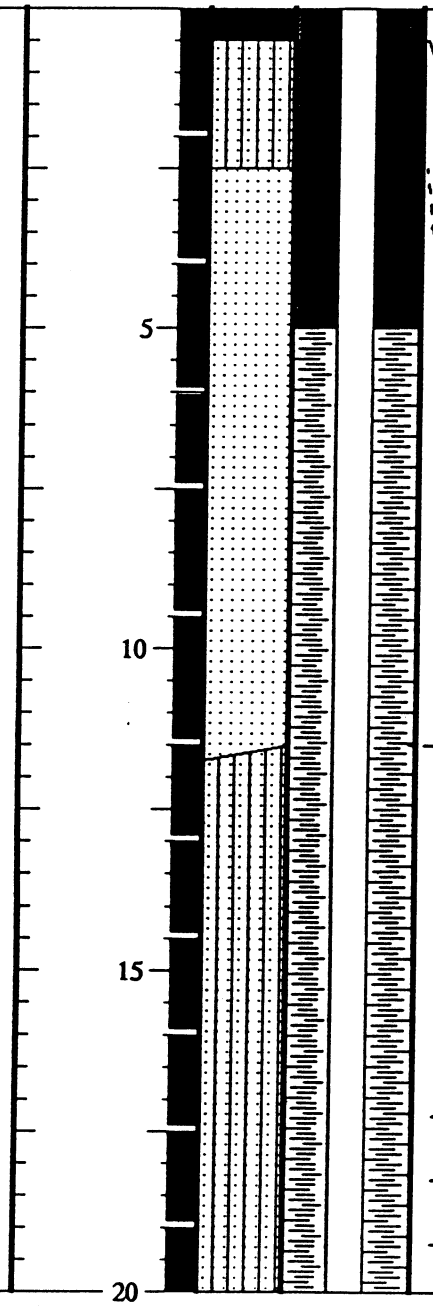
SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				65				Total depth drilled: 60 feet Interval sampled: 0 to 55.5 feet WELL COMPLETION DETAILS: 0 - 45 feet: 4-inch black iron riser, 1.8 feet stickup 45 - 55 feet: 4-inch stainless steel wire-wrapped screen with 0.010-inch slots 0 - 1.0 foot: gravel backfill 1.0 - 37.5 feet: cement/bentonite grout 37.5 - 41.5 feet: bentonite pellets 41.5 - 56.5 feet: 10x20 Colorado silica sand 56.5 - 60 feet: native caved materials
				70				
				75				
				80				

REMARKS
1) T.O.C. = 14.19 feet (NGVD) 2) Water added below 11 feet

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	39-55
LOCATION	Tacoma, Washington	PAGE	1 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.20'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	57.50'
LOGGED BY	Mike Noll	DATE COMPLETED	12/6/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
1	SS	10-10-7-9
2	SS	5-7-9-10
3	SS	7-8-7-10
4	SS	2-1-2
5	SS	3-3-5-8
6	SS	1-1-3-5
7	SS	7-4-4
8	SS	9-7-4
9	SS	6-8-7
10	SS	2-1-6
11	SS	3-3-3
12	SS	0-0-1



0 - 0.5 feet: ASPHALT (3") with GRAVEL subgrade

0.5 - 2.5 feet: SILTY SAND and SILT (SM/ML), grayish brown, some thin yellowish brown and black organic-rich laminae, predominantly fine sand, some non-plastic fines, loose to medium dense, moist. Laminated. (FILL)

2.5 - 11.5 feet: SAND (SP), very dark gray, fine to medium, trace fines, very loose to medium dense, moist to wet. Abundant shell fragments. (FILL)

11.5 - 20 feet: SAND (SP-SM), very dark gray, fine to medium, some non-plastic fines, loose, wet. Interbedded sand and silty sand, beds ranging from 0.5 to 1 foot thick. (ZONE I)

-- @ 17 - 18 feet: abundant shell fragments

-- @ 18 - 19 feet: thin silt beds

-- @ 19 - 20 feet: decomposed wood fragments

REMARKS
1) Water added below 11 feet 2) T.O.C. = 11.48 feet (NGVD)
Development: 1/4/90
Water Level Elevation: 3.22', 1/4/90

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	39-55
LOCATION	Tacoma, Washington	PAGE	2 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.20'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	57.50'
LOGGED BY	Mike Noll	DATE COMPLETED	12/6/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS	LITHOLOGIC DESCRIPTION
13	SS	2-2-10-13	20 - 20.5 feet: SANDY SILT (ML), gray brown, some fine sand, very soft, wet. (ZONE I)
14	SS	5-12-12	20.5 - 24 feet: SAND (SP-SM), very dark gray, fine to medium, some fines, medium dense, wet. Interbeds of very dark gray silty sand, interbeds decrease downward. (ZONE II ?)
15	SS	2-2-2	24 - 26.5 feet: SANDY SILT (ML), gray, some fine sand, soft, moist to wet. Some laminae, some beds with abundant shell fragments (1- to 2-inches thick). (ZONE II ?)
16	SS	3-5-13	
17	SS	4-4-8	26.5 - 29.5 feet: SAND (SP), very dark gray, fine to medium, loose, wet. (ZONE II) -- @ 26.5 - 27.5 feet: some fines, some yellowish brown laminae -- @ 28 feet: some silt laminae
18	SS	5-8-5-7	
19	SS	9-3-3-4	29.5 - 34 feet: SILT (ML), olive gray, trace fine sand, soft, moist to wet. (ZONE II) -- @ 31.0 - 31.5 feet: wood and shell fragments
20	SS	2-2-2	-- @ 33.0 - 34.0 feet: wood fragments
21	SS	4-5-5	34 - 35 feet: SILTY CLAY (CL), olive gray, soft, moist to wet. (ZONE II)
22	SS	3-3-3	35 - 39 feet: SANDY SILT (ML), dark gray to grayish brown, non-plastic fines, some fine sand, soft, wet. Trace shell fragments. (ZONE II) --37 - 38.5 feet: silty sand interbeds
23	SS	4-4-5	
24	SS	6-6-19	39 - 43.5 feet: Description on following page.

GROUND WATER LEVELS | DEPTH IN FT. | SAMPLES | LITHOLOGIC COLUMN | WELL DETAILS

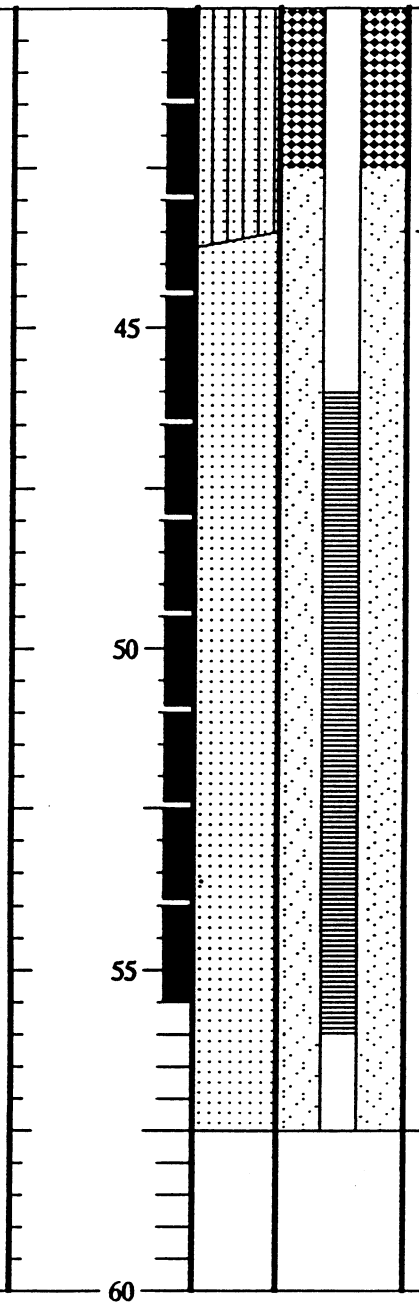
25 30 35 40

REMARKS
1) Water added below 11 feet 2) T.O.C. = 11.48 feet (NGVD)

LOG OF EXPLORATORY BORING

PROJECT NAME	Occidental Chemical Corporation	BORING NO.	39-55
LOCATION	Tacoma, Washington	PAGE	3 OF 3
DRILLED BY	Holt Drilling, Inc.	REFERENCE ELEV.	12.20'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	57.50'
LOGGED BY	Mike Noll	DATE COMPLETED	12/6/89

SAMPLE NUMBER	SAMPLE METHOD	BLOW COUNTS
25	SS	17-30-30
26	SS	15-24-43
27	SS	8-18-23
28	SS	5-16-22-28
29	SS	15-19-21
30	SS	5-10-19
31	SS	15-40-44
32	SS	15-23-38
33	SS	24-38-49
34	SS	11-15-25



LITHOLOGIC DESCRIPTION

39 - 43.5 feet: SAND (SP-SM), dark gray to very dark gray, fine to medium, some fines, dense, to very dense, wet. Silty sand interbeds common, scattered shell fragments. (ZONE II)

43.5 - 57.5 feet: SAND (SP), very dark gray, fine to medium, few fines, dense, wet. Some to trace white shell fragments to 54 feet.

-- @ 48.0 - 51.0 feet: abundant silt laminae

-- @ 55.0 - 55.5 feet: wood fragments

WELL COMPLETION DETAILS:
0.8 - 46.0 feet: 2-inch black iron riser
46.0 - 56.0 feet: 2-inch stainless steel wire-wrapped screen with 0.010-inch slots
56.0 - 57.5 feet: 2-inch stainless steel sump
0 - 5.0 feet: concrete
5.0 - 39.5 feet: cement/bentonite grout
39.5 - 42.5 feet: bentonite pellets
42.5 - 57.5 feet: 10x20 Colorado silica sand

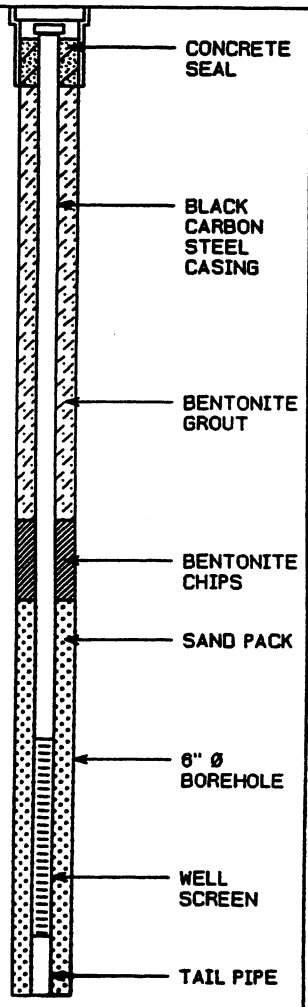
Total depth drilled: 57.5 feet
Interval sampled: 0 - 55.5 feet

REMARKS
1) Water added below 11 feet 2) T.O.C. = 11.48 feet (NGVD)

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 40-25
DATE COMPLETED: OCTOBER 19, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Curb Box)	*12.4* *12.37*					
-2.5 -5.0 -7.5 -10.0 -12.5 -15.0 -17.5 -20.0 -22.5 -25.0 -27.5 -30.0 -32.5	Refer to 40-50 for stratigraphic details. END OF HOLE @ 25.0ft BGS	*-12.6*	 **SCREEN DETAILS** **Screened Interval:** **18.5 to 23.5ft BGS** **Length: 5ft** **Diameter: 2"** **Slot Size: #10** **Material: Stainless Steel** **Sand Pack:** **15.0 to 25.0ft BGS** **Material: 20/40 Sand**				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-20)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 40–50
(Page 1 of 2)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 16, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
	REFERENCE POINT (Top of Riser)	11.65				
	GROUND SURFACE	11.9				
	Augered through asphalt and sand to 5.0 ft BGS		ROAD BOX; CONCRETE SEAL			
2.5						
5.0	SM–SAND, some silt, medium dense, medium grained, olive gray and dark gray, dry	6.9	2" ø BLACK IRON PIPE	1SS		16
	– moist					
7.5				2SS		16
	– silt seams, wet					
10.0				3SS		10
			8" ø BOREHOLE	4SS		8
12.5	– piece of wood					
				5SS		11
15.0	– trace silt, loose, fine to medium grained, piece of wood, saturated					
				6SS		8
17.5						
	– soft		CEMENT/ BENTONITE GROUT	7SS		9
20.0				8SS		4
				9SS		7
22.5						
				10SS		15
25.0						
	– some silt, some clay			11SS		15
27.5	CL–CLAY, some silt, stiff, gray, moist to saturated	–15.1		12SS		6
30.0				13SS		4
	SM–SAND, trace silt, loose, fine to medium grained, olive gray and dark gray, moist to saturated	–19.1				
32.5				14SS		9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

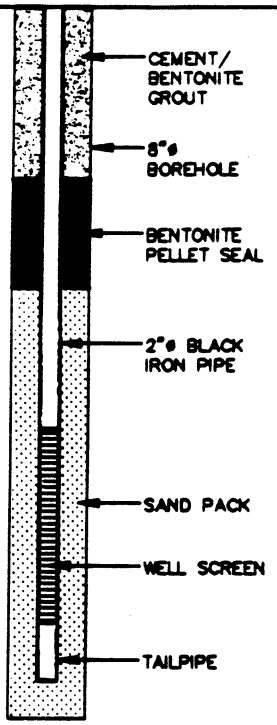
(L-20)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554

HOLE DESIGNATION: 40-50 (Page 2 of 2)
DATE COMPLETED: JUNE 16, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
35.0	ML–SILT, some sand, piece of wood, medium dense, gray, moist	-23.1
37.5	SM–SAND, some silt, peat, wood, dense, medium grained, gray, moist – no wood or peat	
40.0		
42.5		
45.0		
47.5	– trace clay, loose, fine to medium grained, olive gray, wet	
50.0	ML–SILT, some sand, medium dense, olive gray and dark gray, moist	-37.1
	END OF HOLE ● 51.0 FT. BGS	-39.1
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
39.8 to 51.0' BGS
Material –# 10–20 Sand

SAMPLE NUMBER	STATE	N VALUE
15SS		WH
16SS		9
17SS		40
18SS		33
19SS		29
20SS		28
21SS		16
22SS		9
23SS		14

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 40-75
DATE COMPLETED: August 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	12.49 12.06						
	NOT SAMPLED (0 to 65ft BGS)		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 40-75
DATE COMPLETED: August 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 40-75
DATE COMPLETED: August 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 40-75
DATE COMPLETED: August 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
62								
64								
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-52.51	BENTONITE CHIPS					
66								
68								
70	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-57.51		1RS		10.0		0.0
72			2" PVC WELL SCREEN					
74	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, trace shell fragments, wet	-61.21	SAND PACK					
	END OF BOREHOLE @ 75.0ft BGS	-62.51						
76								
78								

WELL DETAILS
Screened interval:
-58.71 to -63.71ft
71.20 to 76.20ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 40-75
DATE COMPLETED: August 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
82			-51.41 to -54.61ft 63.90 to 67.10ft BGS Material: BENTONITE PELLETS Sand Pack: -54.61 to -64.31ft 67.10 to 76.80ft BGS Material: SAND					
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

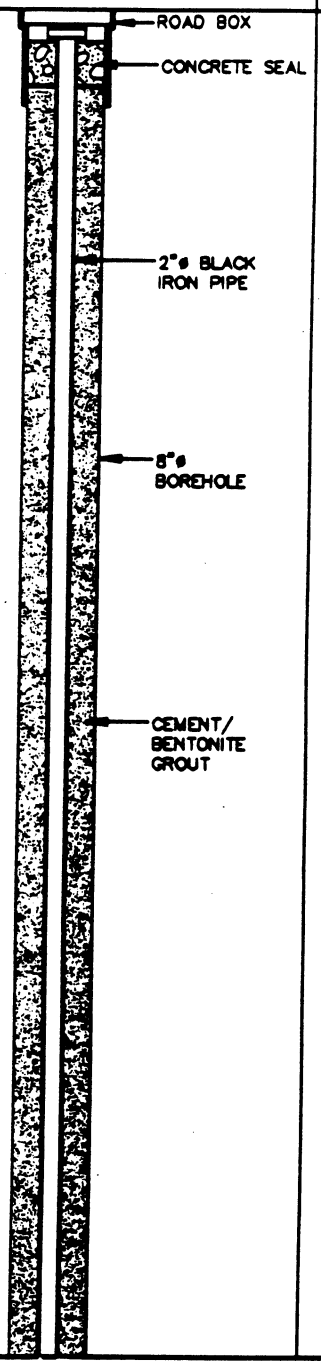
(L-21)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554

HOLE DESIGNATION: 40–100

DATE COMPLETED: JUNE 18, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.69* *11.9*				
	For stratigraphy from 0.0 to 50.0 ft BGS see log 40–50					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-21)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554

HOLE DESIGNATION: 40–100

DATE COMPLETED: JUNE 18, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0	SM–SAND, some silt, medium dense, fine grained, dark gray and olive gray, moist	-38.1	CEMENT/ BENTONITE GROUT	1SS		25
52.5				2SS		18
55.0	ML–SILT, some sand, piece of wood, medium dense, olive gray and dark gray, moist	-43.1	8"ø BOREHOLE	3SS		18
57.5	– loose			4SS		9
60.0	– medium dense			5SS		25
62.5	SM–SAND, some silt, medium dense, medium medium grained, olive gray and dark gray, moist to saturated	-50.6		6SS		26
65.0	– less dense – silt seam			7SS		15

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-21)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554

HOLE DESIGNATION: 40–100

DATE COMPLETED: JUNE 18, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	– silt seam					
67.5				8SS		12
70.0	ML–SILT, some fine to medium grained sand, medium dense, olive gray and dark gray, moist	–58.1		9SS		13
72.5			8"ø BOREHOLE	10SS		10
75.0	SM–SAND, little silt, loose, medium grained, olive gray and dark gray, moist	–63.1	CEMENT/ BENTONITE GROUT	11SS		5
77.5	– silt, seam, medium dense			12SS		15
80.0				13SS		8
82.5			2"ø BLACK IRON PIPE	14SS		18
85.0				15SS		
87.5			BENTONITE PELLET SEAL	16SS		15
90.0	– some silt			17SS		10
92.5			SAND PACK	18SS		16
95.0						
97.5			WELL SCREEN	19SS		12
			TAILPIPE			

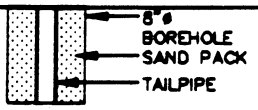
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-21)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 40–100 (Page 4 of 4)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 18, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 19' SOUTHEAST OF BUILDING # 9554
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	END OF HOLE @ 100.0 FT. BGS	-88.1	 SCREEN DETAILS: Screened Interval: 93.5 to 98.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 90.0 to 100.0' BGS Material –# 10–20 Sand			
102.5						
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

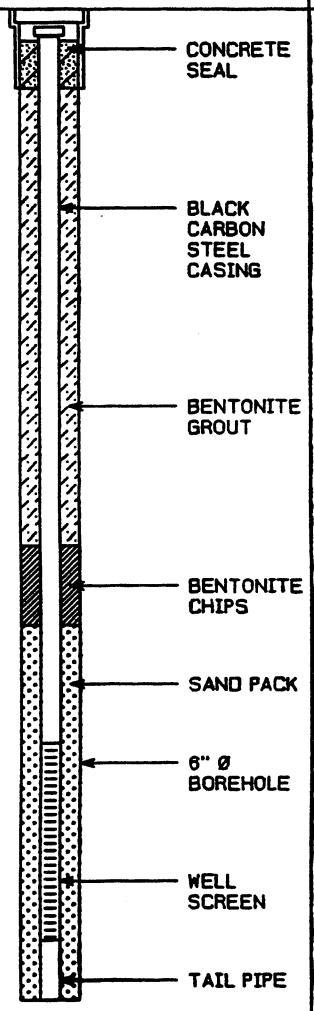
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(WL-98)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 40A-25
DATE COMPLETED: OCTOBER 8, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: J.SCHWALLER/D.STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Curb Box) GROUND SURFACE	*13.14* *13.1*					
	Refer to 40A-50 for stratigraphic details.						
-2.5							
-5.0							
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0	END OF HOLE @ 25.0ft BGS	*-11.9*					
-27.5							
-30.0							
-32.5							



SCREEN DETAILS
Screened Interval:
18.5 to 23.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
15.5 to 25.0ft BGS
Material: 1/20 Monterey Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 40A-50
DATE COMPLETED: OCTOBER 7, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Curb Box) GROUND SURFACE	*13.22* *13.2*					
0	SW-SAND, some gravel, loose, medium to fine grained, well graded, brown/tan, dry, no odor		CONCRETE SEAL				
-2.5							
-5.0	- gray/black and red, moist, sulfur-like odor						
-7.5							
-10.0			BENTONITE GROUT				
-12.5							
-15.0							
-17.5	ML-SILT, some sand, dense, gray/black, sulfur-like odor	*-3.8*		CC			0
-20.0	SW-SAND (NATIVE), some silt, loose, medium to fine grained, well graded, gray/black and red grains, wet, sulfur-like odor	*-6.8*	6" Ø BOREHOLE				
-22.5							
-25.0							
-27.5	ML-SILT, some sand, dense, fine grained, poorly graded, gray/black, wet, sulfur-like odor	*-13.3*					
-30.0	- some clay, trace sand, very fine to fine grained, dark gray, moist, sulfur-like odor		BLACK CARBON STEEL CASING				
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: AS PER PLAN

HOLE DESIGNATION: 40A-50
DATE COMPLETED: OCTOBER 7, 1995
DRILLING METHOD: RESONANT SONIC
CRA SUPERVISOR: D. STEINER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BLACK CARBON STEEL CASING; BENTONITE GROUT				
40.0			BENTONITE PELLETS				
42.5			SAND PACK	CC			0
45.0	- trace clay		WELL SCREEN				
47.5	SW-SAND, some silt, loose, medium to fine grained, well graded, gray/black and red, moist, no odor	-33.8	6" Ø BOREHOLE				
50.0	END OF HOLE @ 50.0ft BGS	-36.8	TAIL PIPE				
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

SCREEN DETAILS
Screened interval:
43.5 to 48.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
40.5 to 50.0ft BGS
Material: #20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-148)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 40A-100
DATE COMPLETED: MAY 17, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*13.1* *11.86*					
	Refer to 40A-50 for stratigraphic details.		CONCRETE CEMENT/ BENTONITE GROUT 2" Ø SS PIPE BENTONITE GROUT 8" Ø BOREHOLE				
-2.5							
-5.0							
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							
-35.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 40A-100
DATE COMPLETED: MAY 17, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
40.0							
42.5			BENTONITE GROUT				
45.0							
47.5							
50.0	SP-SAND (NATIVE), trace to little silt, brown to black, trace red sand, moist to wet	-36.9		1SS		32	
52.5			2" Ø SS PIPE				
55.0	SW-SAND, medium grained, dark brown to black, trace red sand, moist to wet	-41.9		2SS		6	
57.5							
60.0				3SS		60	
62.5	SW/SM-SAND, some silt	-48.6	8" Ø BOREHOLE				
65.0	SW-SAND, slightly firm, medium grained	-51.9		4SS		>50	
67.5	ML-SILT, firm	-53.2					
70.0	SW-SAND, medium grained	-56.9					
	ML-SILT, some fine sand	-57.7		5SS		52	
72.5	SW-SAND, medium grained	-58.0					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

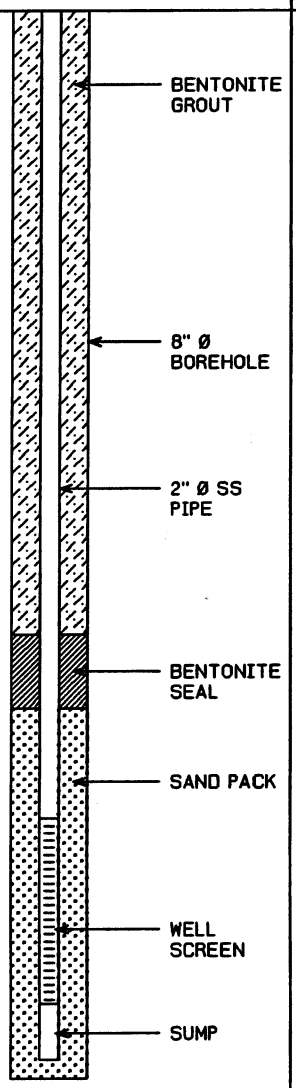
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 40A-100
DATE COMPLETED: MAY 17, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
77.5		
80.0		
82.5		
85.0		
87.5		
90.0		
		-77.9
	ML-SILT	
92.5		
95.0		-81.9
	SW-SAND, medium grained	-82.7
	ML-SILT, firm	-83.2
	SW-SAND, medium grained	
97.5		
100.0		
102.5		
		-90.9
	END OF HOLE @ 104.0ft BGS	
105.0		
107.5		
110.0		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
97.0 to 102.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
94.0 to 104.0ft BGS
Material: 10/20 Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
6SS		>50	
7SS		27	
8SS		11	
9SS		50	
10SS		21	
11SS		15	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-22)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 15' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41–50 (Page 1 of 2)
DATE COMPLETED: JUNE 3, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.74				
	GROUND SURFACE	11.0				
2.5	Auger through asphalt and brown sand to 5.0 ft BGS		ROAD BOX; CONCRETE SEAL			
5.0		6.0				
7.5	SM–SAND(NATIVE), trace silt, trace clay, very loose to loose, fine to medium grained, dark brown with some red sand grains, moist – trace decayed wood (7.0 to 9.0 ft BGS) – wet			1SS 2SS		7 2
10.0				3SS		3
12.5			8"ø BOREHOLE	4SS		7
15.0	– trace to little silt, trace clay, dark olive gray and gray			5SS 6SS		6 5
17.5	– shell fragments, olive gray		2"ø BLACK IRON PIPE	7SS		10
20.0				8SS		6
22.5				9SS		4
25.0				10SS		11
		–15.5		11SS		38
27.5	ML–SILT, trace fine grained sand, trace wood and shells, dense, gray, wet	–16.0	CEMENT/ BENTONITE GROUT	12SS		WH
30.0	CL–CLAY, some silt, some sand, trace shells, very soft to soft, gray, wet			13SS		WH
32.5				14SS		2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-22)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 15' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41–50 (Page 2 of 2)
DATE COMPLETED: JUNE 3, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0				15SS		1
	ML–SILT, trace to some fine sand, loose, gray, wet	–25.2	CEMENT/ BENTONITE GROUT	16SS		8
37.5	SM–SAND, some silt, loose, fine grained, dark gray, wet	–26.5		17SS		8
40.0			BENTONITE PELLET SEAL	18SS		17
	ML–SILT, some fine grained sand, trace clay, trace shells and wood, loose, gray to dark gray, wet	–30.4	2"ø BLACK IRON PIPE	19SS		6
42.5			SAND PACK	20SS		5
45.0	SM–SAND, trace silt, medium dense, fine to medium grained, dark gray, wet	–34.0	6"ø BOREHOLE	21SS		11
47.5			WELL SCREEN	22SS		22
50.0	ML–SILT, some sand, trace wood, medium dense, dark gray, wet	–38.5	TAILPIPE	23SS		10
	END OF HOLE ● 51.0 FT. BGS	–40.0				
52.5						
55.0						
57.5						
60.0						
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
40.5 to 51.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

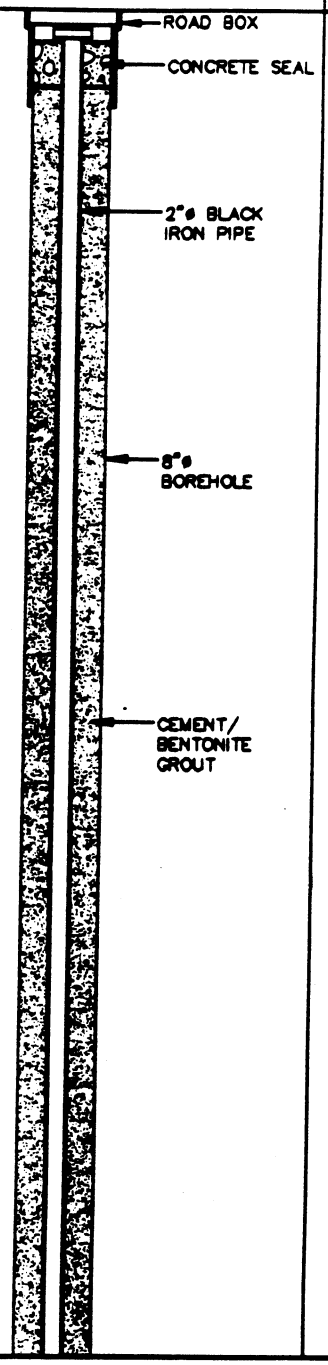
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-23)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 18' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41–100 (Page 1 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.30* *11.0*				
	For stratigraphy from 0.0 to 51.0 ft BGS see log 41–50					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-23)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 18' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41-100

DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0						
37.5						
40.0						
42.5			2"ø BLACK IRON PIPE			
45.0						
47.5						
50.0			CEMENT/ BENTONITE GROUT			
52.5	SM–SAND, some silt, medium dense, fine grained, dark gray, wet	-41.5		1SS		16
55.0	ML–SILT, some fine grained sand, dense, dark gray, wet	-44.0	8"ø BOREHOLE	2SS		34
57.5	SM–SAND, some silt, loose, fine grained, dark gray, wet	-46.5		3SS		9
60.0				4SS		14
62.5	– medium dense			5SS		24
65.0	ML–SILT, some fine grained sand, loose, dark olive, wet	-54.0		6SS		6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-23)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 18' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41-100
(Page 3 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5	SM–SAND, some silt, medium dense, fine to medium grained, dark olive, wet	-56.5		7SS		13
70.0			8"ø BOREHOLE	8SS		15
72.5				9SS		>50
75.0				10SS		12
77.5			CEMENT/ BENTONITE GROUT	11SS		17
80.0	– loose			12SS		6
82.5	ML–SILT, trace fine to medium grianed sand, wood debris, medium dense, light and dark olive, wet	-71.5	2"ø BLACK IRON PIPE	13SS		19
85.0				14SS		13
87.5				15SS		9
90.0			BENTONITE PELLET SEAL	16SS		10
92.5				17SS		11
95.0	SM–SAND, some silt, trace shells, medium dense, fine to medium grained, dark olive, wet	-84.0	SAND PACK	18SS		24
97.5			WELL SCREEN	19SS		12
			TAILPIPE			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

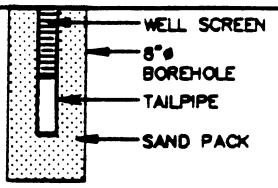
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-23)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 18' WEST OF BUILDING # 9592

HOLE DESIGNATION: 41–100 (Page 4 of 4)
DATE COMPLETED: JUNE 4, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0						
	ML–SILT, trace fine grained sand, medium dense, olive gray, wet	-90.0		20SS	X	12
102.5	END OF HOLE @ 102.0 FT. BGS	-91.0				
105.0			SCREEN DETAILS: Screened Interval: 94.3 to 99.3' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 90.5 to 102.0' BGS Material –# 10–20 Sand			
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.42 10.09						
	SEE MW-41C FOR STRATIGRAPHIC DETAILS 0-113FT BGS		CONCRETE 2" PVC WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE					

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
102								
104								
106								
108								
110								
112								
114	ML-CLAYEY SILT, trace sand, compact, low plasticity, gray, very moist, moderate dilatancy, shell fragments throughout, several sliver size wood pieces throughout	-102.58						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-103.58						0.0
116			BENTONITE CHIPS					
	ML-SILT, trace clay, trace fine grained sand, compact, low plasticity, light gray, moist, moderate dilatancy	-105.78						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-106.28		1RS				
118	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-107.08						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41-130
DATE COMPLETED: April 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
122	- fine grained at 120.0ft BGS - very fine grained at 122.5ft BGS							
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-112.58	2" PVC WELL SCREEN	2RS				0.0
124	- 3-1/2" sandy silt at 123.3ft BGS - trace sliver size wood pieces throughout at 123.6ft BGS	-113.58						
	SM/ML-SAND AND SILT, very loose, very fine grained sand, dark gray, wet, rapid dilatancy, numerous rootlet to twig size wood pieces throughout, shell fragments throughout		SAND PACK					
126		-115.58						
	NO RECOVERY (126-127FT BGS)	-116.58						
128	CL-SILTY CLAY, firm, low plasticity, light gray, moist, shell fragments throughout - trace fine grained subangular to subrounded gravel (pebble size) at 127.4ft BGS - gravel up to 1/2" at 128.0ft BGS - 3" gravelly clay, gravel subangular to subrounded (pebble size to 1") at 128.5ft BGS		COATED BENTONITE PELLETS	3RS				0.0
130								
	CL-GRAVELLY SILTY CLAY, trace fine grained sand, subangular to subrounded gravel (pebble size to 1-1/4x2-1/4"), firm, low plasticity, gray, moist	-120.98						
132	END OF BOREHOLE @ 132.0ft BGS	-121.58						
134								
136								
138								

WELL DETAILS
Screened interval:
-111.18 to -116.08ft
121.60 to 126.50ft BGS
Length: 4.9ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-102.58 to -108.58ft
113.00 to 119.00ft BGS
Material: COATED BENTONITE PELLETS
Sand Pack:
-108.58 to -116.38ft
119.00 to 126.80ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

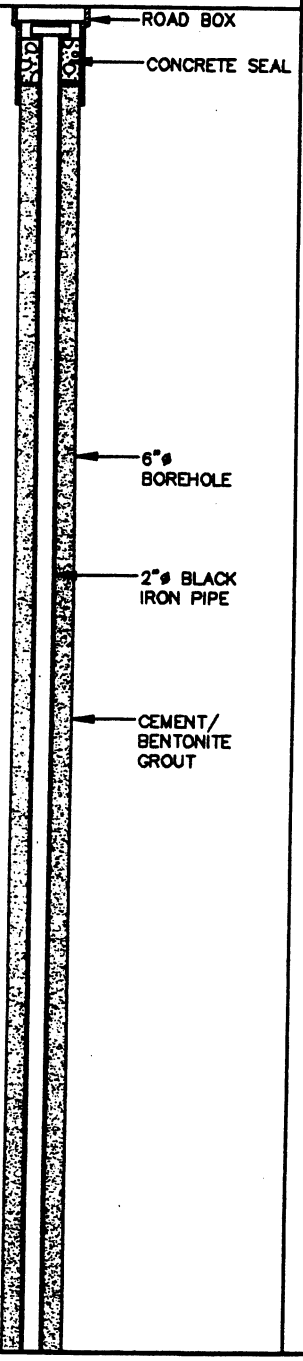
(L-35)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF BUILDING # 9592

HOLE DESIGNATION: 41–138

DATE COMPLETED: OCTOBER 15, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	GROUND SURFACE	11.0					
	For stratigraphy from 0.0 to 100.0 ft BGS see log 41–100						



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-35)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF BUILDING # 9592

HOLE DESIGNATION: 41–138
(Page 2 of 5)
DATE COMPLETED: OCTOBER 15, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0							
37.5							
40.0							
42.5			2"ø BLACK IRON PIPE				
45.0							
47.5							
50.0			CEMENT/ BENTONITE GROUT				
52.5							
55.0							
			6"ø BOREHOLE				
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-35)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF BUILDING # 9592

HOLE DESIGNATION: 41–138 (Page 3 of 5)
DATE COMPLETED: OCTOBER 15, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
67.5							
70.0							
72.5							
75.0			2"ø BLACK IRON PIPE				
77.5							
80.0							
82.5			CEMENT/ BENTONITE GROUT				
85.0							
87.5			6"ø BOREHOLE				
90.0							
92.5							
95.0							
97.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-35)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF BUILDING # 9592

HOLE DESIGNATION: 41–138

DATE COMPLETED: OCTOBER 15, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
100.0	SM–SAND, trace to some silt, silt seams, dense, fine to medium grained, dark olive, moist to wet	-89.0		1SS		10 15 12 12	0
102.5							
105.0				2SS		14 23 26 30	0
107.5			6"ø BOREHOLE				
110.0				3SS		16 28 38 46	0
112.5			CEMENT/ BENTONITE GROUT				
115.0	SM/ML–SAND and SILT, silt layers, dense, fine to medium grained, dark olive, moist to wet	-104.0	2"ø BLACK IRON PIPE	4SS		10 26 29 40	0
117.5							
120.0	SM–SAND, little silt, soft wood, dense, medium grained, dark olive, moist to wet	-109.0		5SS			0
122.5							
125.0	– some silt, fine to medium grained		BENTONITE PELLET SEAL	6SS			0
127.5							
130.0	– medium dense, medium grained, dry		SAND PACK	7SS			0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-35)

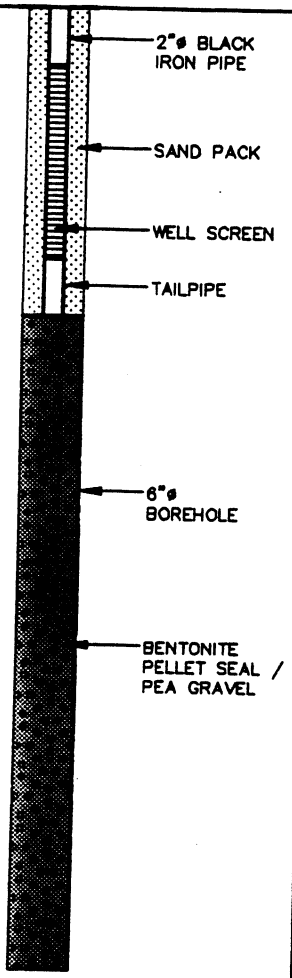
PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF BUILDING # 9592

HOLE DESIGNATION: 41–138

DATE COMPLETED: OCTOBER 15, 1992
DRILLING METHOD: 6" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
132.5	ML/CL–SILT and CLAY, dense, dark olive, moist	–120.0
145.0	SP–SAND(GLACIAL TILL), some gravel, dense, coarse grained, green, wet	–134.0
147.5	SM–SAND(GLACIAL TILL), some silt, dense, medium grained, brown, wet	–135.0
150.0	GW–GRAVEL(GLACIAL TILL), some sand, some multi–colored cobbles, fine to coarse, brown green	–137.0
155.0	END OF HOLE @ 155.0 FT. BGS NOTES: 1. Split spoon samples are jar driven.	–144.0

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
131.5 to 136.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
127.0 to 138.0' BGS
Material –# 20 Sand

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
8SS			0
9SS			0
10SS			0
11SS			0
✱ 12SS			0
13SS			0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ✱ CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.29 9.81						
	ASPHALT							
		9.79						
1	SW/GW-SAND AND GRAVEL (FILL), trace silt, compact, fine to medium grained sand, fine grained angular gravel, well graded, light brown, moist							
	- trace coarse grained angular gravel at 1.0ft BGS	9.09						
2	SP-SAND (FILL), trace silt, loose, fine to medium grained, well sorted, brown, with red grains and white grains, shell fragments throughout, moist							0.0
3								
	- 1/2" sandy silt at 3.5ft BGS							
4								
5	- slight increase in grain size at 5.0ft BGS		← 6" BOREHOLE	1RS				
6								
7								0.0
8			← BENTONITE GRAVEL					
9	- wet at 9.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

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11	- brown and gray, with red grains and white grains at 10.0ft BGS							
12								0.0
13								
		-3.21						
14	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
15				2RS				
16			SAND PACK					
17								0.0
18			PORT 1 SCREEN 1					
19	- finer grain size at 19.0ft BGS		PORT 1 SCREEN 2					
			PORT 1 SCREEN 3					

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21	CL-SANDY SILTY CLAY, soft, low plasticity, gray, fine grained sand, with red grains and white grains, shell fragments throughout, wet	-10.71	TRANSDUCER #1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					
22								0.0
23								
24								
25								
26	- laminated sand at 26.0ft BGS							
27	- laminated sand at 27.0ft BGS							
28	SC-SILTY CLAYEY SAND, very loose, fine grained sand, low plasticity, gray, with red grains and white grains, shell fragments throughout, wet	-17.21						0.0
29	SP-SAND, with silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet - 3/4" silty clay at 29.7ft BGS	-18.71						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
				3RS				
	ML-CLAYEY SILT, trace sand, loose, slight plasticity, gray, wet, rapid to moderate dilatancy	-20.21						
31	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-20.61						
32	- 3/4" lens sandy silt at 32.2ft BGS							0.0
33			COATED BENTONITE PELLETS					
34								
	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout, wet	-24.21						
35	ML-SANDY SILT, compact, fine grained sand, no plasticity, gray, with red grains and white grains, shell fragments throughout, wood pieces sliver to twig size throughout, wet	-24.71						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains, wet, sand size shell fragments throughout, wood pieces sliver size up to 2x1/8" throughout	-25.21						
36								
37	ML-SANDY SILT, compact, very fine grained sand, no plasticity, light gray, wet, rapid dilatancy, sliver size wood fragments and sand size shell fragments throughout, rotting egg-type odor	-26.71						
	CL-SANDY SILTY CLAY, very soft, low plasticity, gray, wet, moderate to rapid dilatancy	-27.21						0.0
38	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet	-27.71						
39	CL/ML-SILTY CLAY/CLAYEY SILT, soft, low plasticity, gray, wet, moderate dilatancy, several sand laminations, sand size shell fragments throughout - 1-1/2" silty sand at 39.2ft BGS	-28.21						
	ML-SANDY SILT, loose, very fine grained	-29.41						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	sand, no plasticity, gray, wet, rapid dilatancy, gray sand, with red grains and white grains, shell fragments throughout	-29.71						
41	ML/CL-SILTY CLAY/CLAYEY SILT, soft, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout							
42			SAND PACK					
			PORT 2 SCREEN 1					0.0
43								
			PORT 2 SCREEN 2					
44								
			PORT 2 SCREEN 3					
45								
			TRANSDUCER #2					
			PORT 2 SCREEN 4					
46								
			PORT 2 SCREEN 5					
47								
			PORT 2 SCREEN 6					0.0
	- trace fine grained sand at 47.8ft BGS							
48	- two larger shell fragments up to 1-1/4x1" at 48.0ft BGS							
	ML-SANDY SILT, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout, gray sand, with red grains and white grains	-38.21						
49	- 2" very fine grained silty sand at 49.2ft BGS							
	- scattered sliver size wood pieces throughout at 49.4ft BGS							
	- laminated sand at 49.8ft BGS							

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DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- laminated sand and silt laminations throughout, occasional light gray laminations throughout at 50.0ft BGS			4RS				
51								
52								
	- 1/2" soft silty clay at 52.5ft BGS							0.0
	- 1/2" soft silty clay at 52.8ft BGS							
53	- layered silty sand and sandy silt at 53.0ft BGS							
54								
	- 2" section with peat fibers scattered throughout at 54.5ft BGS							
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-44.51						
55	- 3/4" soft silty clay at 55ft BGS							
	- 2-1/2" silty with sand laminations at 55.5ft BGS							
		-45.51						
56	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet							
57		-46.71						
	ML-SILT, trace to with clay, trace sand, sand laminations throughout, layered silt, compact, low plasticity, gray, wet, rapid to moderate dilatancy, trace scattered sliver size wood pieces and shell fragments throughout							0.0
58			COATED BENTONITE PELLETS					
59								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1" silty clay at 60.4ft BGS							
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-50.21						
61	- sand, with silt, occasional silt lamination at 61.0ft BGS							
	- very fine grained, silty sand, occasional silt lamination, scattered wood pieces, sliver size up to 3/4x1/8" at 61.5ft BGS							
62		-52.21						0.0
	ML-SANDY SILT, trace clay, loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout, thin layers sand and silty clay, less than 1/4" thick to lamination, then light and dark gray layers of varying thickness							
63		-53.51						
	SM/ML-SAND AND SILT, loose, very fine grained sand, no plasticity, gray, with red grains and white grains, sand size shell fragments throughout, wet, rapid dilatancy							
64		-55.21						
	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, with red grains and white grains, sand size shell fragments throughout, wet, rapid dilatancy							
65								
	- silt, trace clay, trace very fine grained sand at 67.5ft BGS		SAND PACK PORT 3 SCREEN 1					0.0
66								
	- sandy silt, occasional sand lamination and lenses up to 1/2" thick at 68.5ft BGS		PORT 3 SCREEN 2					
67								
	ML-SANDY CLAYEY SILT, loose, very fine grained sand, low plasticity, gray, with red grains and white grains, wet, rapid dilatancy,	-59.21	PORT 3 SCREEN 3					
68								
69								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	occasional sand lamination, scattered shell fragments throughout			5RS				
	ML-SANDY SILT/SAND AND SILT, compact, very fine grained sand, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy, sand size shell fragments throughout	-60.21	TRANSDUCER #3 PORT 3 SCREEN 4					
71			PORT 3 SCREEN 5					
72	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - 1/4" sandy silt at 72.8ft BGS	-61.71	PORT 3 SCREEN 6					0.0
73	- occasional sliver size wood pieces at 73.0ft BGS - three pieces of wood up to 2-1/2x1/16" diameter at 73.5ft BGS							
74								
75	- occasional sandy silt and clayey silt lamination and lenses up to 1/2" thick at 75.0ft BGS							
76								
77								0.0
78	ML-SANDY SILT, compact, very fine grained, no plasticity, light gray, very moist to wet, rapid dilatancy	-67.71						
79	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-68.41						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-69.91						
81	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout							
82		-72.11						0.0
83	SM/ML-SAND AND SILT, loose, fine grained sand, no plasticity, gray, with red grains and white grains, wet, very rapid dilatancy		COATED BENTONITE PELLETS					
84								
85	- 2-1/4" lens sandy silt at 84.8ft BGS	-74.91						
	CL-SILTY CLAY, light gray silt lamination and dark gray sand lamination, firm, low plasticity, gray, moist	-75.31						
86	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet							
87	- sand, trace silt at 87.0ft BGS							0.0
88								
89								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
91	- scattered larger shell fragments at 91.5ft BGS			6RS				
92	CI-SILTY CLAY, firm, low to medium plasticity, moist, moderate dilatancy, numerous wood pieces up to 2x1/2" at base of contact	-82.01	SAND PACK PORT 4 SCREEN 1					0.0
	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, with red grains and white grains, shell fragments throughout, wet, rapid dilatancy	-82.41						
93	ML-CLAYEY SILT, trace very fine grained sand, compact, low plasticity, gray, very moist, moderate dilatancy, sliver to twig size wood pieces and sand size shell fragments scattered throughout	-83.01	PORT 4 SCREEN 2					
94			PORT 4 SCREEN 3					
95	ML-SILT, trace clay, trace very fine grained sand, compact, slight plasticity, gray, very moist to wet, rapid dilatancy, coarse sand size shell fragments throughout	-84.71	TRANSDUCER #4 PORT 4 SCREEN 4					
96			PORT 4 SCREEN 5					
97			PORT 4 SCREEN 6					0.0
98	- several shell fragments up to 0.4x0.6" at 98.3ft BGS	-88.21						
99	ML-SANDY SILT, compact, fine grained sand, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy, sand laminations and lenses up to 1/2" and scattered moist compact, silt lenses up to 1/2" throughout							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
101	CL-SILTY CLAY, firm, low plasticity, gray, moist, shell fragments throughout - piece of wood 1x3/4" at 100.9ft BGS	-89.71						
102	SM-SILTY SAND, very loose, fine grained, dark gray, with peat fibers and wood pieces up to 1x0.3", wet	-91.51						
103	ML-SANDY SILT, very loose, very fine grained sand, no plasticity, gray, wet, rapid dilatancy - 1/4" silty clay at 102.4ft BGS - piece of wood 2x1/2" at 102.5ft BGS	-92.01						0.0
104	ML-CLAYEY SILT, trace fine grained sand, compact, low plasticity, gray, wet, moderate to fast dilatancy	-93.61	PORT 5 SCREEN 1					
105	ML-SANDY SILT, trace clay, compact, low plasticity, gray, wet, rapid dilatancy, several twig size wood pieces scattered throughout	-94.91	NOTE: SEAL MATERIAL PLACED AGAINST SCREENED INTERVAL PORT 5 SCREEN 2					
106								
107	SP-SAND, trace silt, compact, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout, occasional silt lamination - trace to with silt at 107.5ft BGS	-96.01	PORT 5 SCREEN 3 PORT 5 SCREEN 4					0.0
108	- 1" laminated silt and laminated sand at 108.0ft BGS		PORT 5 SCREEN 5					
109	CL-SILTY CLAY, firm, low plasticity, gray, moist, sand size shell fragments throughout	-99.01	PORT 5 SCREEN 6					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SC-CLAYEY SILTY SAND, loose, fine grained, slight plasticity, gray and dark gray, with red grains and white grains, wet, several sliver size wood pieces throughout	-99.71		7RS				
		-100.11	COATED BENTONITE PELLETS					
111	ML-CLAYEY SANDY SILT, compact, low plasticity, gray, wet, rapid dilatancy - laminated sand at 110.7ft BGS							
		-100.91						
112	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet							
		-102.01						
113	ML-CLAYEY SILT, trace sand, compact, low plasticity, gray, very moist, fast to moderate dilatancy, several sand laminations throughout, light and dark gray laminations, scattered shell fragments throughout							0.0
		-103.21						
114	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
		-104.21						
115	CL/ML-CLAYEY SILT/SILTY CLAY, trace sand, stiff, low plasticity, brown, moist, several sand laminations							
		-104.71						
116	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout							
117								
		-107.21						0.0
118	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
119								
		-109.21						
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML/CL-CLAYEY SILT/SILTY CLAY, firm, low plasticity, gray, very moist, moderate dilatancy, shell fragments throughout	-110.01						
121								
122								0.0
123			SAND PACK					
124								
125								
126	- scattered small intact shells at 126.0ft BGS							
127								0.0
128	- 0.4' silty clay at 128.0ft BGS							
129			TRANSDUCER #5					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- trace fine grained subangular gravel (pebble size) at 130.0ft BGS			8RS				
131	- 0.3' silty clay at 131.6ft BGS							
132								0.0
133								
134	CL-GRAVELLY SILTY CLAY, firm, low plasticity, gray, very moist to wet, fine grained to coarse grained subangular to subrounded dark gray , grayish green and brown granular pebble size up to 2x3", shell fragments not present	-123.71						
135								
136	- increased fine grained gravel content, scattered small shell fragments (<1% total) at 135.8ft BGS							
	- glacial till at 136.6ft BGS	-126.31						
137	CL-SILTY GRAVELLY CLAY, trace sand, low plasticity, medium gray, very moist to wet, fine to coarse grained subangular to subrounded dark gray, greenish gray, light brown and brown gravel, pebble size up to 1-1/2x1-1/2"							0.0
	- 4" cobble, poor recovery beneath cobble at 137.5ft BGS							
138	- greenish gray at 137.6ft BGS							
139	- light greenish gray at 139.3ft BGS							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM/ML-GRAVELLY SANDY SILT, trace clay, loose, fine grained, trace medium to coarse grained sand, fine grained subangular to subrounded gravel (pebble size to 3/4"), light brown, wet, rapid to moderate dilatancy	-129.71						
141								0.0
	- 3" silty clay, trace pebbles, trace fine grained sand at 141.6ft BGS							
142	CL-SILTY SANDY CLAY, trace fine grained (pebble size) gravel, soft, low plasticity, light brown, wet	-131.71		9SBL				
143	- increase in gravel content, gravel size up to 7/16" at 143.2ft BGS							
	SM/ML-SAND AND SILT, trace fine grained subangular to subrounded gravel (pebble size to 5/16"), very loose, very fine to medium grained sand, light brown, wet	-133.31						0.0
144	SM/GM-SILTY GRAVELLY SAND, very loose to loose (more dense than above interval), fine to coarse grained sand, fine grained gravel (pebble size to 5/8"	-134.11						
145	- 3x3-1/2" cobble at 144.9ft BGS	-134.71	COATED BENTONITE PELLETS					
	GW-SANDY GRAVEL, trace silt, compact, fine to coarse subangular to subrounded grained gravel (pebble size to 2-1/4" and 3x1-1/2"), poorly sorted, medium to coarse grained sand, light brown, wet	-135.71						
146	- increase in fine grained gravel at 145.3ft BGS							0.0
	- gravel and sand at 145.8ft BGS							
	SP-SILTY SAND, trace fine grained gravel, compact, fine to medium grained, well sorted, light brown, wet	-136.21						
147	ML-SANDY SILT, trace clay, trace fine grained gravel, dense, fine grained sand, several oxidized layers up to 1/8" thick, moist	-136.81		10SBL				
	SM-SILTY SAND, trace fine grained subrounded gravel (pebble size), compact, medium grained, well sorted, light brown, wet	-137.51						
148	SW-SAND, trace silt, trace fine grained subrounded gravel, compact, fine to coarse grained, poorly sorted, light brown, with yellowish and orange grains and dark brown grains, wet, gravel up to 0.7"							
149	- becoming dense at 149.0ft BGS							0.0
	SM-SILTY SAND, trace fine grained subrounded gravel (pebble size), compact to	-139.31						
		-139.61						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	dense, fine to medium grained, poorly sorted, light brown, with yellowish grains and few orange grains and dark grains, wet - several discontinuous laminations, reddish brown, light green and white at 149.8ft BGS							
151	GW-GRAVEL, with sand, trace silt, compact, fine to coarse grained subangular to subrounded gravel (pebble size to 2-1/2x3-1/2"), fine grained sand, poorly sorted - increase in silt content (10%) at 151.4ft BGS							0.0
152								
	SW/GW-SAND AND GRAVEL, trace silt, compact, fine to medium grained sand, fine to coarse grained gravel (pebble size to 0.8"), poorly sorted, yellowish brown, wet	-142.21 -142.61		11SBL				
153	SW-SAND, trace silt, trace fine grained subrounded gravel (pebbles), compact, fine to medium grained, poorly sorted, yellowish brown, wet	-143.11						0.0
154	SW/GW-SAND AND GRAVEL, trace to with silt, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, poorly sorted, brown, wet	-144.01						
	GM-SILTY SANDY GRAVEL, trace clay, loose, fine to coarse grained subangular to subrounded gravel (pebble size to 1-1/4"), fine to medium grained sand, poorly sorted, light brown, wet	-144.51 -144.91						
155								
	SM/GM-SILTY SAND AND GRAVEL, compact, fine to medium grained sand, fine grained subangular to subrounded gravel (pebble size to 0.7"), poorly sorted, light brown, wet							
156	SW/GW-SAND AND GRAVEL, with silt, trace clay, compact, fine to medium grained sand, fine to coarse grained subrounded to subangular gravel (pebble size to 2x3-1/4"), poorly sorted, light brown, with yellow grains and red grains and green grains, wet	-146.31 -146.61						0.0
157	CL-SANDY GRAVELLY CLAY, compact, fine to coarse grained sand, fine to coarse grained subangular to subrounded gravel, low plasticity, light grayish brown, very moist			12SBL				
	SW/GW-SAND AND GRAVEL, trace to with silt, compact, fine to coarse grained sand, fine to coarse grained subangular to subrounded gravel, poorly sorted, light brown, wet	-147.61 -148.01						
158								
	ML-GRAVELLY SANDY SILT, trace clay, compact, fine to medium grained sand, fine grained subangular to subrounded gravel (pebble size to 0.4"), decreasing sand and gravel content with depth - trace coarse grained subrounded gravel at 158.2ft BGS							0.0
159								
	SM-SILTY SAND, trace clay, compact, fine to							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
161	medium grained sand, light brown, wet, irregular horseshoe shaped silt sand laminations and other irregular wavy shapes throughout, oxidized sand and light tan silt - irregular laminations not present at 159.0ft BGS - trace fine grained subrounded gravel, and oxidized sand lamination at 159.9ft BGS - sand, with silt, trace gravel, brown at 160.0ft BGS	-150.21 -150.61	SAND PACK					0.0
162	SW-SAND, trace silt, trace fine grained subrounded gravel (pebbles), compact, fine to coarse grained angular sand, mostly medium to coarse grained angular sand, poorly sorted, light brown, wet,	-151.91	PORT 6 SCREEN 1	13SBL				
163	GM-SILTY GRAVEL, trace fine grained sand, compact, fine to coarse grained subangular to subrounded gravel (pebble size to 1-1/2"), poorly sorted, light tan, wet	-152.41	PORT 6 SCREEN 2					
164	GM-SILTY SANDY GRAVEL, trace clay, compact to dense, fine grained subrounded gravel (pebble size to 1/2"), poorly sorted, tan, moist to very moist - 3-1/2x4" cobbles at 162.3ft BGS							0.0
165	SW-GRAVELLY SAND, trace silt, trace clay, compact, medium to coarse grained sand, fine grained subangular to subrounded gravel (pebble size to 1/2"), poorly sorted, rusty brown, wet - reduced sand grain size slight increase in silt content at 163.8ft BGS	-154.41 -154.71	PORT 6 SCREEN 3 TRANSDUCER #6					
166	SM-SILTY SAND, trace clay, compact, very fine grained, light brown, wet	-155.21	PORT 6 SCREEN 4					
167	SM-SILTY SAND, trace clay, compact, fine to medium grained, poorly sorted, light yellowish brown, wet	-155.71						
168	SW-SAND, with silt, compact, fine to medium grained, poorly sorted, rusty brown, with yellow grains, wet	-156.21	PORT 6 SCREEN 5					
169	SM-SILTY GRAVELLY SAND, trace clay, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel (pebble size to 1"), poorly sorted, light brown, with yellowish brown grains and reddish brown grains and gray grains and white grains, wet		PORT 6 SCREEN 6					0.0
	SM/GM-SAND AND GRAVEL, with silt, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, poorly sorted, light brown, with yellowish brown grains and reddish brown grains and gray grains and white grains							
	SM-SAND, with silt, compact, fine to medium grained, poorly sorted, light brown, with yellowish grains and reddish white grains and	-159.21 -159.61						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	gray grains, wet			14RS				
171	SM/GM-SAND AND GRAVEL, with silt, compact, fine to medium grained sand, fine and coarse grained subangular to subrounded gravel (pebble size to 1-1/4), poorly sorted, light brown, with yellowish brown grains and reddish brown grains and gray grains and white grains, wet							
172			COATED BENTONITE PELLETS					0.0
173								
174								
175	SM/GM-SILTY SAND AND GRAVEL, loose, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel (pebble size to 1"), dark brown, wet	-164.51 -164.71	CMT ANCHOR					
	END OF BOREHOLE @ 175.0ft BGS							
176	NOTE:							
	GLACIAL CONTACT ASSUMED AT 136.6FT BGS							
177	PORT 1 SAND PACK 16.0 TO 24.2FT BGS (-5.71 TO -13.91FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 17.94, 18.94, 19.94, 20.94, 21.94 AND 22.94FT BGS (-7.65, -8.65, -9.65, -10.65, -11.65 AND -12.65FT NGVD) TRANSDUCER (# 1142333) 20.44FT BGS (-10.15FT NGVD)							
178								
179	COATED BENTONITE PELLETS 24.2 TO 42.0FT BGS (-13.91 TO -31.71FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	PORT 2 SAND PACK 42.0 TO 49.5FT BGS (-31.71 TO -39.21FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
181	42.92, 43.92, 44.92, 45.92, 46.92 AND 47.92FT BGS (-32.63, -33.63, -34.63, -35.63, -36.63 AND -37.63FT NGVD) TRANSDUCER (# 1142137) 45.42FT BGS (-35.13FT NGVD)							
182	COATED BENTONITE PELLETS 49.5 TO 67.4FT BGS (-39.21 TO -57.11FT NGVD)							
183	PORT 3 SAND PACK 67.4 TO 74.1FT BGS (-57.11 TO -63.81FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
184	67.86, 68.86, 69.86, 70.86, 71.86 AND 72.86FT BGS (-57.57, -58.57, -59.57, -60.57, -61.57 AND -62.57FT NGVD) TRANSDUCER (# 1141748) 70.36FT BGS (-60.07FT NGVD)							
185	COATED BENTONITE PELLETS 74.1 TO 92.3FT BGS (-82.01 TO -87.71FT NGVD)							
186	PORT 4 SAND PACK 92.3 TO 98.0FT BGS (-82.01 TO -87.71FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
187	92.79, 93.79, 94.79, 95.79, 96.79 AND 97.79FT BGS (-81.50, -82.50, -83.50, -84.50, -85.50 AND -86.50FT NGVD) TRANSDUCER (# 1141739) 95.29FT BGS (-84.00FT NGVD)							
188	COATED BENTONITE PELLETS 98.0 TO 122.9FT BGS (-87.71 TO -112.61FT NGVD)							
189	PORT 5 SAND PACK 122.9 TO 129.0FT BGS (-112.61 TO							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 41C
DATE COMPLETED: April 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	-118.71FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 104.5, 105.5, 106.5, 107.5, 108.5 AND 109.5FT BGS (-94.21, -95.21, -96.21, -97.21, -98.21 AND -99.21FT NGVD) TRANSDUCER (# 1140295) 129.29FT BGS (-109.0FT NGVD) COATED BENTONITE PELLETS 129.0 TO 160.9FT BGS (-118.71 TO -150.61FT NGVD)							
191								
192								
	PORT 6 SAND PACK 160.9 TO 169.0FT BGS (-150.61 TO -158.71FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 162.64, 163.64, 164.64, 165.64, 166.64 AND 167.64FT BGS (-150.35, -151.35, -152.35, -153.35, -154.35 AND -155.35FT NGVD) TRANSDUCER (# 1140284) 165.14FT BGS (-152.85FT NGVD) COATED BENTONITE PELLETS 169.0 TO 175.0FT BGS (-161.13 TO -164.71FT NGVD)							
193								
194								
195								
196								
197								
198								
199								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-24)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 42–25

PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 18, 1992

CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA

LOCATION: 25' FROM NORTHWEST CORNER OF BUILDING #9323 NEAR LOADING DOCK
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	11.79 11.9				
	For stratigraphy refer to log 42–50		ROAD BOX CONCRETE SEAL			
2.5						
5.0						
7.5			CEMENT/ BENTONITE GROUT			
10.0			2"ø BLACK IRON PIPE			
12.5						
15.0			BENTONITE PELLET SEAL			
17.5			8"ø BOREHOLE			
20.0			SAND PACK			
22.5			WELL SCREEN			
25.0			TAILPIPE			
	END OF HOLE ● 26.0 FT. BGS	–14.1				
27.5			SCREEN DETAILS: Screened Interval: 18.5 to 23.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 15.0 to 26.0' BGS Material –# 10–20 Sand			
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-25)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' FROM NORTHWEST CORNER OF BUILDING # 9323 NEAR LOADING DOCK

HOLE DESIGNATION: 42-50 (Page 1 of 2)
DATE COMPLETED: JUNE 19, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
	REFERENCE POINT (Top of Riser)	11.36				
	GROUND SURFACE	11.9				
	Augered through asphalt and sand to 5.0 ft BGS		ROAD BOX; CONCRETE SEAL			
2.5						
5.0	SP-SAND, piece of wood, loose, medium grained, olive to dark gray, dry to moist	6.9		1SS		23
	– wet					
7.5				2SS		5
	– trace shells					
10.0				3SS		5
	– fine grained sand, trace silt		8" ø BOREHOLE			
12.5	– silt seams			4SS		6
				5SS		4
15.0						
				6SS		5
17.5	ML-SILT, trace clay, trace sand, loose, olive gray to dark gray, moist to saturated	-5.1	2" ø BLACK IRON PIPE	7SS		4
	SM-SAND, some silt, trace gravel, loose, medium to coarse grained, olive and brown, wet	-7.1		8SS		5
20.0						
22.5	– medium dense			9SS		2
				10SS		17
25.0	SP-SAND, medium dense, medium grained, olive gray to dark gray, wet	-13.1		11SS		22
	– trace shells		CEMENT/ BENTONITE GROUT			
27.5				12SS		22
30.0				13SS		28
				14SS		18
32.5	– silt seams					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

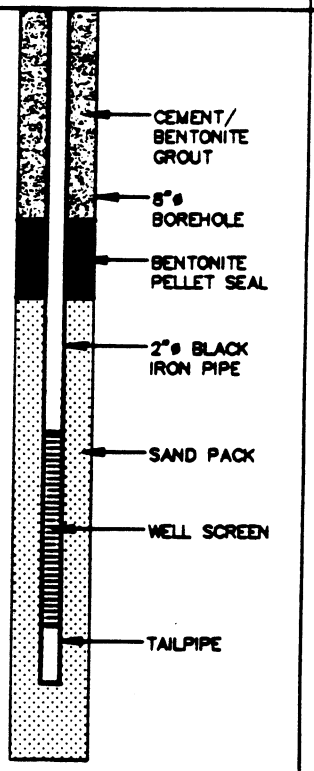
(L-25)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' FROM NORTHWEST CORNER OF B

HOLE DESIGNATION: 42–50

DATE COMPLETED: JUNE 19, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0	– piece of wood, silt seams			15SS		15
	– no wood			16SS		14
37.5				17SS		26
	SM–SAND, some silt, some peat, medium dense, fine to medium grained, olive gray to dark gray, wet	–27.1		18SS		17
40.0	– loose to medium dense, no peat					
42.5				19SS		10
45.0	ML–SILT, trace clay, trace sand, loose, olive gray to dark gray, wet	–33.1		20SS		7
47.5				21SS		6
50.0				22SS		5
52.5	END OF HOLE ● 52.0 FT. BGS	–40.1		23SS		8
55.0						
57.5						
60.0						
62.5						
65.0						



SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
40.0 to 52.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

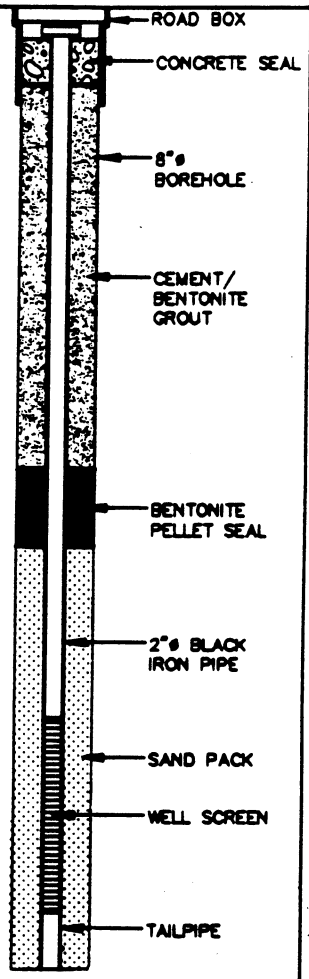
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-26)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 24' FROM NORTHWEST CORNER OF BUILDING # 9407

HOLE DESIGNATION: 43-25
DATE COMPLETED: JUNE 22, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*11.79*				
	GROUND SURFACE	*12.2*				
	For stratigraphy refer to log 43-50					
25.0	END OF HOLE ● 25.0 FT. BGS	*-12.8*				



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -Stainless Steel
Sand pack interval:
14.0 to 25.0' BGS
Material -# 10-20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-27)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 43-50 (Page 1 of 2)

PROJECT NO.: 1002-10
DATE COMPLETED: JUNE 23, 1992

CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA

LOCATION: 28' FROM NORTHWEST CORNER OF BUILDING # 9407
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*11.98*				
	GROUND SURFACE	*12.2*				
	Augered through asphalt and sand to 5.0 ft BGS		ROAD BOX; CONCRETE SEAL			
2.5						
5.0	SP–SAND, medium dense, medium grained, olive gray to dark gray, dry to moist	*7.2*		1SS		12
7.5	– very loose, dry to moist			2SS		8
10.0				3SS		3
12.5	SM–SAND, some silt, very loose, fine to medium grained, olive gray to dark gray, wet	*1.2*	8" ø BOREHOLE	4SS		3
15.0				5SS		7
				6SS		6
17.5	ML–SILT, trace clay, soft, olive gray to dark gray, wet to saturated	*–4.8*	2" ø BLACK IRON PIPE	7SS		3
20.0	SM–SAND, trace silt, trace gravel, loose, coarse grained, olive gray to dark gray, wet	*–6.8*		8SS		6
22.5	SW–SAND, medium dense, fine to medium grained, olive gray to dark gray, wet – piece of wood	*–8.8*		9SS		12
25.0	– trace silt			10SS		9
				11SS		11
27.5	SC–SAND, some clay, medium dense, fine to medium grained, olive gray and gray, moist to wet	*–14.8*	CEMENT/ BENTONITE GROUT	12SS		11
30.0	SM–SAND, trace silt, loose, fine grained, olive gray to dark gray, wet	*–16.8*		13SS		4
32.5	ML–SILT, trace sand, soft, olive gray to dark gray, moist to wet	*–18.8*		14SS		2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

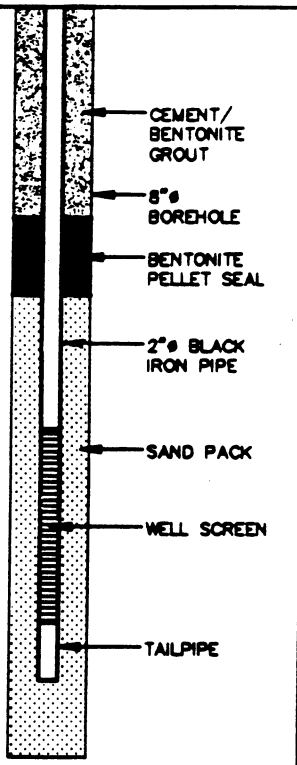
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-27)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 43–50
(Page 2 of 2)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 23, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 28' FROM NORTHWEST CORNER OF BUILDING # 9407
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0				15SS		WH
37.5				16SS		WH
40.0				17SS		WH
42.5	SM–SAND, some silt, loose, fine to medium grained, olive gray to dark gray, wet	-28.8		18SS		WH
45.0				19SS		3
47.5	ML–SILT, some sand, loose, olive, wet	-34.8		20SS		7
50.0	SM–SAND, some silt, loose, fine grained, olive wet	-37.8		21SS		8
52.5	END OF HOLE ● 52.0 FT. BGS	-39.8		22SS		4
55.0				23SS		5
57.5						
60.0						
62.5						
65.0						



SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
40.0 to 52.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-28)

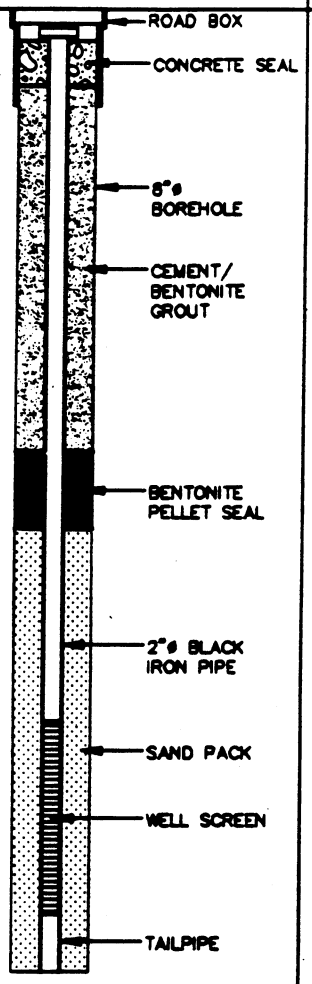
PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 44–25

PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 24, 1992

CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA

LOCATION: 28' EAST OF BIULDING # 9321 TRANSFORMER, SOUTH SIDE OF BUILDING
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	11.44 11.8				
	For stratigraphy refer to log 44–50					
25.0	END OF HOLE ● 25.0 FT. BGS	–13.2				



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
13.5 to 25.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-29)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 24' EAST OF BUILDING #9321 TRANSFORMER, SOUTH SIDE OF BUILDING

HOLE DESIGNATION: 44-50

DATE COMPLETED: JUNE 26, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
	REFERENCE POINT (Top of Riser)	11.63				
	GROUND SURFACE	11.8				
	Auger through asphalt and sand to 5.0 ft BGS		ROAD BOX; CONCRETE SEAL			
2.5						
5.0	SM–SAND, some silt, medium dense, medium grained, dark olive to dark gray with black, red and white grains, dry	6.8	2"ø BLACK IRON PIPE	1SS		15
7.5	– loose, wet			2SS		8
10.0				3SS		5
12.5			8"ø BOREHOLE	4SS		4
15.0				5SS		6
	ML–SILT, trace clay, dense, olive gray to dark gray, moist	-4.7		6SS		6
17.5	SM–SAND, some silt, loose, fine to medium grained, olive gray to dark gray, wet	-5.2	CEMENT/ BENTONITE GROUT	7SS		3
20.0				8SS		5
22.5	– little silt			9SS		4
25.0				10SS		13
27.5	– trace shells			11SS		22
30.0				12SS		13
32.5	– some silt, loose			13SS		3
				14SS		5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-29)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: 44–50
(Page 2 of 2)
PROJECT NO.: 1002–10
DATE COMPLETED: JUNE 26, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 4 1/4" ID HSA
LOCATION: 24' EAST OF BUILDING #9321 TRANSFORMER, SOUTH SIDE OF BUILDING
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			8"ø BOREHOLE	15SS		7
			CEMENT/ BENTONITE GROUT	16SS		5
37.5	ML–SILT, soft, dark olive to dark gray	-24.6		17SS		1
40.0		-28.2	BENTONITE PELLET SEAL	18SS		6
	SM–SAND, some silt, trace wood, loose, medium grained, dark olive, wet	-29.2				
42.5	SM–SAND, some silt, loose to dense, fine grained, dark olive, wet		2"ø BLACK IRON PIPE	19SS		4
45.0			SAND PACK	20SS		6
			WELL SCREEN	21SS		3
47.5	– trace shells			22SS		3
50.0			TAILPIPE			
				23SS		6
52.5	END OF HOLE ● 52.0 FT. BGS	-40.2				
55.0			SCREEN DETAILS: Screened Interval: 43.5 to 48.5' BGS Length –5.0' Diameter –2.0" Slot # 10 Material –Stainless Steel Sand pack interval: 40.0 to 52.0' BGS Material –# 10–20 Sand			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-30)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: 12' EAST OF BUILDING #9347

HOLE DESIGNATION: 45-50 (Page 1 of 2)
DATE COMPLETED: JULY 29, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.60				
	GROUND SURFACE	10.8				
	Augered through sand and gravel to 4.0 ft BGS		ROAD BOX; CONCRETE SEAL			
2.5						
	ML–SILT, trace clay, trace sand, very loose, gray, moist	6.8				
5.0			2"ø BLACK IRON PIPE	1SS		3
	SM–SAND, some silt, loose, fine to medium grained, dark gray, wet	4.8		2SS		13
7.5				3SS		5
10.0				4SS		5
			8"ø BOREHOLE			
12.5				5SS		6
15.0				6SS		10
	ML–SILT, trace clay, loose, olive gray, wet	-5.3		7SS		4
17.5						
	SM–SAND, trace silt, loose, fine to medium grained, olive gray, moist to wet	-7.3	CEMENT/ BENTONITE GROUT	8SS		5
20.0				9SS		2
	– dense					
22.5				10SS		37
25.0				11SS		34
27.5				12SS		25
				13SS		>50
30.0						
				14SS		20
32.5	ML–SILT, trace clay, loose, olive to dark gray, moist	-21.3		15SS		5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-30)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 12' EAST OF BUILDING #9347

HOLE DESIGNATION: 45–50 (Page 2 of 2)
DATE COMPLETED: JULY 29, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
35.0			CEMENT/ BENTONITE GROUT	16SS		4
37.5	SM–SAND, some silt, medium dense, medium grained, olive gray to dark gray, moist to wet	-27.3	BENTONITE PELLET SEAL	17SS		1
40.0	ML–SILT, some sand, loose, olive gray to dark gray, moist to wet	-29.3	8"ø BOREHOLE	18SS		25
42.5	SM–SAND, some silt, medium dense, medium grained, olive gray to dark gray	-31.3	2"ø BLACK IRON PIPE	19SS		18
45.0			SAND PACK	20SS		18
47.5			WELL SCREEN	21SS		10
50.0	END OF HOLE ● 50.0 FT. BGS	-39.3	TAILPIPE	22SS		8
52.5				23SS		8
55.0						
57.5						
60.0						
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
39.0 to 50.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-149)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 45-100
DATE COMPLETED: MAY 27, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*10.6* *10.60*					
	Refer to 45-50 for stratigraphic details.		CONCRETE				
-2.5							
-5.0							
-7.5							
-10.0			2" Ø SS PIPE				
-12.5							
-15.0							
-17.5							
-20.0			BENTONITE GROUT				
-22.5							
-25.0							
-27.5							
-30.0			8" Ø BOREHOLE				
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 45-100
DATE COMPLETED: MAY 27, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0			BENTONITE GROUT				
-42.5							
-45.0							
-47.5							
-50.0	SP-SAND (NATIVE), trace shell fragments, medium grained, dark gray to black, little red sand, wet	-39.4	2" Ø SS PIPE	1SS		60	
-52.5							
-55.0				2SS		>50	
-57.5							
-60.0	- trace silt, trace wood fibres, medium to fine grained, wet		8" Ø BOREHOLE	3SS		11	
-62.5							
-65.0	SM-SAND, little silt, trace wood fibers, trace shells, dark gray to black, trace red sand, wet	-54.4		4SS		16	
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 45-100
DATE COMPLETED: MAY 27, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-60.9		5SS		12	
72.5	ML-SILT, some clay, silt lense, gray, very moist to wet		BENTONITE GROUT				
75.0	SP-SAND, trace shells, fine to medium grained, gray to black	-64.4		6SS		35	
77.5							
80.0			8" Ø BOREHOLE	7SS		17	
82.5							
85.0	- little silt, wery moist		2" Ø SS PIPE				
	ML-SILT, some sand, silt lense, gray, moist	-76.0		8SS		35	
87.5							
90.0	SP-SAND, trace shells, fine to medium grained, gray to black, wet	-79.4	BENTONITE SEAL	9SS		60	
	- trace silt, medium grained sand						
92.5			SAND PACK				
95.0	- trace shells, fine to medium grained, gray to black, wet			10SS		28	
97.5	- little silt, fine grained, wet		WELL SCREEN	11SS		30	
	- some silt, fine grained, wet						
100.0		-89.4	SUMP	12SS		44	
	ML-SILT, gray, very moist	-89.9					
	SM-SAND, some silt, gray, wet	-90.4					
	END OF HOLE @ 101.0ft BGS						
102.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 45-100
DATE COMPLETED: MAY 27, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
107.5			SCREEN DETAILS Screened interval: 94.0 to 99.0ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 91.0 to 101.0ft BGS Material: 10/20 Silica Sand				
110.0							
112.5							
115.0							
117.5							
120.0							
122.5							
125.0							
127.5							
130.0							
132.5							
135.0							
137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-31)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF TRANSFORMER

HOLE DESIGNATION: 46-50 (Page 1 of 2)
DATE COMPLETED: JULY 22, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	11.27			
	GROUND SURFACE	11.8			
	Auger through asphalt and sand to 5.0 ft BGS				
2.5					
5.0	SM–SAND, some silt, trace shells, loose, medium grained, black, red and white grains, moist	6.8	1SS		8
7.5	– olive gray to dark gray, wet		2SS		4
	– silt seams, wood		3SS		7
10.0			4SS		6
12.5			5SS		8
15.0	ML–SILT, trace clay, dense, dark olive gray to dark gray, moist	-3.2	6SS		9
17.5			7SS		4
	SM–SAND, some silt, wet	-7.2	8SS		1
20.0			9SS		5
22.5	– loose, medium grained		10SS		13
25.0	– silt seams		11SS		>50
	– dense, fine grained		12SS		28
27.5			13SS		30
30.0			14SS		5
	ML–SILT, ve grayry dense, dark olive gray to dark gray, dry	-18.9 -19.2			
32.5	SM–SAND, some silt, fine to medium grained ML–SILT, trace clay, fine grained, moist	-20.6			

MONITOR INSTALLATION: ROAD BOX; CONCRETE SEAL; 8"ø BOREHOLE; 2"ø BLACK IRON PIPE; CEMENT/BENTONITE GROUT

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

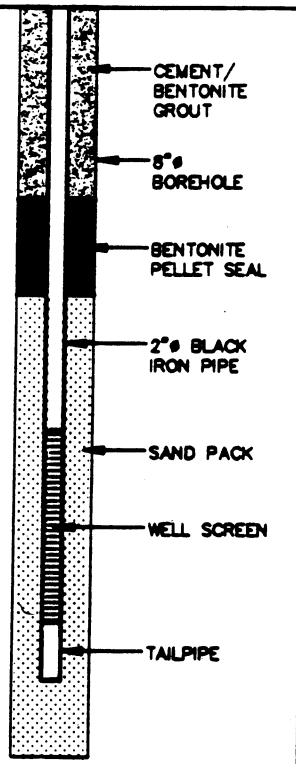
(L-31)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: NORTHWEST CORNER OF TRANSFORMER

HOLE DESIGNATION: 46-50 (Page 2 of 2)
DATE COMPLETED: JULY 22, 1992
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	SM–SAND, some silt, medium dense, fine grained, dark olive gray to dark gray, moist	-21.2
35.0	ML–SILT, some clay, soft, olive gray to dark gray, moist – increased clay content	-23.2
37.5		
40.0	SM–SAND, some silt, trace shells, loose, coarse grained, dark olive gray to gray, wet	-27.2
42.5	– very loose	
45.0	– loose	
47.5		
50.0		
52.5	END OF HOLE @ 52.0 FT. BGS	-40.2
55.0		
57.5		
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
43.5 to 48.5m BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
40.0 to 52.0' BGS
Material –# 10–20 Sand

SAMPLE NUMBER	STATE	N VALUE
15SS		16
16SS		2
17SS		4
18SS		5
19SS		10
20SS		2
21SS		6
22SS		6
23SS		13

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

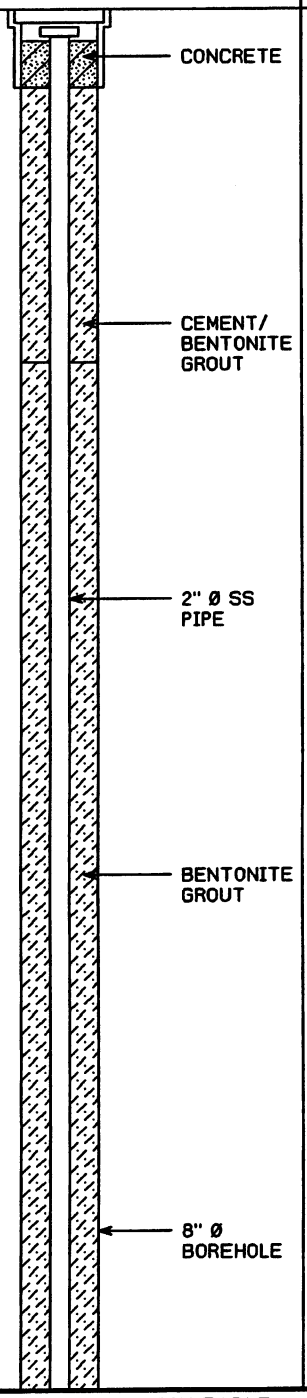
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-150)
Page 1 of 4

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 46-100
DATE COMPLETED: MAY 20, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*13.3* *13.15*					
	Refer to 46-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 46-100
DATE COMPLETED: MAY 20, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5							
-40.0			BENTONITE GROUT				
-42.5							
-45.0							
-47.5							
-50.0	SW-SAND (NATIVE), medium grained, dark brown to black, trace red sand, trace white sand, moist to wet	-36.7	2" Ø SS PIPE	1SS	X	27	
-52.5							
-55.0				2SS	X	13	
-57.5							
-60.0	- fine grained		8" Ø BOREHOLE	3SS	X	12	
-62.5							
-65.0				4SS	X	15	
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 46-100
DATE COMPLETED: MAY 20, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
72.5			BENTONITE GROUT	5SS		29	
75.0	SP-SAND, trace wood, fine to medium grained, moist to wet	-61.7		6SS		14	
77.5							
80.0	SW-SAND, medium grained, moist to wet	-66.7	8" Ø BOREHOLE	7SS		38	
	SW/ML-SAND and SILT, fine sand	-68.0					
82.5							
85.0	SP-SAND, fine to medium grained	-71.7	2" Ø SS PIPE	8SS		10	
87.5							
90.0			BENTONITE SEAL	9SS		14	
92.5			SAND PACK				
95.0				10SS		10	
97.5	SW-SAND, trace shells, medium grained, moist to wet	-83.7	WELL SCREEN	11SS		20	
100.0				12SS		16	
102.5	END OF HOLE @ 102.0ft BGS	-88.7	SUMP				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 46-100
DATE COMPLETED: MAY 20, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
107.5			SCREEN DETAILS Screened interval: 95.0 to 100.0ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 91.5 to 102.0ft BGS Material: 10/20 Silica Sand				
110.0							
112.5							
115.0							
117.5							
120.0							
122.5							
125.0							
127.5							
130.0							
132.5							
135.0							
137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	14.39 11.77						
	TOPSOIL, with roots, sandy, brown							
		10.77						
2	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size and larger shell fragments, moist							
	- piece of concrete at 3.0ft BGS							
4								
6								
8				1RS-0-16-001		13.0		50
			BENTONITE GRAVEL					
10								
	- wet at 11.5ft BGS							
12								
14			6" BOREHOLE					
16								
18			SAND PACK					
		-7.23						
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark brown to gray, white grains and red grains throughout, wet,		PORT 1					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22	trace sand size shell fragments throughout		SCREEN 1 PORT 1 SCREEN 2 PORT 1 SCREEN 3 TRANSDUCER #1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					
	SP-SAND, trace silt, fine grained, compact, well sorted, dark brown-gray, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet	-10.73						
24	- partially complete shell fragments at 23.7ft BGS							
26	- complete shells at 26.0ft BGS			2RS 16-36' -002		16.5		75.5
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (9)	-15.83						
28	- partially complete shell fragments at 28.8ft BGS							
	CL-SANDY CLAY, with silt, firm, medium plasticity, slow dilatancy, dark gray-brown, wet, elevated pH (10)	-17.63						
30	SM-SILTY SAND, very fine to fine sand, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size and larger shell fragments, wet, elevated pH (10)	-19.43						
32	SC-CLAYEY SAND, with silt, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (11)	-20.53						
34	- partial shell fragments at 33.5ft BGS	-22.23	COATED BENTONITE PELLETS					
36	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, elevated pH (11) dropping to neutral pH (8)							
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
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DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	- partially complete shell fragments at 43.0ft BGS		SAND PACK					
44			PORT 2 SCREEN 1					
46	- partially complete shell fragments at 46.1ft BGS	-34.33	PORT 2 SCREEN 2	3RS 36-56' -003		16.5		99.5
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, white grains and red grains throughout, sand size and larger shell fragments, wet, neutral pH (8)		PORT 2 SCREEN 3					
48	- clay nodules at 47.4ft BGS - clay nodules at 47.9ft BGS		TRANSDUCER #2 PORT 2 SCREEN 4					
			PORT 2 SCREEN 5					
50			PORT 2 SCREEN 6					
52	- grading to fine to medium sand, trace fine gravel at 52.0ft BGS							
54	- 3" brown clay clast at 54.0ft BGS							
56								
58			COATED BENTONITE					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 2/12/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
62	- increase in silt content (trace silt) at 60.0ft BGS		PELLETS	4RS 56-66' -004/ 001		9.7		50
64								
66								
68	- grading to fine sand at 67.0ft BGS		SAND PACK					
70			PORT 3 SCREEN 1					
72			PORT 3 SCREEN 2 PORT 3 SCREEN 3 TRANSDUCER #3 PORT 3 SCREEN 4					
74			PORT 3 SCREEN 5					
76	ML/SM-SILTY SAND TO SANDY SILT, with clay, very fine grained, well sorted, low plasticity, slow dilatancy, gray-brown, trace white grains and red grains, wet, neutral pH (8)	-62.73	PORT 3 SCREEN 6	5RS		17.7		
78	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - wood fragments at 77.1ft BGS	-64.93						
	ML/SM-SILTY SAND TO SANDY SILT, trace	-67.63						

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	clay, very fine grained sand, well sorted, low plasticity, slow dilatancy, gray-brown, trace white grains and red grains, wet, neutral pH (8)							
		-69.73						
82	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (8)	-70.73						
	SP-SAND, with silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							
84			COATED BENTONITE PELLETS					
86								
88								
90								
92			SAND PACK					
94			PORT 4 SCREEN 1					
			PORT 4 SCREEN 2					
96			PORT 4 SCREEN 3	6RS		18.3		
			TRANSDUCER #4					
98			PORT 4 SCREEN 4					
			PORT 4 SCREEN 5					
	- wood fragments at 99.5ft BGS		PORT 4 SCREEN 6					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML/SM-SILTY SAND TO SANDY SILT, trace clay, very fine grained sand, well sorted, low plasticity, slow dilatancy, gray-brown, trace white grains and red grains, wet, neutral pH (8)	-88.23						
102								
	SM-SAND, with silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - 3" silty sand seam, dense, medium gray, wet at 103.8ft BGS - 3" silty sand seam, dense, medium gray, wet at 104.1ft BGS - 4" silty sand seam, dense, medium gray, wet at 105.3ft BGS	-90.73						
104								
106	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (8)	-94.13						
108								
110	SM-SILTY SAND, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-97.93						
112			COATED BENTONITE PELLETS					
114	- 5" zone interbedded fine sand seams (thin) at 114.4ft BGS							
116	- 2" silt seam, gray, wet at 116.1ft BGS - 3" clay seam, plastic, gray, wet at 116.7ft BGS			7RS		18.7		
118								
	ML/SM-SILTY SAND TO SANDY SILT, trace clay, very fine grained, well sorted, low plasticity, slow dilatancy, gray, trace white grains and red grains, wet, neutral pH (8)	-106.63						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
122			SAND PACK					
124	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (8)	-112.53	PORT 5 SCREEN 1					
126			PORT 5 SCREEN 2 PORT 5 SCREEN 3 TRANSDUCER #5 PORT 5 SCREEN 4					
128			PORT 5 SCREEN 5					
130			PORT 5 SCREEN 6					
132								
134								
136				8RS		17.9		
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (8)	-128.23						
	- silt nodules at 141.5ft BGS							
142								
	- silt nodules at 143.1ft BGS							
		-132.03						
144	SC-CLAYEY SAND, trace silt, very fine grained sand, compact, well sorted, dark gray, white grains and red grains, wet, neutral pH (8)	-132.73						
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet							
146								
			COATED BENTONITE PELLETS					
148								
		-137.53						
	SP-SAND, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							
150								
152								
154								
	- silt nodule, gray at 155.3ft BGS							
156				9RS		16.0		
	- 3" silt seam, gray, wet at 157.7ft BGS							
158								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
162								
		-151.53	SAND PACK					
164	SM-SILTY SAND, very fine grained, compact, well sorted, medium grain, white grains and red grains, trace sand size shell fragments, wet, neutral pH (8)	-152.33	PORT 6 SCREEN 1					
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet, neutral pH (8)		PORT 6 SCREEN 2					
166			PORT 6 SCREEN 3					
			TRANSDUCER #6					
			PORT 6 SCREEN 4					
168			PORT 6 SCREEN 5					
			PORT 6 SCREEN 6					
170								
	- partial shell fragments at 171.0ft BGS							
172								
		-161.23						
174	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							
			CMT ANCHOR					
	- 8" zone of interbedded clay seams, plastic, medium gray, wet at 175.5ft BGS							
176				10RS		18.9		
	- wood fragments at 176.5ft BGS							
		-165.63						
178	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet, neutral pH (8)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
182								
	SC-CLAYEY SAND, with silt, very fine grained, compact, well sorted, medium to dark gray, white grains and red grains, trace sand size shell fragments, wet	-171.43						
184	- interbedded thin sand seams at 183.4ft BGS - silt nodules at 184.1ft BGS - silt nodules at 184.4ft BGS	-172.93						
186	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet - silt nodules at 185.6ft BGS - increase in silt content at 187.8ft BGS							
188		-176.63						
	CL/ML-CLAYEY SILT, trace very fine sand, firm, low plasticity, slow dilatancy, medium to dark gray, wet, neutral pH (8)							
190								
192		-180.43						
	SM-SILTY SAND, with clay, very fine grained, compact, well sorted, white grains and red grains, trace sand size shell fragments, wet							
194								
	- shell fragments at 195.0ft BGS							
196				11RS		22.9		
198								
	SC/SM-SILTY CLAYEY SAND, very fine grained, compact, well sorted, low plasticity, slow dilatancy, dark gray, trace white grains and red grains throughout, trace sand size	-186.83						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	shell fragments, wet - thin silt stringers, medium gray, wet at 199.0ft BGS							
202	- increase in clay content at 202.0ft BGS							
204	- grading to clay and very fine sand (CL/SC) at 203.7ft BGS							
	CL-SANDY CLAY, trace silt, firm, low plasticity, slow dilatancy, dark gray, wet, neutral pH (8)	-192.63						
206								
	- shell fragments at 207.0ft BGS							
208			← COATED BENTONITE PELLETS					
	- shell fragments at 208.6ft BGS - shell fragments at 209.1ft BGS							
210								
212	- increase in sand content at 212.4ft BGS							
214	- shell fragments at 214.0ft BGS							
216				12RS		24.5		
218								
	- shell fragments at 219.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
222								
224	- partially complete shell fragments at 224.1ft BGS							
226	- partially complete shell fragments at 225.7ft BGS							
228	- shell fragments at 228.4ft BGS - increase in clay content at 229.0ft BGS							
230	- shell fragments at 230.5ft BGS			13RS		10.2		
232								
234								
236	- shell fragments at 235.3ft BGS							
238	- shell fragments at 238.0ft BGS - shell fragments at 238.5ft BGS							

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CHEMICAL ANALYSIS

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
242	- partially intact to nearly complete shell fragments from 242.0 to 245.0ft BGS			14RS		14.3		
244								
246	- small intact bi-valve shells at 245.6ft BGS							
248			SAND PACK					
250	- possible sand stringer at 250.7ft BGS		TRANSDUCER #7	15RS		10.2		
252								
254								
256								
258			COATED BENTONITE PELLETS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

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HOLE DESIGNATION: 46C
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DRILLING METHOD: SONIC
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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
262				16RS		13.3		
264								
266	END OF BOREHOLE @ 266.0ft BGS	-254.23						
268	NOTE: PORT 1 SAND PACK 17.9 TO 25.7FT BGS (-6.13 TO -13.93FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.84, 20.84, 21.84, 22.84, 23.84 AND 24.84FT BGS (-80.07, -9.07, -10.07, -11.07, -12.07 AND -13.07FT NGVD) TRANSDUCER (# 1142325) 22.34FT BGS (-10.57FT NGVD) COATED BENTONITE PELLETS 25.7 TO 43.0FT BGS (-13.93 TO -31.23FT NGVD)							
270								
272								
274	PORT 2 SAND PACK 43.0 TO 51.1FT BGS (-31.23 TO -39.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.79, 45.79, 46.79, 47.79, 48.79 AND 49.79FT BGS (-33.02, -34.02, -35.02, -36.02, -37.02 AND -38.02FT NGVD) TRANSDUCER (# 1142322) 47.29FT BGS (-35.52FT NGVD) COATED BENTONITE PELLETS 51.1 TO 68.0FT BGS (-39.33 TO -56.23FT NGVD)							
276								
278								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
282	PORT 3 SAND PACK 68.0 TO 76.0FT BGS (-56.23 TO -64.23FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.78, 70.78, 71.78, 72.78, 73.78 AND 74.78FT BGS (-58.01, -59.01, -60.01, -61.01, -62.01 AND -63.011FT NGVD) TRANSDUCER (# 1203035) 72.28FT BGS (-60.51FT NGVD)							
284								
286	COATED BENTONITE PELLETS 76.0 TO 92.7FT BGS (-64.23 TO -80.93FT NGVD)							
288	PORT 4 SAND PACK 92.7 TO 100.9FT BGS (-80.93 TO -89.13FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.65, 95.65, 96.65, 97.68, 98.65 AND 99.65FT BGS (-82.88, -83.88, -84.88, -85.88, -86.88 AND -87.88FT NGVD) TRANSDUCER (# 1141738) 97.15FT BGS (-85.38FT NGVD)							
290								
292	COATED BENTONITE PELLETS 100.9 TO 122.7FT BGS (-89.13 TO -110.93FT NGVD)							
294	PORT 5 SAND PACK 122.7 TO 131.6FT BGS (-110.93 TO -119.83FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 124.56, 125.56, 126.56, 127.56, 128.56 AND 129.56FT BGS (-112.79, -113.79, -114.79, -115.79, -116.79 AND -117.79FT NGVD) TRANSDUCER (# 1204327) 127.06FT BGS (-115.29FT NGVD)							
296	COATED BENTONITE PELLETS 131.6 TO 163.4FT BGS (-119.83 TO -151.63FT NGVD)							
298	PORT 6							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 46C
DATE COMPLETED: August 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	SAND PACK 163.4 TO 170.4FT BGS (-151.63 TO -158.63FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 164.46, 165.46, 166.46, 167.46, 168.46 AND 169.46FT BGS (-152.69, -153.69, -154.69, -155.69, -156.69 AND -157.69FT NGVD) TRANSDUCER (# 1204324) 166.96FT BGS (-155.19FT NGVD)							
302								
	CMT ANCHOR 175.0FT BGS (-163.83FT NGVD)							
304								
	COATED BENTONITE PELLETS 170.4 TO 246.0FT BGS (-158.63 TO -234.23FT NGVD)							
306								
	SAND PACK 246.0 TO 252FT BGS (-234.23 TO -240.23FT NGVD)							
	TRANSDUCER (#1202124) 250.2FT BGS (-238.43FT NGVD)							
308								
	COATED BENTONITE PELLETS 252.0 TO 266.0FT BGS (-240.23 TO -254.23FT NGVD)							
310								
312								
314								
316								
318								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SW CORNER EMPLOYEE PARKING LOT

HOLE DESIGNATION: 47-50
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	.00 .00					
	ASPHALT	-.30	CONCRETE SEAL	1AC			
	GP/SP-GRAVEL and SAND (FILL), brown, dry	-.60					
	ASPHALT	-.90		2AC			
-2.5	SP-SAND, medium grained, some gravel, brown, dry			3SS		17	
-5.0	- fine to medium grained, some rounded gravel, dark brown - moist			4SS		20	
		-6.50	CEMENT/ BENTONITE GROUT	5SS		16	
-7.5	SW-SAND (NATIVE), fine grained, some shells, black, moist			6SS		14	
	- wet						
-10.0	- some silt			7SS		12	
	- little shells, trace silt						
-12.5				8SS		12	
-15.0			2" STAINLESS STEEL PIPE	9SS		11	
	- ML-SILT seam - some silt, dark gray						
-17.5				10SS		16	
		-18.70					
-20.0	ML/SM-SILT and SAND, trace shells, dark gray, wet			11SS		1	
		-22.00					
-22.5	SW-SAND, fine grained, some medium sand and shells, little silt, dark gray, wet			12SS		14	
-25.0				13SS		14	
-27.5	- ML-SILT seam - medium grained, little fine sand and silt, some shells		8" Ø BOREHOLE				
-30.0				14SS		9	
		-32.10		15SS		25	
-32.5	ML-SILT, little fine sand and shells, dark gray, wet						
		-34.00		16SS		46	
-35.0	SW-SAND, fine to medium grained, some shells, little silt, dark gray, wet - fine grained, some silt, little shells - little silt and medium sand			17SS		35	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SW CORNER EMPLOYEE PARKING LOT

HOLE DESIGNATION: 47-50
DATE COMPLETED: JUNE 19, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-40.0	- ML-SILT seam, little fine sand and shells - dark brown		BENTONITE PELLETS	17SS		35	
				18SS		31	
-42.5			SAND PACK	19SS		59	
				20SS		21	
-45.0	- ML-SILT seam, little fine sand		WELL SCREEN				
-47.5			8" Ø BOREHOLE	21SS		34	
	ML/SM-SILT, some fine sand, gray, wet	-48.00					
-50.0		-50.00	TAILPIPE	22SS		8	
	END OF HOLE @ 50.0ft BGS						
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							

SCREEN DETAILS
Screened interval:
43.1 to 48.1ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
39.5 to 50ft BGS
Material: 10-20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-118)
Page 1 of 1

PROJECT NAME: PRI SOURCE IDENTIFICATION PROGRAM
PROJECT NUMBER: 1002-05
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTH AMMONIA LOADING

HOLE DESIGNATION: 48-15
DATE COMPLETED: NOVEMBER 13, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.5* *11.43*					
0	SW-SAND (NATIVE), trace silt, loose to medium dense, fine to medium grained, well graded, dark gray, red sand grains, moist		BENTONITE GROUT	1SS		8	0
2.5			BENTONITE PELLETS	2SS		6	0
5.0	- shell material, wet		BLACK CARBON STEEL CASING	3SS		10	0
7.5			SAND PACK	4SS		9	0
				5SS		12	0
10.0			WELL SCREEN	6SS		14	0
12.5			8" Ø BOREHOLE	7SS		10	0
15.0				8SS		18	0
	ML/SM-SILT and SAND, medium dense, fine grained, well graded, dark gray, dry	*-4.3*					
17.5	END OF HOLE @ 16.0ft BGS	*-4.5*					
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS
Screened interval:
5.85 to 15.85ft BGS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
3.5 to 16.0ft BGS
Material: 20-40 Sand

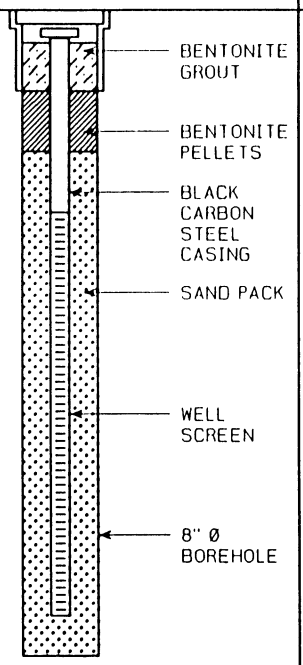
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PRI SOURCE IDENTIFICATION PROGRAM
PROJECT NUMBER: 1002-05
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTHEAST CAUSTIC STORAGE

HOLE DESIGNATION: 49-15
DATE COMPLETED: NOVEMBER 13, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE **REFERENCE POINT (Top of Riser)**	*12.6* *12.47*					
	GP/SP-GRAVEL and SAND, loose, medium to coarse grained, poorly graded, dark gray, moist			1SS		8	0
2.5	SW-SAND (NATIVE), trace silt, medium dense, fine grained, well graded, dark gray, red sand grains, dry	*10.6*		2SS		6	0
5.0	- moist			3SS		6	0
7.5	- wet			4SS		8	0
				5SS		6	0
10.0				6SS		5	0
12.5				7SS		16	0
15.0				8SS		10	0
	END OF HOLE @ 16.0ft BGS	*-3.4*					
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS
Screened interval:
5.0 to 15.0ft BGS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
3.5 to 16.0ft BGS
Material: 20-40 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PRI SOURCE IDENTIFICATION PROGRAM
PROJECT NUMBER: 1002-05
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTHWEST CAUSTIC STORAGE

HOLE DESIGNATION: 50-15
DATE COMPLETED: NOVEMBER 13, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.2* *11.21*					
0	SW-SAND (NATIVE), trace silt, loose, medium dense, fine to medium grained, well graded, dark gray, red sand grains, moist		BENTONITE GROUT	1SS		5	0
2.5			BENTONITE PELLETS	2SS		8	0
5.0	- shell material, wet		BLACK CARBON STEEL CASING	3SS		8	0
7.5			SAND PACK	4SS		12	0
				5SS		14	0
10.0			WELL SCREEN	6SS		11	0
12.5			8" Ø BOREHOLE	7SS		13	0
15.0				8SS		20	0
	ML/SM-SILT and SAND, medium dense, very fine grained, well graded, dark gray, dry	*-4.6*					
17.5	END OF HOLE @ 16.0ft BGS	*-4.8*					
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS
Screened interval:
5.82 to 15.82ft BGS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
3.5 to 16.0ft BGS
Material: 20-40 Sand

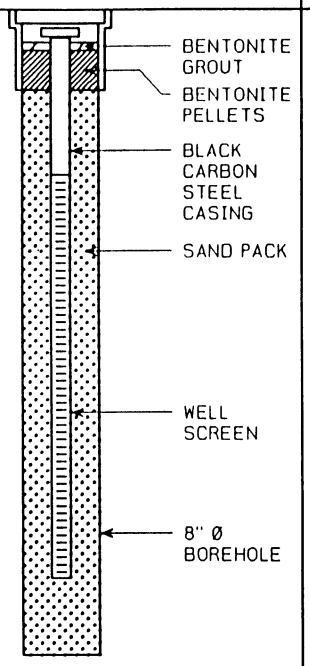
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: PRI SOURCE IDENTIFICATION PROGRAM
PROJECT NUMBER: 1002-05
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTH CAUSTIC STORAGE

HOLE DESIGNATION: 51-15
DATE COMPLETED: NOVEMBER 8, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE **REFERENCE POINT (Top of Riser)**	*11.8* *11.57*					
	GP/SP-GRAVEL and SAND, loose, medium to coarse grained, poorly graded, dark gray, moist			1SS		21	0
		9.8					
-2.5	SW-SAND (NATIVE), trace silt, loose to medium dense, fine grained, well graded, dark gray, red sand grains, moist			2SS		8	0
-5.0				3SS		6	0
-7.5	- wet			4SS		8	0
				5SS		4	0
-10.0	- shells			6SS		5	0
-12.5				7SS		8	0
-15.0				8SS		10	0
	END OF HOLE @ 16.0ft BGS	*-4.3*					
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



SCREEN DETAILS
Screened interval:
4.1 to 14.1ft BGS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
2.0 to 16.0ft BGS
Material: 20-40 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

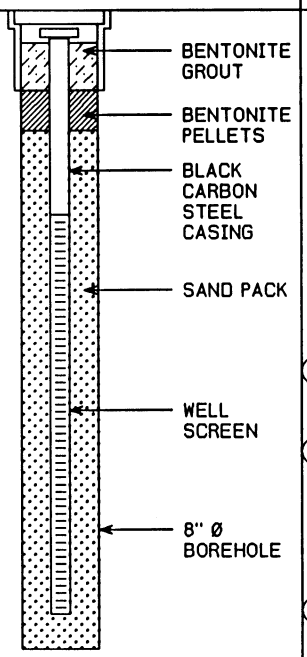
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-117)
Page 1 of 1

PROJECT NAME: PRI SOURCE INDENTIFICATION PROGRAM
PROJECT NUMBER: 1002-05
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTHWEST AQUA AVENUE

HOLE DESIGNATION: 52-15
DATE COMPLETED: NOVEMBER 8, 1995
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.9* *11.42*					
	GP/SP-GRAVEL and SAND (FILL), loose, medium to coarse grained, poorly graded, dark gray, moist		BENTONITE GROUT	1SS		53	1.6
-2.5	SW-SAND (NATIVE), trace silt, loose to medium dense, well graded, dark gray, moist	*9.9*	BENTONITE PELLETS	2SS		10	1.5
-5.0	- shells, petroleum odor		BLACK CARBON STEEL CASING	3SS		9	37.4
-7.5	- wet, petroleum odor		SAND PACK	4SS		8	82.0
				5SS		7	102.0
-10.0	- silt layer		WELL SCREEN	6SS		10	22.0
-12.5			8" Ø BOREHOLE	7SS		8	13.6
-15.0	- petroleum odor			8SS		5	5.6
	END OF HOLE @ 16.0ft BGS	*-4.1*					
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



SCREEN DETAILS
Screened Interval:
5.11 to 15.11ft BGS
Length: 10ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
3.0 to 16.0ft BGS
Material: 20-40 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ WELL RENUMBERED MAY 1996

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-02)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-25
DATE COMPLETED: SEPTEMBER 18, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*12.4* *12.36*					
-2.5 -5.0 -7.5 -10.0 -12.5 -15.0 -17.5 -20.0 -22.5 -25.0	For overburden stratigraphy refer to stratigraphic and instrumentation log for 53-100.		CONCRETE SEAL 8" Ø BOREHOLE BENTONITE GROUT 2" Ø BLACK IRON PIPE BENTONITE CHIPS SAND PACK WELL SCREEN TAILPIPE				
-27.5 -30.0 -32.5	END OF HOLE @ 26.5ft BGS	*-14.1*					

SCREEN DETAILS
Screened Interval:
20.0 to 25.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
17.0 to 26.5ft BGS
Material: 20-40 Silica Sand

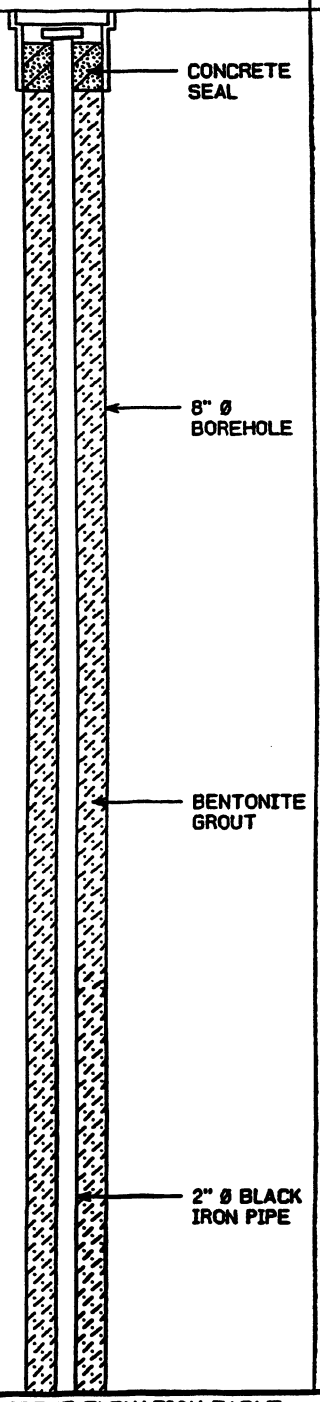
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-50
DATE COMPLETED: SEPTEMBER 16, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*12.62* *12.4*					
	For overburden stratigraphy refer to stratigraphic and instrumentation log for 53-100.						
-2.5							
-5.0							
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-50
DATE COMPLETED: SEPTEMBER 16, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			BENTONITE GROUT; 8" Ø BOREHOLE				
-40.0			BENTONITE CHIPS				
-42.5			2" Ø BLACK IRON PIPE				
-45.0			WELL SCREEN				
-47.5			SAND PACK				
-50.0			TAILPIPE				
-52.5	END OF HOLE @ 51.5ft BGS	-39.1					
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

SCREEN DETAILS
Screened Interval:
45.0 to 50.0ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
42.0 to 51.5ft BGS
Material: 20-40 Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-100
DATE COMPLETED: SEPTEMBER 20, 1996
DRILLING METHOD: 6" CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*12.4* *12.34*					
-2.5	SP-SAND (FILL), medium grained, trace fine sand and silt, black with red grains, moist		CONCRETE SEAL				
-5.0							
-7.5	- little fine sand and silt			1SS			
				2SS			
-10.0	SP-SAND, fine grained, some silt, dark brown to black, wet	*2.4*	6" Ø BOREHOLE	3SS			
-12.5							
-15.0							
-17.5							
-20.0	SP-SAND, coarse grained, black with red grains, wet	*-7.6*	BENTONITE GROUT	4SS			
-22.5							
-25.0	- trace brick fragments, slight chemical odor			5SS			
-27.5							
-30.0	SP-SAND, medium grained, little silt and fine sand, black with red grains, slight chemical odor, wet	*-17.6*	2" Ø BLACK IRON PIPE	6SS			
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-100
DATE COMPLETED: SEPTEMBER 20, 1996
DRILLING METHOD: 6" CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND (NATIVE), fine to medium grained, little silt and decayed wood, black with red grains, slight chemical odor, wet	-22.6		7SS			
-37.5							
-40.0			6" Ø BOREHOLE	8SS			
-42.5							
-45.0	- no decayed wood			9SS			
-47.5							
-50.0	SP-SAND, fine grained, some silt, dark olive to black, wet	-37.6	BENTONITE GROUT	10SS			
-52.5							
-55.0				11SS			
-57.5							
-60.0	- trace wood		2" Ø BLACK IRON PIPE	12SS			
-62.5							
-65.0	- no wood			13SS			
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-100
DATE COMPLETED: SEPTEMBER 20, 1996
DRILLING METHOD: 6" CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SW-SAND, fine to medium grained, some silt, dark olive to black, no odor	-57.6	BENTONITE GROUT	14SS			
72.5							
75.0	ML-SILT, some fine sand, dense, medium plasticity, dark gray, wet	-62.6		15SS			
			8" Ø BOREHOLE				
77.5							
80.0	SP-SAND, fine grained, some silt, dense, dark gray, wet	-67.6		16SS			
82.5							
85.0			2" Ø BLACK IRON PIPE	17SS			
87.5							
90.0			BENTONITE CHIPS	18SS			
92.5							
95.0			WELL SCREEN	19SS			
97.5			SAND PACK				
100.0	SW-SAND, fine to medium grained, some silt, dark olive to black, wet, strong ammonia odor	-87.6	TAILPIPE	20SS			
102.5	END OF HOLE @ 102.0ft BGS	-89.6					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN EXTRACTION WELLS D-2 AND D-3

HOLE DESIGNATION: 53-100
DATE COMPLETED: SEPTEMBER 20, 1996
DRILLING METHOD: 6" CT
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
-107.5			**SCREEN DETAILS** Screened Interval: 94.5 to 99.5ft BGS Length: 5.0ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 91.5 to 102.0ft BGS Material: 20-40 Silica Sand				
-110.0							
-112.5							
-115.0							
-117.5							
-120.0							
-122.5							
-125.0							
-127.5							
-130.0							
-132.5							
-135.0							
-137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	15.25 12.16						
0	AIRKNIFED (0-5ft BGS)			1RS		0.0		
2								
4								
	SP-SAND, trace fine gravel, compact, well sorted, fine grained, dark gray, trace red grains and white grains, trace shell fragments, dark gray, wet	7.16						0.0
6								
	- no gravel at 7.5ft BGS			2RS -001		5.0		
8			BENTONITE GRAVEL					0.0
10			6" BOREHOLE					10.0
12	- becoming medium to fine grained, trace silt at 12.7ft BGS			3RS		5.0		
14								20.4
	ML-SANDY SILT, very soft, no plasticity, fine grained, well sorted, dark gray, wet	-3.04 -3.54						
16	SP-SAND, loose, well sorted, fine grained, dark gray, trace red grains and white grains, wet							4.9
	CH-CLAY, trace silt, trace fine sand, very soft, medium to high plasticity, dark gray, wet	-4.84		-002 4RS		5.0		
18			SAND PACK					
	SP-SAND, trace silt, loose, well sorted, fine to medium grained, dark gray, trace red grains and white grains, wet	-6.14	PORT 1					5.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001, -002)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
20			SCREEN 1					
			PORT 1 SCREEN 2					
			PORT 1 SCREEN 3					6.5
22	- becoming compact, medium grained, trace silt, trace shell fragments at 22.2ft BGS		TRANSDUCER #1					
			PORT 1 SCREEN 4	5RS		4.0		
			PORT 1 SCREEN 5					25.5
24			PORT 1 SCREEN 6					
	- trace coarse sand at 25.5ft BGS							
26				-003				321.2
	- negative DNAPL dye test at 27.5ft BGS	-15.34		6RS		2.5		
28	NO RECOVERY (27.5-30ft BGS)							
30	SP-SAND, trace silt, loose, well sorted, fine to medium grained, dark gray, trace red grains and white grains, wet	-17.84						
		-18.54						
	CL-SILTY CLAY, soft, medium plasticity, dark gray, wet	-19.34						170.2
32	ML-SANDY SILT, trace clay, soft, fine grained, well sorted, dark gray, wet			7RS		5.0		
34	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet, trace shell fragments	-21.64	COATED BENTONITE PELLETS					139.9
36								812.5
	- negative DNAPL dye test at 37.5ft BGS	-25.24		8RS		5.0		
38	ML-SANDY SILT, stiff, fine grained, well sorted, dark gray, wet	-26.14		-004				
	SM-SILTY SAND, compact, well sorted, fine							455.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grained, dark gray, trace red grains and white grains, wet							
40	ML-SANDY SILT, soft, no plasticity, fine grained, well sorted, dark gray, trace red grains and white grains, wet - negative DNAPL dye test at 40.0ft BGS	-27.54						263.5
42	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-30.04		9RS		5.0		
44			SAND PACK PORT 2 SCREEN 1	-005				616.9
	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet - negative DNAPL dye test at 45.0ft BGS	-32.24						
46	SM-SILTY SAND, loose, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-33.24	PORT 2 SCREEN 2 PORT 2 SCREEN 3 TRANSDUCER #2 PORT 2 SCREEN 4	10RS		5.0		4.9
48			PORT 2 SCREEN 5 PORT 2 SCREEN 6					571.2
50	- negative DNAPL dye test at 50.0ft BGS							
	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-38.34						1074
52	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments - negative DNAPL dye test at 52.5ft BGS - neutral pH (7) at 53.0ft BGS	-39.84		11RS -006 -007		5.0		1115
54								
56	- negative DNAPL dye test at 55.0ft BGS							706.5
58				12RS		5.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
60	- becoming compact, trace wood at 59.5ft BGS		COATED BENTONITE PELLETS					1525
62	- negative DNAPL dye test at 62.5ft BGS			13RS		4.0		605.9
64	CL-SILTY CLAY, firm, low plasticity, dark gray, wet	-52.44						920.2
	- negative DNAPL dye test at 65.0ft BGS	-52.94						
66	SP-SAND, trace silt, trace wood, compact, well sorted, fine grained, dark gray, trace red grains and white grains							459.7
	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-54.94		14RS		5.0		
68			SAND PACK					763.2
			PORT 3 SCREEN 1	-008				
70	- negative DNAPL dye test at 70.0ft BGS		PORT 3 SCREEN 2					
			PORT 3 SCREEN 3					278.2
72			TRANSDUCER #3					
			PORT 3 SCREEN 4	15RS		5.0		
	ML-SANDY SILT, very soft, fine grained, well sorted, no plasticity, dark gray, wet	-60.64	PORT 3 SCREEN 5					
74			PORT 3 SCREEN 6	-009				485.4
	- becoming firm at 74.9ft BGS - negative DNAPL dye test at 75.0ft BGS							
76	- neutral pH (6) at 76.0ft BGS							937.2
	- negative DNAPL dye test at 77.5ft BGS			16RS		5.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
								1230
	SM-SILTY SAND, compact, well sorted, fine to medium grained, dark gray, trace red grains and white grains, wet	-67.04						
80	- negative DNAPL dye test at 80.0ft BGS	-68.14		-010				
	SP-SAND, trace silt, compact, well sorted, medium grained, dark gray, trace red grains and white grains							401.2
82	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-70.04		17RS		5.0		
	SP-SAND, compact, well sorted, medium grained, dark gray, trace red grains and white grains, wet	-71.24						797.5
84	SM-SILTY SAND, compact, well sorted, fine to medium grained, dark gray, trace red grains and red grains, wet	-72.34	COATED BENTONITE PELLETS					
	- negative DNAPL dye test at 85.0ft BGS	-73.44						
86	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, dark gray, wet							814.7
	- negative DNAPL dye test at 87.5ft BGS			18RS		5.0		
88				-012				1132
				-011				
90	- negative DNAPL dye test at 90.0ft BGS	-77.94						
	ML-SILT, trace sand, trace clay, firm, low plasticity, dark gray, wet							1598
92	- negative DNAPL dye test at 92.5ft BGS			19RS		5.0		
			SAND PACK					
94			PORT 4 SCREEN 1					1391
			PORT 4 SCREEN 2					
	- negative DNAPL dye test at 95.0ft BGS	-82.84						
	SP-SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet		PORT 4 SCREEN 3					
96								1545
	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-84.34	TRANSDUCER #4 PORT 4 SCREEN 4					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
98	- negative DNAPL dye test at 97.5ft BGS		PORT 4 SCREEN 5	20RS		5.0		
	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-85.84	PORT 4 SCREEN 6	-014				2671
100	- negative DNAPL dye test at 100.0ft BGS	-87.94		-013				
	SP-SAND, trace silt, compact, well sorted, fine grained, dark gray, trace red grains and white grains							1841
102	- negative DNAPL dye test at 102.5ft BGS			21RS		5.0		
104	ML-SILT, trace fine grained sand, no plasticity, firm, dark gray, wet	-91.64						1355
	- negative DNAPL dye test at 105.0ft BGS							
106								889.9
	- negative DNAPL dye test at 107.5ft BGS	-95.44		22RS		5.0		
108	SP-SAND, trace silt, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet							984.2
	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-97.14		-015				
110	- negative DNAPL dye test at 110.0ft BGS							490.0
112			COATED BENTONITE PELLETS	23RS		5.0		
114								386.0
	SP-SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-103.04						
116								373.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-104.84		24RS -016		2.5		
118	NO RECOVERY (117.5-120ft BGS)	-105.34						
120	SP-SAND, with silt, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-107.84	PORT 5 SCREEN 1					157.2
122			PORT 5 SCREEN 2	25RS		5.0		
	- elevated pH (12) at 123.0ft BGS		PORT 5 SCREEN 3 SAND PACK TRANSDUCER #5 PORT 5 SCREEN 4					388.2
124			PORT 5 SCREEN 5					
126	- elevated pH (12) at 126.0ft BGS		PORT 5 SCREEN 6					317.4
				26RS -017		5.0		
128	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-115.74						98.0
	ML-SILT, trace fine grained sand, firm, dark gray, wet	-116.84						
130	CL-SILTY CLAY, trace fine sand, firm, low to medium plasticity, dark gray, wet	-118.24						415.7
132	- negative DNAPL dye test at 132.5ft BGS - becoming soft at 132.7ft BGS			27RS		5.0		
134								212.3
	ML-SANDY SILT, firm, fine grained, well sorted, no plasticity, dark gray, wet	-123.04						
136								88.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
138	CL-SILTY CLAY, firm, low plasticity, dark gray, wet	-125.94		28RS -018		4.0		50.3
	NO RECOVERY (139-140ft BGS)	-126.84						
140	CL-SILTY CLAY, firm, low plasticity, dark gray, wet	-127.84						0
142	SM-SILTY SAND, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet	-129.84		29RS		5.0		
	SP-SAND, some silt, compact, well sorted, fine grained, dark gray, trace red grains and white grains, wet, trace shell fragments	-130.84						0
144	- no silt at 145.0ft BGS							
146								0
148	- some silt at 148.6ft BGS			30RS		5.0		0
150				-019				
	ML-SILT, trace fine sand, firm, no plasticity, dark gray, wet	-138.64	COATED BENTONITE PELLETS					5.5
152	SP-SAND, trace silt, compact, well sorted, fine to medium grained, dark gray, trace red grains and white grains, wet	-140.14		31RS		5.0		
	ML-sILT, trace fine grained sand, firm, no plasticity, dark gray	-140.94						32.7
154	- no sand at 153.7ft BGS							
	CL-SILTY CLAY, firm, low plasticity, dark gray, wet, trace shell fragments	-143.24						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
158	- negative DNAPL dye test at 157.5ft BGS			32RS		5.0		423.3
				-020				487.5
160	- negative DNAPL dye test at 160.0ft BGS - trace fine gravel at 160.8ft BGS							
				-021				687.7
162	- negative DNAPL dye test at 162.5ft BGS			33RS		5.0		
164								307.2
166	ML-SILT, trace fine gravel, trace clay, firm, low plasticity, gray green	-154.04						388.2
	NO RECOVERY (116.5-170ft BGS)	-154.34		34RS		1.5		
168								
170	ML-SILT, trace fine gravel, trace clay, firm, low plasticity, gray green	-157.84						
	CL-SILTY CLAY, with fine to coarse gravel, trace sand, firm, low plasticity, gray-green	-158.04	SAND PACK PORT 6 SCREEN 1					0
172			TRANSDUCER #6 PORT 6 SCREEN 2	35RS		3.0		
	NO RECOVERY (173-175ft BGS)	-160.84						
174			PORT 6 SCREEN 3					
	GM-SILTY GRAVEL, with fine grained sand,	-162.84	PORT 6 SCREEN 4					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
176	coarse grained, gray-green, wet		PORT 6 SCREEN 5					0
			PORT 6 SCREEN 6					
	SM-SILTY SAND, trace fine gravel, compact, well sorted, fine grained, brown, wet	-164.64		36RS		5.0		
178				-022				
	SC-CLAYEY SAND, trace silt, trace coarse sand, compact, well sorted, fine grained, low plasticity, gray-green, wet	-166.04						0
180			COATED BENTONITE PELLETS					
182								
				37RS		4.0		
184								
	END OF BOREHOLE @ 185.0ft BGS	-172.84	CMT ANCHOR					
186	NOTE: GLACIAL CONTACT ASSUMED AT 166.2FT BGS							
188	NOTE: PORT 1 SAND PACK 17.5 TO 26.08FT BGS (-5.34 TO -13.92NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.42, 20.42, 21.42, 22.42, 23.42 AND 24.42FT BGS (-7.26, -8.26, -9.26, -10.26, -11.26 AND -12.26FT NGVD) TRANSDUCER (# 1200779) 21.92FT BGS (-9.76FT NGVD)							
190								
192	COATED BENTONITE PELLETS 26.08 TO 43.0FT BGS (-13.92 TO -30.84FT NGVD)							
194	PORT 2 SAND PACK							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-022)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	43.0 TO 51.08FT BGS (-30.84 TO -38.92FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
196	44.40, 45.40, 46.40, 47.40 48.40 AND 49.40FT BGS (-32.24, -33.24, -34.24, -35.24, -36.24 AND -37.24FT NGVD)							
	TRANSDUCER (# 1203029)							
198	46.90FT BGS (-34.74FT NGVD)							
	COATED BENTONITE PELLETS 51.08 TO 67.8FT BGS (-38.92 TO -55.64FT NGVD)							
200								
	PORT 3 SAND PACK 67.8 TO 75.8FT BGS (-55.64 TO -63.64FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
202	69.23, 70.23, 71.23, 72.23, 73.23 AND 74.23FT BGS (-57.07, -58.07, -59.07, -60.07, -61.07 AND -62.07FT NGVD) TRANSDUCER (# 1209719)							
	71.73FT BGS (-59.57FT NGVD)							
204	COATED BENTONITE PELLETS 75.8 TO 93.1FT BGS (-63.64 TO -80.94FT NGVD)							
206	PORT 4 SAND PACK 93.1 TO 100.3FT BGS (-80.94 TO -88.14FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
208	93.86, 94.86, 95.86, 96.86, 97.86 AND 98.86FT BGS (-81.70, -82.70, -83.70, -84.70, -85.70 AND -86.70FT NGVD) TRANSDUCER (# 1203040)							
	96.36FT BGS (-84.20FT NGVD)							
210	COATED BENTONITE PELLETS 100.3 TO 123.0FT BGS (-88.14 TO -110.84FT NGVD)							
	PORT 5 SAND PACK							
212	123.0 TO 130.8FT BGS (-110.84 TO -118.64FT NGVD)							
214								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUA-39/53C
DATE COMPLETED: June 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
216	INDIVIDUAL 3-INCH SCREEN BOTTOMS 121.31, 122.31, 123.31, 124.31, 125.31 AND 126.31FT BGS (-109.15, -110.15, -111.15, -112.15, -113.15 AND -114.15FT NGVD) TRANSDUCER (# 1204321) 123.81FT BGS (-111.65FT NGVD)							
218	COATED BENTONITE PELLETS 130.8 TO 170.75FT BGS (-118.64 TO -158.59FT NGVD)							
220	PORT 6 SAND PACK 170.75 TO 179.5FT BGS (-158.59 TO -167.34FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 171.93, 172.93, 173.93, 174.93, 175.93 AND 176.93FT BGS (-159.77, -160.77, -161.77, -162.77, -163.77 AND -164.77FT NGVD)							
222	TRANSDUCER (# 1204325) 172.43FT BGS (-160.27FT NGVD)							
224	COATED BENTONITE PELLETS 179.5 TO 185.0FT BGS (-167.34 TO -172.84FT NGVD) CMT ANCHOR 185FT BGS (-172.84NGVD)							
226								
228								
230								
232								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-152)
Page 1 of 4

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 54-100
DATE COMPLETED: MAY 13, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*12.5* *12.00*					
	ASPHALT		CONCRETE				
-2.5	GP/SP-GRAVEL and SAND (FILL), brown, dry	*10.5*		1SS		26	
-5.0	SW-SAND (NATIVE), medium grained, brown to black, trace red sand, dry - moist to wet	*8.5*		2SS		10	
-7.5	ML-SILT, trace fine sand, gray, wet	*5.0*	CEMENT/ BENTONITE GROUT	3SS		15	
-10.0				4SS		14	
-12.5				5SS		15	
				6SS		20	
		-1.2					
	SM/ML-SAND and SILT, dark gray to black, moist to wet	*-1.5*					
-15.0	SW-SAND	*-2.5*	2" Ø SS PIPE	7SS		18	
	ML-SILT, trace wood pieces, slightly firm, gray	*-2.7*					
	SW-SAND, medium grained, dark gray to black, moist to wet			8SS		14	
-17.5	- some silt	*-5.5*		9SS		14	
	SM-SAND, little silt, wet						
-20.0				10SS		20	
		-9.5	BENTONITE GROUT				
-22.5	SW-SAND, medium grained, dark gray to black, moist to wet			11SS		25	
		-12.3		12SS		54	
-25.0	ML-SILT, gray, moist to wet	*-12.5*					
	SW-SAND, medium grained, dark gray to black, moist to wet			13SS		21	
-27.5	- trace shells - silt seam, gray			14SS		16	
-30.0			8" Ø BOREHOLE	15SS		16	
-32.5				16SS		27	
				17SS		49	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 54-100
DATE COMPLETED: MAY 13, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-23.5		17SS		49	
37.5	ML/SM-SILT and SAND, alternating silt and sand layers, dark gray to black, moist to wet	-24.5		18SS		41	
	- trace red clay layer						
	SW-SAND, medium grained, dark gray to black, moist to wet	-26.5		19SS		65	
40.0	ML-SILT, layer, dark gray, moist to wet		BENTONITE GROUT				
	- trace wood pieces, trace shells, firm, laminated, moist to wet	-28.8		20SS		70	
		-29.4					
42.5	SW-SAND, medium grained, dark gray to black, moist to wet	-29.5		21SS		42	
	ML-SILT, firm, dark gray, moist to wet	-30.7					
	ML/SM-SILT, with sand layers, trace wood, slightly firm, moist to wet	-31.5		22SS		20	
45.0	SW-SAND, medium grained, dark gray to black, moist to wet						
				23SS		55	
47.5	ML-SILT, little fine sand, firm, moist to wet	-35.0					
	SW-SAND, medium grained, dark gray to black, moist to wet	-36.0		24SS		55	
	ML-SILT, dark gray, moist to wet	-36.2					
50.0	SW-SAND, trace wood pieces, medium grained, dark gray to black, moist to wet		2" Ø SS PIPE	25SS		55	
52.5							
55.0							
				26SS		43	
57.5							
60.0	SM-SAND, little to trace silt, medium grained, moist to wet	-47.5	8" Ø BOREHOLE	27SS		42	
62.5							
65.0	SM/SL-SAND and SILT, fine grained	-52.5		28SS		34	
67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 54-100
DATE COMPLETED: MAY 13, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
72.5			BENTONITE GROUT	29SS		40	
75.0				30SS		>50	
77.5							
80.0	ML-SILT, trace fine sand	-67.5	8" Ø BOREHOLE	31SS		20	
82.5							
85.0			2" Ø SS PIPE	32SS		19	
87.5							
90.0	ML-SILT	-77.5	BENTONITE SEAL	33SS		31	
	SW-SAND, trace shells, medium grained	-78.5					
92.5			SAND PACK				
95.0				34SS		5	
97.5	- silt seams		WELL SCREEN	35SS		70	
100.0			SUMP	36SS		>50	
102.5	END OF HOLE @ 102.0ft BGS	-89.5					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 54-100
DATE COMPLETED: MAY 13, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
107.5			SCREEN DETAILS Screened Interval: 94.0 to 99.0ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 91.0 to 102.0ft BGS Material: 10/20 Silica Sand				
110.0							
112.5							
115.0							
117.5							
120.0							
122.5							
125.0							
127.5							
130.0							
132.5							
135.0							
137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 55-25
DATE COMPLETED: February 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	12.31						
0	0-20' BGS - See Log from 55-50 for Stratigraphy		CONCRETE					
20	SP-SAND, trace silt, compact, fine to medium grained, black with red grains, moist	-7.69	2"Ø SS SCREEN SAND A12	SS1		1.5	12	0.2
22	SHELBY TUBE SAMPLE	-9.19	NATIVE SOIL (CAVE-IN)					
24	SP-SAND with SILT, compact, fine to medium grained, black with red grains, wet	-11.69	2"Ø SS SUMP	SS2		1.5	23	0.0
26	END OF BOREHOLE @ 25.5ft BGS	-13.19						

2" Ø STEEL RISER
BENTONITE GROUT
4" Ø BOREHOLE
BENTONITE HOLE PLUG

WELL DETAILS
Screened interval:
-6.29 to -11.19ft NGVD
18.60 to 23.50ft BGS
Length: 4.9ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-153)
Page 1 of 2

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-50
DATE COMPLETED: MAY 17, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.9* *11.46*					
	SW-SAND (NATIVE), trace shells, medium grained, brown, trace red sand, moist		CONCRETE				
-2.5				1SS		9	
	SW-SAND, trace shells, medium grained, dark brown to black, trace red sand, moist	*7.9*		2SS		18	
-5.0							
			CEMENT/ BENTONITE GROUT	3SS		22	
-7.5	- moist to wet						
				4SS		21	
-10.0	- no shells						
				5SS		34	
-12.5							
				6SS		20	
	ML-SILT, little fine sand, gray, moist to wet	*-1.9* *-2.0*	BENTONITE GROUT				
-15.0	SW-SAND, trace shells, medium grained, moist to wet			7SS		25	
	- no shells	*-4.4*					
	ML-SILT, firm, gray, moist to wet	*-4.6*		8SS		28	
-17.5	ML/SM-SILT and SAND, trace shells, fine sand, moist to wet	*-4.8* *-5.5*					
	ML-SILT, trace wood pieces, firm, moist to wet	*-6.5* *-6.8*		9SS		32	
	SW-SAND, medium grained, moist to wet						
-20.0	ML-SILT, gray, moist to wet		2" Ø SS PIPE				
	SW-SAND, medium grained, dark brown to black, moist to wet			10SS		39	
	- trace shells						
-22.5	- wood pieces			11SS		20	
-25.0	- trace shells			12SS		71	
		-14.2	8" Ø BOREHOLE				
	ML-SILT, little fine sand, moist to wet	*-14.5*		13SS		57	
-27.5	SW-SAND, medium grained, moist to wet						
	- trace shells			14SS		58	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

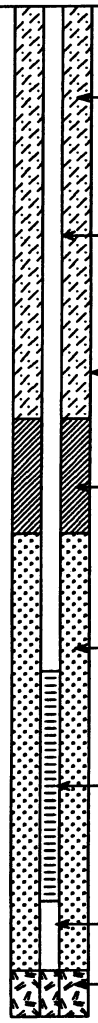
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-50
DATE COMPLETED: MAY 17, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
		-19.2
	ML-SILT, trace shells, gray	-19.3
	SW-SAND, trace shells, medium grained, moist to wet	-19.8
32.5		-20.1
	ML-SILT, some sand, trace shells, moist to wet	-20.6
	SW-SAND, medium grained, moist to wet	-21.2
	ML-SILT, firm, gray, moist to wet	-22.1
35.0	ML/SP-SILT and SAND, fine sand layers	-22.9
	SW-SAND, trace shells, medium grained, moist to wet	-24.1
		-24.4
37.5	ML-SILT, trace sand pockets, trace small shells	
	- firm	
	SW/ML-SAND and SILT, fine sand, gray, wet	
40.0	- wood pieces, moderate septic odor	
	ML-SILT, trace small shells, gray, wet	
	- firm	
	- trace to some fine sand, trace shells, wet	-30.1
42.5	SP-SAND, some silt, trace shells, medium to fine grained, wet	
	- more shells	
45.0		
	- trace white sand	
47.5		
	SW-SAND, medium grained, wet	-36.1
		-37.5
50.0	ML-SILT, GRAY, WET	-38.1
	SW-SAND, trace silt pockets, medium grained, wet	
		-40.1
52.5	END OF HOLE @ 52.0ft BGS	
55.0		
57.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
44.5 to 49.5ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
41.5 to 51.0ft BGS
Material: 10/20 Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
15SS		62	
16SS		22	
17SS		23	
17SS		23	
18SS		20	
19SS		20	
20SS		13	
21SS		27	
22SS		24	
23SS		27	
24SS		58	
25SS		34	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

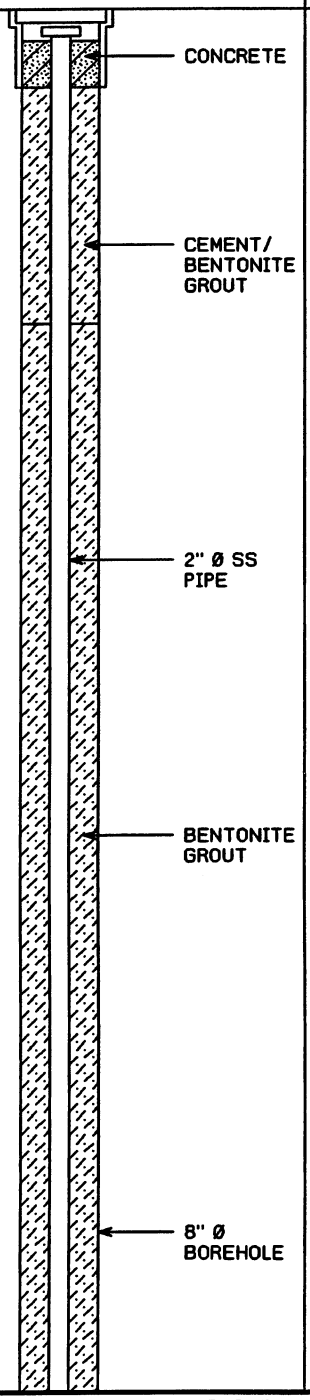
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-154)
Page 1 of 4

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-100
DATE COMPLETED: MAY 16, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.8* *11.30*					
	Refer to 55-50 for stratigraphic details.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-100
DATE COMPLETED: MAY 16, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5							
40.0			BENTONITE GROUT				
42.5							
45.0							
47.5							
50.0	SW-SAND (NATIVE), medium grained, black to dark brown, trace red sand, moist to wet	*-38.2*	2" Ø SS PIPE	1SS		6	
52.5							
55.0				2SS		10	
57.5							
60.0	SW/SM-SAND, some silt	*-48.2*	8" Ø BOREHOLE	3SS		49	
62.5							
65.0	SW-SAND, trace silt, medium grained	*-53.2*		4SS		52	
67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-154)
Page 3 of 4

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-100
DATE COMPLETED: MAY 16, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	PID (ppm)
72.5			BENTONITE GROUT	5SS		47	
75.0	- trace wood			6SS		20	
77.5							
80.0			8" Ø BOREHOLE	7SS		21	
82.5							
85.0			2" Ø SS PIPE	8SS		6	
87.5			BENTONITE SEAL				
90.0				9SS		15	
92.5			SAND PACK				
95.0	- trace silt			10SS		35	
97.5			WELL SCREEN	11SS		34	
	ML-SILT	-86.4					
	SW-SAND, medium grained	-87.2					
100.0	SP-SAND, some silt, medium to fine grained	-88.2	SUMP	12SS		36	
	- medium grained	-89.2	NATIVE FILL				
102.5	END OF HOLE @ 101.0ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 55-100
DATE COMPLETED: MAY 16, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
107.5			SCREEN DETAILS Screened interval: 93.5 to 98.5ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 90.0 to 100.0ft BGS Material: 10/20 Silica Sand				
110.0							
112.5							
115.0							
117.5							
120.0							
122.5							
125.0							
127.5							
130.0							
132.5							
135.0							
137.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-155)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 56-50
DATE COMPLETED: JUNE 2, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.3* *10.99*					
	SP-SAND (FILL), trace shells, medium grained, brown, dry		CONCRETE				
-2.5				1SS		38	
-5.0	SP-SAND (NATIVE), medium to coarse grained, dark brown, trace red sand, dry	*6.3*		2SS		23	
	- trace shells, moist		CEMENT/ BENTONITE GROUT				
-7.5				3SS		24	
	SW-SAND, trace shells, medium grained, dark brown, trace red sand, moist to wet	*2.4*		4SS		26	
-10.0				5SS		11	
-12.5				6SS		14	
	- wood fragments		BENTONITE GROUT				
-15.0				7SS		17	
	ML/SM-SILT and SAND, fine sand, grayish black, moist to wet	*-4.5*					
	SW-SAND, fine grained, moist to wet	*-4.7*					
	ML-SILT, soft, occasional sand lense	*-5.1*		8SS		10	
-17.5	SP-SAND, trace shells, fine to medium grained, moist to wet	*-6.0*					
	- medium to coarse grained			9SS		15	
-20.0	- trace silt						
			2" Ø SS PIPE	10SS		11	
	SM/ML-SAND and SILT, trace shells, fine sand, moist to wet	*-10.3* *-10.7*					
-22.5	SW-SAND, trace shells, medium grained, moist to wet	*-11.2*		11SS		46	
	SP-SAND, some silt, medium grained, moist to wet	*-11.9*					
-25.0	SW-SAND, trace shells, medium grained, moist to wet	*-13.5*		12SS		55	
				13SS		23	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

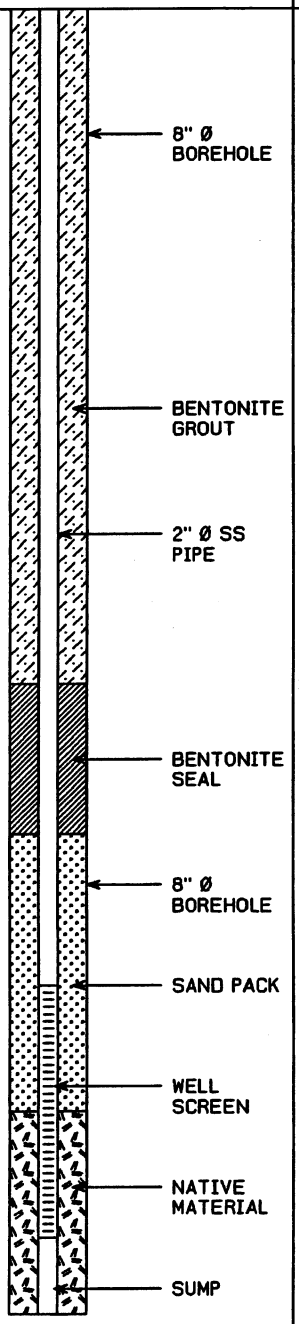
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-155)
Page 2 of 3

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 56-50
DATE COMPLETED: JUNE 2, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	ML-SILT, layer, moist to wet	
	– shell layer	-18.1
30.0	SP-SAND, trace shells, fine grained sand, moist to wet	-18.3
	ML-SILT, trace shells, medium grained, moist to wet	-18.4
32.5	SW-SAND, trace shells, medium grained, moist to wet	
	ML-SILT, trace shells, moist to wet	-21.8
	– wood fragments, slight decaying odor	-22.1
35.0	SW-SAND, trace shells, medium grained, moist to wet	-22.4
	ML-SILT, trace shells, moist to wet	-22.6
37.5	SW-SAND, trace shells, medium grained	-24.2
	ML-SILT, trace wood pieces, trace roots, firm, moist to wet	-24.7
40.0	SP-SAND, trace shells, fine to medium grained, moist to wet	-25.4
	ML-SILT, some to little fine sand, trace shells, soft to slightly firm, moist to wet	-28.9
42.5	SW-SAND, trace shells, medium grained, moist to wet	-30.7
	SP-SAND, some silt, trace shells, slightly firm, fine grained, moist to wet	
45.0		
	ML-SILT, some fine sand pockets, trace shells, moist to wet	-35.4
47.5	SW-SAND, medium grained, moist to wet	-36.2
50.0		
52.5		
	END OF HOLE @ 53.5ft BGS	-42.2



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
14SS		32	
15SS		31	
16SS		26	
17SS		32	
18SS		12	
19SS		13	
20SS		61	
21SS		26	
22SS		74	
23SS		43	
24SS		26	
25SS		30	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 56-50
DATE COMPLETED: JUNE 2, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: J. VANDER LINDEN

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	'N' VALUE	PID (ppm)
			SCREEN DETAILS Screened interval: 47.0 to 52.0ft BGS Length: 5ft Diameter: 2" Slot Size: #10 Material: Stainless Steel Sand Pack: 44.0 to 49.5ft BGS Material: 10/20 Silica Sand Native Pack: 49.5 to 53.5ft BGS				
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							
-70.0							
-72.5							
-75.0							
-77.5							
-80.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

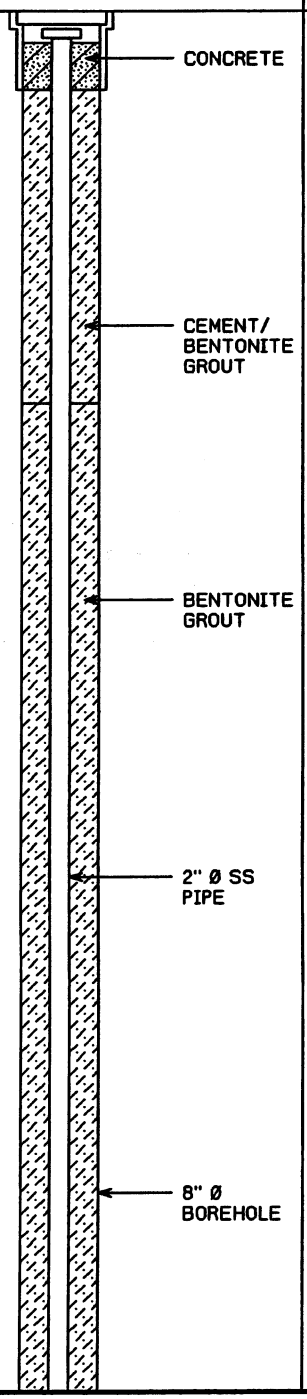
(WL-156)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 57-50
DATE COMPLETED: JUNE 1, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*11.3* *10.83*
2.5	SP-SAND (NATIVE), trace gravel, fine grained, brown, trace red sand, moist	
	- trace shells	
5.0		
	- no shells	
	- trace silt, dilatant	
7.5		
	- little silt	
10.0		
	- trace silt	
12.5	- little silt	
		-2.5
	ML-SILT, trace clay, gray, very moist	*-2.8*
15.0	SP-SAND, fine grained, gray, trace red sand, wet	*-3.8*
		-4.2
	ML-SILT, trace clay, gray, very moist	*-4.5*
	SP-SAND	
17.5	ML-SILT, trace very fine sand, gray, dilatant	*-6.8*
	SM-SAND, little to some silt, trace clay, trace shells, fine grained, gray	
20.0	ML-SILT	*-8.8*
22.5		
	SP-SAND, trace shells, medium grained dark gray, trace red sand, wet	*-11.9*
25.0		
27.5		*-16.5*
	ML-SILT, trace clay, wet	*-16.6*
	SP-SAND, little shells, fine grained, wet	
30.0		
		-20.3
	ML-SILT	*-20.4*
32.5	SP-SAND, trace silt, fine grained, wet	
	- with some silt	

MONITOR INSTALLATION



SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		41	
2SS		18	
3SS		8	
4SS		19	
5SS		6	
6SS		15	
7SS		13	
8SS		10	
9SS		7	
10SS		5	
11SS		26	
12SS		30	
13SS		35	
14SS		27	
15SS		55	
16SS		36	
17SS		44	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

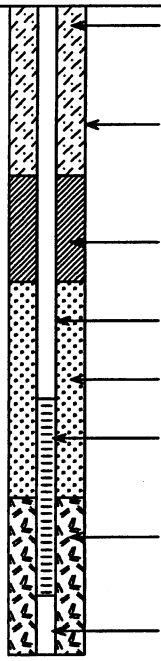
(WL-156)

PROJECT NAME: FORMER OCCIDENTAL CHEMICAL TACOMA FICILITY
PROJECT NUMBER: 1002-15
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: TACOMA, WA

HOLE DESIGNATION: 57-50
DATE COMPLETED: JUNE 1, 1998
DRILLING METHOD: 4¼" ID HSA
CRA SUPERVISOR: M. TITTLEY

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	ML-SILT, trace sand, gray, wet, dilatant	-23.8
37.5	SM-SAND, little to some silt, gray, fine grained	-26.3
	ML-SILT, trace clay, trace very fine sand, trace shells	-27.3
40.0	ML/SM-SILT and SAND	-28.8
	ML-SILT, trace sand	-29.3
	SP-SAND, trace shells, medium grained, gray	-30.3
42.5		
45.0	- some silt, fine grained	
	- trace silt, medium grained	
	- some silt, fine grained	
47.5	- little silt	
50.0	- trace silt, medium grained	
	END OF HOLE @ 51.5ft BGS	-40.3
52.5		
55.0		
57.5		
60.0		
62.5		
65.0		
67.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened interval:
45.0 to 50.0ft BGS
Length: 5ft
Diameter: 2"
Slot Size: #10
Material: Stainless Steel
Sand Pack:
41.9 to 47.5ft BGS
Material: 10/20 Silica Sand
Native Pack:
47.5 to 51.5ft BGS

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
17SS		44	
18SS		19	
19SS		21	
20SS		18	
21SS		>50	
22SS		88	
23SS		60	
24SS		70	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 59-25
DATE COMPLETED: October 29, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.36 10.96					
0	0-25.4' BGS - See Log from 59-50 for Stratigraphy		CONCRETE 2" Ø STEEL RISER CEMENT/ BENTONITE GROUT 4" Ø BOREHOLE BENTONITE 2"Ø SS SCREEN SAND 2"Ø SS SUMP				
26	END OF BOREHOLE @ 25.4ft BGS	-14.04					

WELL DETAILS
Screened interval:
-7.14 to -12.14ft NGVD
18.50 to 23.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 59-50
DATE COMPLETED: October 28, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE TOP OF RISER	11.23 10.71						
0	ASPHALT	10.23	CONCRETE					
2	No Recovery			SS1		0.0	26	0
			2" Ø STEEL RISER	SS2		0.0	11	
4				SS3		0.0	3	
6			CEMENT/ BENTONITE GROUT	SS4		0.3	1	
		4.23						
8	SP-SAND, bits of wood fragments, compact, fine to medium grained, homogeneous, dark brown, very moist, no odor	3.73		SS5		1.1	13	
	SP-SAND, loose, homogeneous, light brown, slightly moist, no odor		4" Ø BOREHOLE	SS6		0.9	7	
10	- wood fragments present, very moist @ 8.5 ft BGS	1.23		SS7		1.0	8	
12	SP-SAND, roots present, loose, medium grained, homogeneous, dark brown, very moist, no odor - large wood fragment @ 11.5-11.8 ft BGS			SS8		1.4	20	
14	- large wood fragment @ 13-13.2 ft BGS			SS9		1.0	11	
	SM-SILTY SAND, roots present, compact, fine grained sand, homogeneous, dark brown, very moist, no odor	-3.27		SS10		1.5	11	
16	- more silt @ 16.0 ft BGS			SS11		1.5	11	
18	OL-SILT, no roots present, compact, dark gray, slightly moist	-6.67		SS12		1.4	16	
	- shell fragments present @ 19-19.6 ft BGS	-7.47		SS13		0.6	16	0
20	SM-SILTY SAND, compact, fine to medium grained sand, homogeneous, very moist	-9.47		SS14		0.7	19	
22	SP-SAND, no shells present, compact, medium grained, homogeneous, very moist, no odor	-11.27		SS15		1.0	22	
	OL-SILT, compact, homogeneous, very slightly moist	-11.47		SS16		1.0	35	
24	SP-SAND, no shells present, compact, medium grained, homogeneous, very moist, no odor			SS17		1.1	37	
26	OL-SILT, compact, homogeneous, very slightly moist	-14.27		SS18		1.3	38	
28	CL-SILTY, SANDY CLAY, dense, homogeneous, dark grey, very moist, no odor	-16.47		SS19		1.5	9	
		-18.47		SS20		1.4	14	
30	SM-SILTY SAND, loose, fine to medium grained sand, homogeneous, dark brown, very moist, no odor	-19.27		SS21		0.9	33	
32	OL-SILT, compact, homogeneous, dark grey, slightly moist, no odor			SS22		0.8	18	
	SP-SAND, compact, medium grained, homogeneous, dark brown, slightly moist	-21.87		SS23		1.0	23	
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 59-50
DATE COMPLETED: October 28, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36				SS24		0.9	16	0
38	OL-SILT, dark grey, thin layer of silt (<0.1 ft) directly underlain by a thin layer of wood fragments (<0.1 ft)	-26.37 -26.47		SS25		1.3	32	
	SP-SAND, compact, medium grained, homogeneous, dark brown, slightly moist - silt content decreases @ 38.9 ft BGS		BENTONITE	SS26		1.3	20	0
40				SS27		0.8	18	
42				SS28		0.9	3	
44				SS29		1.0	31	
			2"Ø SS SCREEN	SS30		0.4	21	
46				S31		0.9	29	
			SAND					
48		-37.07		SS23		1.2	17	
	SP-OL-SAND and SILT, laminated, layers from <0.05 ft to 0.10 ft	-37.57	2"Ø SS SUMP					
50	SP-SAND, medium grained, homogeneous, dark brown, slightly moist			SS33		1.3	33	0
		-39.27						
	END OF BOREHOLE @ 50.5ft BGS							
52								
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-32.27 to -37.27ft NGVD
43.50 to 48.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 60-25
DATE COMPLETED: October 31, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.95 10.49					
0	OVERBURDEN (not sampled)		CONCRETE				
2			2"Ø STEEL RISER				
4			CEMENT/ BENTONITE GROUT				
6			4"Ø BOREHOLE				
8							
10							
12							
14			BENTONITE				
16			SAND PACK				
18							
20			2"Ø SS SCREEN				
22							
24			2"Ø SS SUMP				
25.0	END OF BOREHOLE @ 25.0ft BGS	-14.05					
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-7.55 to -12.55ft NGVD
18.50 to 23.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 60-50
DATE COMPLETED: October 30, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.13 10.59					
	No Recovery. Loose gravel and rock.		2"Ø STEEL RISER CONCRETE				
2	FILL	9.13					
	SP-SAND, compact, homogeneous, dark, slightly moist, no odor	8.33		SS1		1.4	12
4	SP-SAND and GRAVEL, compact, angular gravel, dark, slightly moist - black staining and odor present @ 5.5 ft BGS	7.13		SS2		0.6	15
6			CEMENT/ BENTONITE GROUT	SS3		0.9	21
	- greater silt content, wood fragments, black staining, odor, sheen @ 6.9 ft BGS		4"Ø BOREHOLE	SS4		1.3	53
8	CONCRETE PIECES, rounded, weathered appearance	3.13		SS5		0.4	
		1.63		SS6		1.4	
10	SP-SAND, loose to slightly compact, fine to medium grained, homogeneous, dark, very moist, no odor - wood fragments between 11.6 and 11.8 ft BGS			SS7		1.5	4
12				SS8		1.5	9
		-2.57					
14	WOOD	-2.87		SS9		1.1	16
	MH-SANDY, CLAYEY SILT, wood fragments and roots present, dark, very moist						
16		-4.97		SS10		1.5	10
	WOOD	-5.07					
	MH-SILT, roots present, compact, dense, dark gray, very slightly moist, no odor	-6.67		SS1		1.3	
18	SP-SAND, some organics, minor silt, fine to medium grained, homogeneous, dark, moist, no odor			SS12		1.5	13
20	- silt increases @ 19.4 ft BGS - silt decreases @ 20.0 ft BGS			SS13		1.4	11
22	- lenses/pockets of silt below 21.9 ft BGS			SS014		1.5	14
24				SS15		1.5	29
		-13.67					
	SM-SILTY SAND, dense, dark grey, slightly moist, no odor	-13.97		SS16		1.5	39
26	MH-SILT, dense, dark grey, very slightly moist, no odor	-14.87		SS17		1.5	23
	SM-SILTY SAND, shell fragments, compact, fine to medium grained, dark, moist, no odor	-15.97 -16.37		SS18		1.5	8
28	SM-SANDY SILT, compact, fine to medium grained sand, dark grey, slightly moist, no odor			SS19		1.5	17
30	SM-SILTY SAND, shell fragments, compact, fine to medium grained, dark, moist, no odor			SS20		1.0	17
	- pockets of pure silt @ 29 ft BGS	-19.67					
32	SP-SAND, compact, fine to medium grained, homogeneous, dark, moist, no odor			SS21		1.1	34
34				S22		1.0	31

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 60-50
DATE COMPLETED: October 30, 2002
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	SM-SILTY SAND, compact, fine to medium grained sand, dark, moist, no odor	-24.57	CEMENT/ BENTONITE GROUT	SS23		0.9	24
	No Recovery	-25.37		SS24		0.0	27
38	SP-SAND, compact to dense, fine to medium grained, homogeneous, moist, no odor	-26.87	BENTONITE	SS25		1.2	44
40				SS26		1.0	14
	- silt lenses present @ 41.0 ft BGS		SAND PACK				
42			2"Ø STEEL RISER	SS27		1.5	26
44			4"Ø BOREHOLE	SS28		1.1	24
			2"Ø SS SCREEN	SS29		1.0	28
46				SS30		0.9	13
48	SM-SANDY SILT, compact, dark grey, moist, no odor	-36.97		SS31		1.3	23
			2"Ø SS SUMP	SS32		1.4	27
50	END OF BOREHOLE @ 50.0ft BGS	-38.87					
52							
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.37 to -37.37ft NGVD
43.50 to 48.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-25
DATE COMPLETED: May 7, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.33					
0	0-25' BGS - See Log from 61-50 for Stratigraphy		CONCRETE; 2"Ø STEEL RISER; CEMENT/ BENTONITE GROUT; 8"Ø BOREHOLE; BENTONITE; SAND PACK; 2"Ø SS SCREEN; 2"Ø SS SUMP				
25.0	END OF BOREHOLE @ 25.0ft BGS	-13.67					

WELL DETAILS
Screened interval:
-7.17 to -12.17ft NGVD
18.50 to 23.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-50
DATE COMPLETED: May 9, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.29					
0	ASPHALT	10.79	2"Ø STEEL RISER CONCRETE	SS1			
2	SP-SAND, some silt, some gravel, fine to medium grained, subangular gravel, dark brown, dry			SS2		0.8	13
4				SS3		0.8	12
6	- small silt lense and pieces of wood @ 5.0 ft BGS - moist below 6.5 ft BGS		CEMENT/ BENTONITE GROUT	SS4		0.8	13
8	- no gravel, homogeneous, very moist below 8 ft BGS		8"Ø BOREHOLE	SS5		1.1	9
10	- scattered coarse gravel, very moist below 9.5 ft BGS			SS6		1.1	10
				SS7		1.2	15
12	SP-SAND, fine to medium grained, some silt, some clay lenses, a few coarse gravel pieces, loose, dark brown, moist - no clay below 12.5 ft BGS	0.29		SS8		1.2	25
14				SS9		1.4	9
	- small clay lense @ 15 ft BGS			SS10		1.4	11
16	- increase in medium grained sand below 15.5 ft BGS - 0.5" clay lense @ 16 ft BGS			SS11		1.5	18
18	- clay lense with wood fragments @ 18.5 ft BGS			SS12		1.5	11
	SM-SILTY SAND, some clay, very soft, fine grained sand, slight plasticity, dark brown, moist	-7.21		SS13		1.5	4
20	- shell fragments, fine to medium grained sand below 20 ft BGS			SS14		1.5	4
22	SP-SAND, some silt, some clay lenses, a few coarse gravel pieces, loose, fine to medium grained, dark brown, moist	-10.21		SS15		0.9	11
24				SS16		1.1	19
	- 0.5" clay lense, soil becomes more compact @ 25.25 ft BGS			SS17		1.2	57
26	- shell fragments, predominantly medium grained sand, slightly moist below 26 ft BGS			SS18		0.8	12
28				SS19		1.5	11
	CL-SILTY CLAY, medium grey, medium plasticity, moist	-17.21		SS20		0.5	14
30	- very soft @ 30.5 ft BGS			SS21		1.5	WH
32				SS22		1.5	1
	- layers of lighter grey present below 33.5 ft BGS			SS23		1.5	WH
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

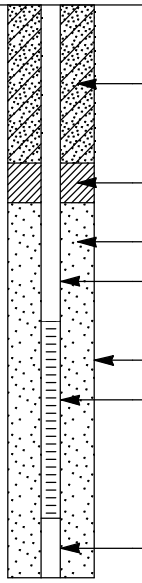
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-50
DATE COMPLETED: May 9, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36		
	CL-SILTY CLAY, very soft, low plasticity, dark grey, moist	-25.21
38		
	SP-SAND, some silt, some clay lenses, a few coarse gravel pieces, shell fragments present, loose, fine to medium grained, dark brown, slightly moist	-27.96
40		
	- wood fragments present, pockets of silt, dark brown below 40.5 ft BGS	
42		
44		
46		
	- increase in silt content @ 47 ft BGS	
48		
	CL-SILTY CLAY, medium plasticity (lense?), dark grey, moist	-37.71
50	END OF BOREHOLE @ 50.0ft BGS	-38.71
52		
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-31.71 to -36.71ft NGVD
43.00 to 48.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
SS24		1.5	1
SS25		0.8	1
SS26		1.5	13
SS27		0.8	15
SS28		0.8	26
SS29		1.1	16
SS30		0.8	8
SS31		1.1	WH

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-100
DATE COMPLETED: May 8, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.34					
	OVERBURDEN (not sampled)		CONCRETE SAND BENTONITE 2"Ø STEEL RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-100
DATE COMPLETED: May 8, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36			2"Ø STEEL RISER				
38							
40							
42			CEMENT/ BENTONITE GROUT				
44							
46			8"Ø BOREHOLE				
48							
50	SM-SAND, trace to some silt, low density, fine to medium grained, dark brown, moist	-38.66		SS1		0.8	5
52							
54							
56	CL-CLAY, low density, stiff, medium plasticity, dark gray, moist	-44.66 -45.16		SS2		1.5	11
58	SM-SAND, trace to some silt, low density, fine to medium grained, dark brown, moist						
60				SS3		1.5	5
62	CL-CLAY, stiff, low density, medium plasticity, dark gray, moist	-49.66					
64							
66	ML-SANDY SILT, some clay, low density, dark brown, moist	-54.16		SS4		1.5	13
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

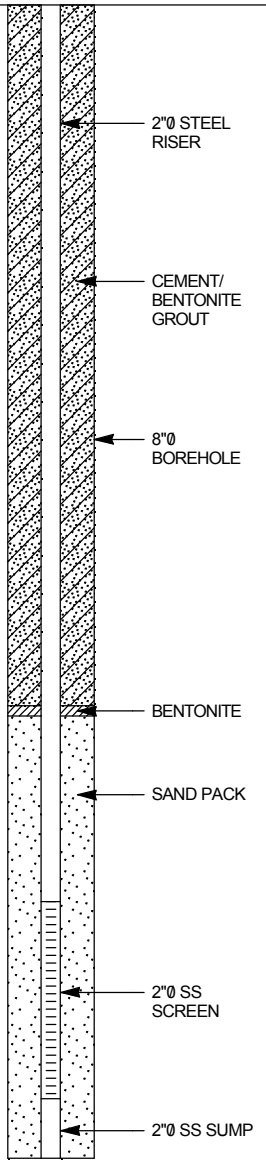
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 61-100
DATE COMPLETED: May 8, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	CL-SILTY CLAY, firm, medium plasticity, dark gray, moist	-58.66
		-59.66
72	SM-SAND, trace to some silt, low density, fine to medium grained, dark brown, moist	
74		
		-63.66
76	ML-SILT, some fine grained sand, wood chips present, small lenses of sand present, firm, dark brown, moist	
78		
80	- increase in sand content, no wood chips present, slightly moist below 80 ft BGS	
82		
84	- sandier, some clay, firm @ 85 ft BGS	
86		
88		
90	- lenses of fine grained sand @ 90 ft BGS	
92		
94		
	SM-SAND, some silt, lenses of clayey silt, compact, fine to medium grained, dark brown, slightly moist	-83.66
96		
98		
100	END OF BOREHOLE @ 100.0ft BGS	-88.66
102		
104		

MONITORING WELL



WELL DETAILS
Screened interval:
-81.36 to -86.36ft NGVD
92.70 to 97.70ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
SS5	X	1.5	18
SS6	X	1.5	13
SS7	X	1.5	22
SS8	X	1.5	27
SS9	X	1.5	24
SS10	X	1.1	30

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.87 10.19						
	ASPHALT							
	SP-SAND (FILL), with gravel, trace silt, loose, fine grained sand, lenses of silt and silty sand throughout, brown and dark gray, wet	10.27						
2								0.0
4	- wet at 4.5ft BGS		6" BOREHOLE	1RS		10.0		
6								
8			BENTONITE GRAVEL					0.0
10	NO RECOVERY (10-15FT BGS)	0.87						
12				2RS		0.0		--
14								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-4.13						
16								0.0
18			SAND PACK PORT 1 SCREEN 1 PORT 1 SCREEN 2 PORT 1	3RS		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SILT, with clay, firm, slight to low plasticity, gray, very moist, moderate dilatancy, scattered shell fragments and small wood/peat fibers throughout	-9.13	SCREEN 3 TRANSDUCER #1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					0.0
22								
24	- clayey silt, gray, with light gra and dark gray layering (laminations) at 25.0ft BGS							0.0
26	OL-ORGANIC SILTY CLAY, soft, low plasticity, dark gray, with light gray laminations, shell fragments and small shells throughout, very moist to wet, faint sweet odor, moderate dilatancy, scattered rootlet size to peat fibre size wood pieces throughout	-15.13						2.3
28								3.3
30				4RS		20.0		
32								5.2
34			COATED BENTONITE PELLETS					3.3
36								1.0
	OL-ORGANIC SILTY CLAY, and peat fibers, loose, low plasticity, gray and dark gray, wet, rapid dilatancy	-26.13 -26.73						
38	ML-SILT, with clay, loose, low plasticity, gray, wet, rapid dilatancy, peat fibers and twig size wood pieces throughout	-27.63						0.2
	SM-SILTY SAND, compact, fine to medium grained, dark gray, with red grains and white							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, shell fragments throughout, wet - laminated silty clay at 39.0ft BGS - laminated silty clay at 39.5ft BGS	-29.13						
42	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - 1/4" silty clay at 40.8ft BGS - fine grained at 42.5ft BGS - laminated silt at 42.7ft BGS - 1" silty clay at 43.3ft BGS		SAND PACK PORT 2 SCREEN 1					0.0
44			PORT 2 SCREEN 2					
			PORT 2 SCREEN 3					
46			TRANSDUCER #2 PORT 2 SCREEN 4					
			PORT 2 SCREEN 5					
		-36.63						0.0
48	ML-SANDY SILT, trace clay, loose, slight plasticity, gray, wet, rapid dilatancy, wood pieces up to 1/4x1/8" throughout	-37.03	PORT 2 SCREEN 6					
	SP-SAND, trace silt, compact, fine grained to very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
50				5RS		20.0		
		-39.63						
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, scattered sliver size wood pieces throughout, wet	-40.13						
52	SM/ML-SAND AND SILT, trace clay, loose, fine grained sand, low plasticity, gray, with red grains and white grains, shell fragments throughout, wet, rapid dilatancy - 1/2" silty clay at 51.7ft BGS - 1-1/2" silty sandy clay at 52.6ft BGS - scattered sliver size wood pieces at 52.8ft BGS	-42.13						0.0
54	ML-CLAYEY SILT, soft, low plasticity, gray, very moist, moderate dilatancy							
		-45.13						
56	ML-SANDY CLAYEY SILT, very loose, very fine grained sand, low plasticity, gray, wet, rapid dilatancy	-46.13						
	OL-ORGANIC SILT, with clay, trace sand, loose, low plasticity, dark gray, with light gray laminations, wet, rapid dilatancy							0.0
58			COATED BENTONITE PELLETS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, loose, fine to medium grained, poorly sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, several silt and silty clay laminations/lenses up to 2" throughout	-49.93						
62	SM/ML-SAND AND SILT, loose, low plasticity, fine grained sand, gray, with red grains and white grains, wet, rapid dilatancy, scattered shell fragments throughout	-50.93						0.0
64	- scattered wood fibers/sliver size at 63.0ft BGS	-53.13						
	SM/ML-SAND AND SILT, very loose, fine grained sand, slight plasticity, dark gray, with red grains and white grains, wet, several sliver size wood pieces at top contact	-54.13						
66	ML-CLAYEY SANDY SILT, very loose, very fine grained sand, low plasticity, gray, wet, rapid dilatancy	-56.13						
	ML-SANDY SILT, loose, fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-56.63	SAND PACK PORT 3 SCREEN 1					0.0
68	SM-SILTY SAND, very loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, numerous twig size to sliver size wood pieces throughout, piece of wood 1/2x1" at base contact	-57.13	PORT 3 SCREEN 2					
	ML-SANDY SILT, trace clay, loose, slight plasticity, dark gray, with red grains and white grains, wet, rapid dilatancy	-58.63	PORT 3 SCREEN 3	6RS		20.0		
70	SM/ML-SAND AND SILT, loose, very fine grained, slight plasticity, dark gray, with red grains and white grains, wet, rapid dilatancy	-59.13	TRANSDUCER #3 PORT 3 SCREEN 4					
	OL-ORGANIC SANDY SILT, loose, very fine grained sand, slight plasticity, dark gray, wet, rapid dilatancy, scattered shell fragments throughout	-60.63	PORT 3 SCREEN 5					
72	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains, wet	-61.63	PORT 3 SCREEN 6					0.0
74	OL-ORGANIC SILT, with clay, trace sand, loose, low plasticity, dark gray, occasional light gray laminations, wet, rapid dilatancy, scattered small to medium size shell fragments throughout							
76								
	SM/ML-SAND AND SILT, loose, fine grained sand, slight plasticity, gray, wet, very rapid dilatancy	-66.13 -66.63						0.0
78	OL-ORGANIC SANDY CLAYEY SILT, loose, very fine grained sand, low plasticity, dark gray, wet, rapid to moderate dilatancy, shell fragments throughout							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-CLAYEY SILT, trace sand, compact, low plasticity, gray, wet, rapid to moderate dilatancy	-69.23						
		-69.73						
	ML-SANDY SILT, loose, fine grained sand, slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy, scattered sliver size wood pieces and shell fragments throughout	-70.13						
82		-71.63						0.0
	SM/ML-SAND AND SILT, loose, very fine grained sand, low to slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy, scattered shell fragments and sliver size wood pieces throughout		COATED BENTONITE PELLETS					
84	ML-SANDY CLAYEY SILT, loose, low plasticity, gray, wet, rapid to moderate dilatancy - very loose at 84.5ft BGS - decrease in clay content and increase in sand content, scattered sliver size wood pieces throughout at 85.0ft BGS - increase in clay content, decrease in sand content at 87.0ft BGS							
86								
88								0.0
	ML-SANDY SILT, loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments scattered throughout	-77.43						
		-78.23						
90	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments and scattered sliver size wood pieces throughout	-79.03		7RS		20.0		
	ML-SANDY SILT, trace clay, compact, low plasticity, gray, wet, rapid dilatancy	-79.73						
92	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, sliver size wood pieces throughout, several silt laminations throughout - 1/4" lens sandy silt at 92.8ft BGS		SAND PACK PORT 4 SCREEN 1					0.0
94			PORT 4 SCREEN 2					
	- sand, trace silt at 94.5ft BGS - increasing grain size at 94.7ft BGS		PORT 4 SCREEN 3					
	- 5/8" intact shell at 95.6ft BGS		TRANSDUCER #4 PORT 4 SCREEN 4					
96			PORT 4 SCREEN 5					
	- laminated silt at 97.4ft BGS	-86.63						2.3
98	ML-SANDY SILT, loose, very fine grained sand, slight plasticity, dark gray, with red grains, wet, rapid dilatancy, shell fragments throughout		PORT 4 SCREEN 6					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-89.63						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							6.5
102	- 3" silty sandy clay at 102.2ft BGS - silt laminations scattered throughout at 102.5ft BGS	-92.33						
	ML-SANDY SILT, with clay laminations, very loose, very fine grained sand, low plasticity, dark gray, wet, rapid dilatancy, shell fragments throughout, wood pieces sliver size to twig size throughout	-92.63						11.7
104	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
106	- 1/2x3/4" piece of wood at 103.6ft BGS							10.0
	- 1" silty clay, several sliver size wood pieces at 107.5ft BGS	-96.73						
108	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, shell fragments throughout, silt laminations and lenses up to 1/2" throughout, scattered wood pieces sliver size up to 5/8"	-98.63						12.4
110	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		← COATED BENTONITE PELLETS	8RS		20.0		
	- faint odor at 110.0ft BGS							22.2
112	- 3/8" lens clayey silt at 111.8ft BGS							
	ML-CLAYEY SANDY SILT, compact, low plasticity, gray, very moist, rapid dilatancy, faint odor	-101.53 -102.03						
114	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, numerous sliver size wood pieces throughout, faint odor	-103.43						30.3
	ML-SANDY SILT, trace clay, compact, low plasticity, gray, with red grains and white grains, shell fragments throughout, very moist, rapid dilatancy	-104.33 -104.73						
116	- 3/4" silty clay at 115.1ft BGS	-105.53						50.4
	ML-SILT, and wood pieces, trace sand, very loose, slight plasticity, dark gray, moist, strong odor, wood sliver size to 1/2x1-1/2"	-106.53 -106.93						
118	CL-SILTY CLAY, soft, low plasticity, light gray, very moist, moderate dilatancy, faint odor - 3/8" lens wood pieces, sliver size to 1/2x1" at 115.9ft BGS							84.0
	ML-SANDY SILT, and wood pieces, very	-108.73						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	loose, very fine grained sand, slight plasticity, gray and dark gray, very moist to wet, numerous wood pieces sliver size up to 1-1/2x1/2" throughout	-109.13						
	ML-SANDY SILT, compact, fine grained sand, low plasticity, gray, moist, silty clay and sand laminations throughout	-110.13						60.2
122	SM/ML-SAND AND SILT, trace clay, loose, very fine grained sand, dark gray, with red grains and white grains, shell fragments throughout, very moist, scattered wood pieces sliver size to 1-1/2x3/4", strong odor	-111.73	SAND PACK PORT 5 SCREEN 1					
124	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-113.03	PORT 5 SCREEN 2 PORT 5 SCREEN 3					81.1
126	CL-SILTY CLAY, firm, low plasticity, gray, moist, moderate to slow dilatancy, scattered shell fragments throughout		TRANSDUCER #5 PORT 5 SCREEN 4 PORT 5 SCREEN 5					142.0
	SM-SILTY CLAY, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments, several rootlet size wood pieces at top contact, few silt laminations, strong odor	-116.43	PORT 5 SCREEN 6					
128	CL-SANDY SILTY CLAY, trace sand, firm, low plasticity, gray, moist, scattered shell fragments throughout							2.8
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, strong odor	-118.93		9RS		20.0		
130	CL-SILTY CLAY, firm, low plasticity, gray, moist, shell fragments throughout, very moist, moderate dilatancy	-120.63						13.2
132	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, faint odor, shell fragments throughout							
	ML-CLAYEY SANDY SILT, compact, very fine grained sand, low plasticity, gray, wet, rapid to moderate dilatancy, faint odor, shell fragments throughout - 2-1/2" silty sand at 132.8ft BGS							13.4
134								
136								16.2
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, strong odor, several silt laminations	-125.93						
138								153.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
142								236
144								160.0
	ML-CLAYEY SANDY SILT, compact, low plasticity, light gray, wet, rapid dilatancy, shell fragments throughout, strong odor	-133.63						
146		-135.43						48.0
	CL-SILTY CLAY, trace sand, firm, low plasticity, light gray, very moist, moderate dilatancy	-136.13	← COATED BENTONITE PELLETS					
148	ML-SANDY SILT, compact, very fine grained sand, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout, strong odor, sliver size wood pieces throughout							485.0
150		-139.03		10RS		20.0		
	CI-SILTY CLAY, firm, medium plasticity, gray, very moist, shell fragments throughout - gray and dark gray, wet, sand laminations and sliver to twig size wood pieces throughout, low dilatancy at 150ft BGS							300.0
152	- gray sand, laminations not present at 152.0ft BGS							
	CI-SILTY CLAY, trace sand, very hard, low plasticity, dark gray, moist to dry, scattered small shell fragments (less than 1% total), strong odor	-142.13						
154	- 3-1/2x1/2" diameter piece of wood at 154.0ft BGS							10.2
156								84.0
158								48.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CI-SILTY CLAY, stiff, medium plasticity, gray, moist, slow dilatancy, small shell fragments throughout	-149.13						
162								0.0
164								
	- 1x0.3" shell fragments at 164.9ft BGS	-154.13	SAND PACK					
	CL-SILTY SANDY CLAY, soft, low plasticity, gray, very moist, sliver to twig size wood pieces throughout	-154.53	PORT 6 SCREEN 1					
166	SM-SILTY SAND, compact to dense, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, several silty clay laminations and lenses up to 1/4", scattered wood pieces sliver size up to 1x1/2"		TRANSDUCER #6 PORT 6 SCREEN 2					
168	- 1" sandy silt at 167.7ft BGS - increased shell fragment content (2-3% of sample), increase in number of wood pieces at 167.8ft BGS		PORT 6 SCREEN 3 PORT 6 SCREEN 4					0.0
170	- piece of wood 2x1-1/2" flat at 170.0ft BGS - piece of wood 3" long x 0.8" diameter at 170.5ft BGS		PORT 6 SCREEN 5 PORT 6 SCREEN 6	11RS		20.0		
172								0.0
	- sand, with silt at 173.5ft BGS							
174								
176			CMT ANCHOR COATED BENTONITE PELLETS					
	CL-SILTY CLAY, stiff, low plasticity, light gray, moist, slow dilatancy, shell fragments throughout	-166.53						0.0
178	- laminated sand at 177.6ft BGS - laminated sand at 178.3ft BGS - laminated sand at 179.0ft BGS - laminated sand at 179.8ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	END OF BOREHOLE @ 180.0ft BGS	-169.13						
	NOTE:							
182	PORT 1 SAND PACK 17.0 TO 24.1FT BGS (-6.13 TO -13.23FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 17.98, 18.98, 19.98, 20.98, 21.98 AND 22.98FT BGS (-7.11, -8.11, -9.11, -10.11, -11.11 AND -12.11FT NGVD) TRANSDUCER (# 1200811) 20.48FT BGS (-9.61FT NGVD)							
184								
186	COATED BENTONITE PELLETS 24.1 TO 42.5FT BGS (-13.23 TO -31.63FT NGVD)							
188	PORT 2 SAND PACK 42.5 TO 49.1FT BGS (-31.63 TO -38.23FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 42.97, 43.97, 44.97, 45.97, 46.97 AND 47.97FT BGS (-32.10, -33.10, -34.10, -35.10, -36.10 AND -37.10FT NGVD)							
190								
	TRANSDUCER (# 1141754) 45.47FT BGS (-34.60FT NGVD)							
192	COATED BENTONITE PELLETS 49.1 TO 67.0FT BGS (-38.23 TO -56.13FT NGVD)							
194	PORT 3 SAND PACK 67.0 TO 74.1FT BGS (-56.13 TO -63.23FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 67.97, 68.97, 69.97, 70.97, 71.97 AND 72.97FT BGS (-57.10, -58.10, -59.10, -60.10, -61.10 AND -62.10FT NGVD)							
196	TRANSDUCER (# 1203034) 70.47FT BGS (-59.60FT NGVD)							
198	COATED BENTONITE PELLETS 74.1 TO 92.0FT BGS (-63.23 TO -81.13FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 61C
DATE COMPLETED: May 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
202	PORT 4 SAND PACK 92.0 TO 99.0FT BGS (-81.13 TO -88.13FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 93.08, 94.08, 95.08, 96.08, 97.08 AND 98.08FT BGS (-82.21, -83.21, -84.21, -85.21, -86.21 AND -87.21FT NGVD) TRANSDUCER (# 1203036)							
204	95.58FT BGS (-84.71FT NGVD) COATED BENTONITE PELLETS 99.0 TO 122.0FT BGS (-88.13 TO -111.13FT NGVD)							
206	PORT 5 SAND PACK 122.0 TO 129.0FT BGS (-111.13 TO -118.13FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
208	122.93, 123.93, 124.93, 125.93, 126.93 AND 127.93FT BGS (-112.06, -113.06, -114.06, -115.06, -116.06 AND -117.06FT NGVD) TRANSDUCER (# 1140301)							
210	125.43FT BGS (-114.56FT NGVD) COATED BENTONITE PELLETS 129.0 TO 165.0FT BGS (-118.13 TO -154.13FT NGVD)							
212	PORT 6 SAND PACK 165.0 TO 172.5FT BGS (-154.13 TO -161.13FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
214	165.83, 166.83, 167.83, 168.83, 169.83 AND 170.83FT BGS (-154.96, -155.96, -156.96, -157.96, -158.96 AND -159.96FT NGVD) TRANSDUCER (# 1140293)							
216	166.33FT BGS (-155.46FT NGVD) COATED BENTONITE PELLETS 172.5 TO 179.2FT BGS (-161.13 TO -168.13FT NGVD)							
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 62-50
DATE COMPLETED: May 12, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.72					
0	SM-SILTY SAND, some gravel, loose, fine to medium grained sand, some subrounded to subangular pebbles, dark brown, dry		CONCRETE	SS1			
2							
				SS2		1.1	10
4	- becomes more homogeneous @ 4 ft BGS			SS		1.1	13
	- moist below 5.5 ft BGS		2"Ø STEEL RISER				
6				3SS4		0.8	9
			CEMENT/ BENTONITE GROUT	SS5		0.8	14
8	- shell fragments, few pebbles, silt lense, finer grained sand @ 8.5 ft BGS		8"Ø BOREHOLE	SS6		1.5	7
10				SS7		1.5	6
	- silt lense @ 11.2 ft BGS						
12	- mostly medium grained between 11.5 and 12.0 ft BGS			SS8		1.5	11
	- very few pebbles, no silt lenses @ 13 ft BGS			SS9		1.5	3
14							
16	- silty clay lense @ 16 ft BGS			SS10		1.5	7
	- 3" clay lense @ 17.0 ft BGS			SS11		1.5	3
18	- more silt and fines in matrix below 18 ft BGS						
	- 4" clay lense @ 18.5 ft BGS			SS12		1.5	5
20	- 3" clay lense @ 20 ft BGS			SS13		1.5	5
22				SS14		1.2	13
24				SS15		1.2	5
	- small clay lense present @ 25 ft BGS						
26				SS16		1.2	7
				SS17		0.8	20
28	- cleaner sand below 28 ft BGS			SS18		0.8	27
30				SS19		0.8	
32	- many wood fragments, abundance of shells @ 32 ft BGS			SS20		1.2	12
	- more silt below 32.5 ft BGS						
34	- more silt, clay lense @ 33.0 ft BGS			SS21		1.1	13

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 62-50
DATE COMPLETED: May 12, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	- more silt below 35 ft BGS						
	- few shells present, mostly fine grained sand below 36.5 ft BGS		CEMENT/ BENTONITE GROUT	SS22		1.1	23
38	- silt lense @ 38.5 ft BGS		BENTONITE	SS23		1.3	15
				SS24		1.1	18
40			SAND PACK	SS25		1.5	34
	- fewer shells below 41.5 ft BGS		2"Ø STEEL RISER	SS26		1.5	33
42							
44			8"Ø BOREHOLE	SS27		1.5	14
			2"Ø SS SCREEN				
46	ML-SILT, some sand, loose, very fine grained, dark brown, moist	-33.78		SS28		1.5	2
	- more fine grained (bordering on clay), low plasticity, slightly moist below 46.5 ft BGS			SS29		1.5	5
48							
50			2"Ø SS SUMP	SS30		1.5	2
	- SM-SILTY SAND, fine grained sand, dark brown, moist	-39.28		SS31		1.5	2
52	END OF BOREHOLE @ 51.5ft BGS						
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.18 to -37.18ft NGVD
43.90 to 48.90ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 63-50
DATE COMPLETED: May 10, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.87					
0	ASPHALT	11.37	CONCRETE				
2	SP-SAND, some silt, few pebbles, loose, fine to medium grained, homogeneous, dark brown, slightly moist						
4				SS1		1.5	
	- mostly medium grained @ 5 ft BGS		2"Ø STEEL RISER				
6	- shell fragments, more fine grained @ 6 ft BGS			SS2		1.5	12
			CEMENT/ BENTONITE GROUT	SS3		1.5	8
8				SS4		1.1	14
			8"Ø BOREHOLE				
10	SM-SILTY SAND, shell fragments, fine to medium grained, homogeneous, dark brown, moist	1.87		SS5		1.1	10
12	- siltier lenses below 11.5 ft BGS			SS6		1.1	9
				SS7		1.1	4
14	- silt lense @ 14 ft BGS						
	- more silt below 15 ft BGS			SS8		1.5	4
16							
				SS9		1.1	1
18	ML-CLAYEY SILT, soft, dark gray, moist	-5.63					
	SM-SILTY SAND, shell fragments, fine to medium grained, homogeneous, dark brown, moist	-6.13		SS10		1.5	6
20	- 0.25" clay lense, more silt @ 18.5 ft BGS			SS11		1.2	5
	- mostly medium grained sand, compact @ 21.5 ft BGS			SS12		1.4	23
22							
	- compact, medium to coarse grained sand, homogeneous below 23 ft BGS			SS13		1.5	32
24							
				SS14		0.2	
26	- subangular to subrounded gravel lense @ 26.3 ft BGS						
	- loose below 26.5 ft BGS			SS15		0.8	6
28	- wood chunk @ 28 ft BGS	-16.13		SS16		1.5	17
	SM-SP-SILTY SAND, shell fragments, loose, mostly medium grained, homogeneous, dark brown						
30	- wood fragments present @ 30 ft BGS			SS17		0.8	6
				SS18		1.5	11
32	- silty clay lense with shell fragments @ 32 ft BGS	-21.13					
	SM-SILTY SAND, many shell fragments, loose, mostly fine grained sand present (brachiopods/bi-valves), dark brown, moist			SS19		1.5	11
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

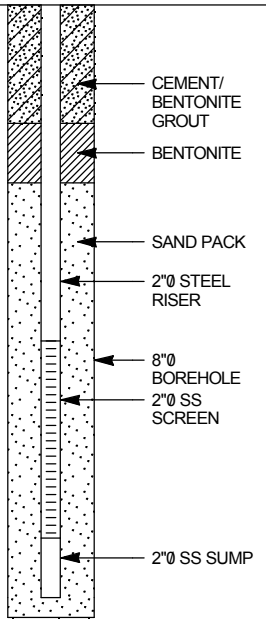
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 63-50
DATE COMPLETED: May 10, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	CL-SILTY CLAY, sandy lenses, soft, low plasticity, medium grey, moist	-23.13
	- grades to silty sand below 36 ft BGS	-24.63
38	SM-SILTY SAND, silt lenses, many shell fragments, loose, fine to medium grained, dark brown, moist	
	- fine grained, no silt lenses @ 39 ft BGS	
40		
42	- silt lense @ 42.5 ft BGS	
	ML-SILT and SAND, loose, very fine grained sand, homogeneous, medium grey, moist	-31.13
44	- grades to silty clay @ 45 ft BGS	
46		
	CL-SILTY CLAY, soft, low plasticity, homogeneous, grey, moist	-34.63
48	- increase in silt content @ 47.5 ft BGS	-36.13
	ML-SILTY SAND, shells present, loose, fine grained, dark grey, moist	
50	END OF BOREHOLE @ 50.0ft BGS	-38.13
52		
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-31.63 to -36.63ft NGVD
43.50 to 48.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
SS20		1.5	10
SS21		1.5	12
SS22		1.5	18
SS23		0.8	14
SS24		0.8	14
SS25		1.3	10
SS26		1.5	2
SS27		1.5	2
SS28		1.5	7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-25
DATE COMPLETED: May 19, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	10.91					
0	0-26.25' BGS - See Log from 64-100 for Stratigraphy		CONCRETE; 2"Ø STEEL RISER; CEMENT/ BENTONITE GROUT; 8"Ø BOREHOLE; BENTONITE; SAND PACK; 2"Ø SS SCREEN; 2"Ø SS SUMP				
26	END OF BOREHOLE @ 26.3ft BGS	-15.34					

WELL DETAILS
Screened interval:
-8.84 to -13.84ft NGVD
19.75 to 24.75ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-50
DATE COMPLETED: May 20, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	10.90					
	0-49.5' BGS - See Log from 64-100 for Stratigraphy		CONCRETE BENTONITE 2"Ø STEEL RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-50
DATE COMPLETED: May 20, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38			SAND PACK				
40							
42			2"Ø STEEL RISER				
44			8"Ø BOREHOLE				
46			2"Ø SS SCREEN				
48							
50	END OF BOREHOLE @ 49.5ft BGS	-38.60	2"Ø SS SUMP				
52							
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.10 to -37.10ft NGVD
43.00 to 48.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-100
DATE COMPLETED: May 21, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	10.77					
0	FILL, fine to medium sand with coarse subangular gravel, loose, dark brown, dry		CONCRETE	SS1			
2				SS2		0.8	8
4	SP-SAND, trace silt, loose, medium grained, dark brown, dry	6.77	BENTONITE	SS3		0.8	6
6				SS4		1.1	6
8			2"Ø STEEL RISER	SS5		1.1	7
10			CEMENT/ BENTONITE GROUT	SS6		1.2	7
12			8"Ø BOREHOLE	SS7		1.1	8
14	- wood fragments, more silt @ 14.5 ft BGS			SS8		1.5	5
	SM-SILTY SAND, loose, fine to medium grained, homogeneous, dark brown	-4.23		SS9		1.5	12
16	- 2" silt lense @ 16 ft BGS	-5.73		SS10		1.5	2
	SP-SAND, trace silt, loose, medium grained, dark brown, dry			SS11		1.5	12
18	- clayey silt lense @ 18.5 ft BGS	-7.73		SS12		1.5	3
	SM-CLAYEY SILT and SAND, loose, dark gray, moist	-9.23		SS13		1.5	5
20	SC-CLAYEY SAND, shells present, very soft, fine to medium grained, low plasticity, dark gray			SS14		0.8	6
22				SS15		1.5	3
	SM-SILTY SAND, loose, fine to medium grained sand, homogeneous, dark brown	-12.23		SS16		1.5	WH
24	- 1" thick clay lense (no silt lenses) @ 24 ft BGS			SS17		1.5	WH
26	ML-CLAYEY SILT, shell fragments, soft, low plasticity, medium dark gray, moist to wet	-14.73		SS18		1.5	WH
	No Recovery	-15.73		SS19		1.5	3
28	CL-SILTY CLAY, shell fragments, lenses of silt, very soft, medium gray, moist	-17.23		SS20		1.5	6
30				SS21		1.5	13
	SC-CLAYEY SAND, shells present, very soft, fine to medium grained, low plasticity, dark gray	-19.73					
32	SM-SILTY SAND, loose, fine to medium grained, homogeneous, dark brown, strong odor	-21.23					
34	- 1" silt lense @ 34 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-100
DATE COMPLETED: May 21, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	- 3" silt lense with wood fragments, strong odor @ 35.5 ft BGS - less fines below 36.5 ft BGS		2"Ø STEEL RISER	SS22		1.5	13
38				SS23		1.1	20
40	- finer grained sand @ 40 ft BGS			SS24		1.1	13
42	- 2" thick silt lense @ 41 ft BGS - silt lense @ 42.5 ft BGS		CEMENT/ BENTONITE GROUT	SS25		1.2	9
44	- grading to silt in some sections, mostly fine grained below 43 ft BGS		8"Ø BOREHOLE	SS26		1.2	7
46	- odor not as strong below 46.5 ft BGS			SS27		1.5	18
48	- mostly fine grained below 49 ft BGS			SS28		1.5	13
50	- silt lense @ 51 ft BGS			SS29		1.5	19
52				SS30		1.2	22
54				SS31		1.2	15
56	SM-SP-SAND with SILT, loose, mostly fine grained, with some sections having more silt, dark brown, moist, slight odor	-44.23		SS32		1.5	14
58							
60	SM-SILTY SAND, loose, fine to medium grained, dark brown, moist, no odor	-49.23		SS33		1.5	12
62							
64							
66	SM-SP-SAND with SILT, loose to slightly compact, mostly fine grained, with some sections having more silt, dark brown, moist, slight odor	-54.23		SS34		1.5	17
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-100
DATE COMPLETED: May 21, 2003
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72	SM-SILT and SAND, loose, fine to medium grained sand with grain size decreasing slightly with depth, dark brown, moist, no odor	-59.23	2"Ø STEEL RISER	SS35		1.5	15
74							
76	SM-SILTY SAND, loose, fine to medium grained, dark brown, moist, no odor	-64.23	CEMENT/ BENTONITE GROUT	SS36		1.5	21
78							
80	- medium grained @ 80 ft BGS grading to fine grained @ 81.5, shell fragments present		8"Ø BOREHOLE	SS37		1.5	17
82							
84							
86	- 4" silt lense @ 85.5 ft BGS			SS38		1.5	24
88							
90	SM-SILTY SAND, small intermittent silt lenses, wood fragments present, loose, dark brown, moist	-79.23	SAND PACK	SS39		1.5	15
92							
94							
96	No Recovery	-84.23	2"Ø SS SCREEN	SS40		0.0	14
98							
100	END OF BOREHOLE @ 100.0ft BGS	-89.23	2"Ø SS SUMP				
102							
104							

WELL DETAILS
Screened interval:
-82.73 to -87.73ft NGVD
93.50 to 98.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.03					
	0-100' BGS - See Log from 64-100 for Stratigraphy		CONCRETE BENTONITE 2"Ø STEEL RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36			2"Ø STEEL RISER				
38							
40			CEMENT/ BENTONITE GROUT				
42							
44			8"Ø BOREHOLE				
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72			2"Ø STEEL RISER				
74							
76			CEMENT/ BENTONITE GROUT				
78							
80			8"Ø BOREHOLE				
82							
84							
86							
88							
90							
92							
94							
96							
98							
100	SP-SAND, <5% silt, loose, fine to medium grained sand, homogeneous, dark brown, moist	-88.97		SS1			22
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
106	- small pockets of silt, more compact below 105 ft BGS			SS2			33
108			2"Ø STEEL RISER				
110	- mostly fine grained sand with predominant lenses of silt, dense, dark brown, slightly moist below 110 ft BGS			SS3			90
112			CEMENT/ BENTONITE GROUT				
114							
116	SM-SILTY SAND, loose to compact, fine grained sand, homogeneous, dark brown, moist	-103.97	8"Ø BOREHOLE	SS4			31
118							
120	- small pieces of laminated silt present, compact, slight odor below 120 ft BGS			SS5			50
122							
124							
126	ML-SILT, some sand, fine grained with small pebbles, homogeneous, dark brown, moist	-113.97		SS6			18
	SM-SILTY SAND, medium grained, dark brown, moist	-114.97					
128							
130	ML-SILT, many fine to medium grained sand lenses, homogeneous, dark brown, moist	-118.97		SS7			35
132	- increase in sand content, compact, fine grained sand, homogeneous @ 131 ft BGS						
134							
136	CL-SILTY CLAY, sand lenses, small pieces of wood, dark brown, moist, low plasticity, firm	-123.97		SS8			22
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
142	SM-SILTY SAND, mostly fine grained with silt lenses, dark brown, moist, compact, mostly homogeneous	-128.97		SS9			27
144			2"Ø STEEL RISER				
146	- two 2" silt lenses, denser, strong odor @ 145 ft BGS			SS10			130
148			CEMENT/ BENTONITE GROUT				
150	ML-SILT, dark brown, slightly moist, slight plasticity, compact, odor	-138.97		SS11			35
152			8"Ø BOREHOLE				
154							
156	- becomes sandier @ 156 ft BGS			SS12			35
158							
160				SS13			30
162							
164							
166	SM-SILTY SAND, fine to medium grained sand, dark brown, moist, compact, homogeneous, odor	-153.97	BENTONITE	SS14			95
168			SAND PACK				
170	- very dense, no odor below 170 ft BGS			SS15			100/ 6"
172			2"Ø SS SCREEN				
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
176	ML-SILT, some small pebbles, green, moist, low plasticity, oxidation present - becomes sandier @ 176 ft BGS	-163.97	2"Ø SS SUMP	SS16	X		90
178							
180	SM-SILTY SAND, fine to medium grained, dark brown, moist, compact - becomes medium brown with 1"Ø sub-angular cobbles @ 180.5 ft BGS	-168.97	CEMENT/ BENTONITE GROUT	SS17	X		75
182							
184							
186				SS18	X		140
188							
190	- less compact, no silt lenses below 190 ft BGS			SS19	X		60
192							
194							
196	ML-SILT, some fine sand lenses, medium brown, slightly moist	-183.97 -184.97		SS20	X		125
198	SM-SILTY SAND, fine to medium grained, dark brown, moist, compact						
200				SS21	X		100/ 6"
202							
204							
206	ML-SILT (TILL?), some clay, some clay coated coarse pebbles, lighter brown, slightly moist, no stratification	-194.97		SS22	X		80
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 64-170
DATE COMPLETED: May 22, 2003
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
212	ML-SILT, some coarse and fine subrounded mafic gravel, medium brown, slightly moist	-198.97		SS23			170
214	grades to homogeneous silt, compact, dense, no odor, crumbles when rolled						
	insufficient sample recovery	-203.97					
216	CL-ML-CLAYEY SILT, light red brown, low plasticity, compact, crumbles when rolled, finely laminated, homogeneous, no pebbles present	-204.97	WELL DETAILS Screened interval: -158.97 to -163.97ft NGVD 170.00 to 175.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel	SS24 SS25			100/ 3" 280
218							
220	END OF BOREHOLE @ 220.0ft BGS	-208.97					
222							
224							
226							
228							
230							
232							
234							
236							
238							
240							
242							
244							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-15
DATE COMPLETED: June 17, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.47 10.73					
0	0-16.5' BGS - See Log from 65-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT BENTONITE SAND PACK 8"Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16.5	END OF BOREHOLE @ 16.5ft BGS	-5.03					

WELL DETAILS
Screened interval:
1.47 to -3.53ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-25
DATE COMPLETED: June 13, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.45 11.13					
0	0-26.5' BGS - See Log from 65-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-15.05					

WELL DETAILS
Screened interval:
-8.55 to -13.55ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-50
DATE COMPLETED: June 21, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.46						
	TOP OF RISER	10.83						
	SM-fine to medium SAND, some silt, little gravel, medium brown, dry		AT-GRADE PROTECTIVE COVER	SS1		0.9	18	0
2	- becoming moist, shell fragments present below 2.0 ft BGS			SS2		1.0	23	0
4				SS3		1.0	4	0
6				SS4		1.1	4	0
	- becoming wet		▽					
8				SS5		1.0	5	0
10				SS6		1.1	5	0
	- ML-SILT, little fine sand, trace clay, dark brown, wet 10.7 to 11.1 ft BGS							
12				SS7		1.5	8	0
14			CEMENT/ BENTONITE GROUT	SS8		1.5	8	2.2
16				SS9		1.5	17	7.8
18	- occasional seams of SP - fine sand, brown, wet 18.3 to 20.0 ft BGS			SS10		2.0	19	4.3
20			2"Ø PVC RISER					
	SP-medium to coarse SAND, trace silt, dark brown, wet	-9.44		SS11		1.0	21	8.2
22				SS12		2.0	50	9
24	- ML-SILT, some clay, gray, purple shell fragments			SS13		1.7	28	10.5
26		-14.44	8" Ø BOREHOLE					
	CL-CLAY, some silt, trace sand and shell fragments, medium plasticity, gray	-14.54		SS14		2.0	14	12.5
28	ML-SILT, some clay, trace sand and shell fragments, low plasticity, gray - clay seam (CL), some silt, medium plasticity, gray 28.0 to 28.1 ft BGS			SS15		2.0	19	4.8
30	- sand seam (SM), some silt, gray, wet 30.0 to 30.2 ft BGS			SS16		2.0	1	7
	SM-SAND, some silt, dark brown, wet	-19.54						
32	ML-SILT, some shell fragments, gray, wet	-20.24 -20.54						
	SP-fine to medium SAND, some shell fragments, trace silt, dark brown, wet			SS17		1.5	28	5
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

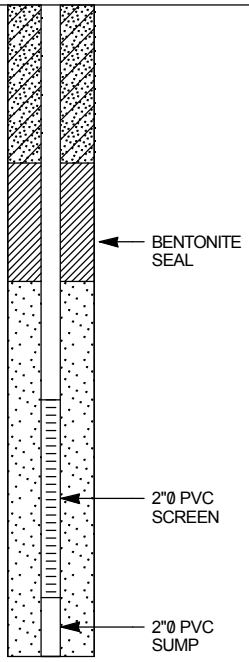
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-50
DATE COMPLETED: June 21, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	- silt seam (ML) 36.1 to 36.2 ft BGS	
38	SM-SAND, some silt, fine grained, dark brown, wet	-26.54
40	SP-fine to medium SAND, trace silt, dark brown, moist	-28.54
42	ML-SILT, little to some sand, trace clay, grey, moist	-30.54
44		
46		
48	SP-SAND, little silt, fine grained, dark brown, wet	-36.54
50	Not Sampled	-38.54
52	END OF BOREHOLE @ 51.5ft BGS	-40.04
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-33.54 to -38.54ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS18		1.5	25	3
SS19		1.7	36	3.4
SS20		2.0	27	7
SS21		2.0	25	7.3
SS22		2.0	28	12.1
SS23		2.0	20	12.2
SS24		2.0	29	18
SS25		2.0	27	14.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-100
DATE COMPLETED: July 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.56
0	ASPHALT	10.81
	FILL, silty sand and gravel, compact, fine grained, brown, moist	10.06
2	SP-SAND, fine grained, occasional coarse sand or fine gravel, very loose to loose, dark brown, moist	
4		
6	- saturated below 6 ft BGS	
8	- approx 3-inches black, rock-like material, no odor @ 8.75 ft BGS	
10	- approx 1-inch black, rock-like material @ 10.3 ft BGS	1.56
	SP-SAND, trace fine gravel, compact, fine to medium grained sand, green	0.06
12	ML-SILT, trace clay, firm, low plasticity, black, saturated, mud-like	-0.94
14	SP-SAND, compact, fine grained, dark brown	
	- black below 13 ft BGS	
	- trace silt, thin (less than 3/16-inch) silt seams from 14 to 16.3 ft BGS	
16	- gray-brown @ 16.5 ft BGS	
18	- 3/8-inch brown silt seam @ 19 ft BGS	
20	- trace coarse sand-sized stones, black @ 20 ft BGS	
22		
	ML-SILT, trace fine sand, trace clay, firm, low plasticity, gray	-11.34
24		
	SM-SILTY SAND, with shell fragments, loose, very fine grained, grey	-13.24
26		
	SP-SM-SAND, trace to with silt, trace shell fragments, loose to compact, very fine grained, black	-14.94
28		
30		-18.44
	SP-SAND, trace shell fragments, compact, fine grained, dark brown	
32		
34	- 1-inch silt @ 33.75 ft BGS	

MONITORING WELL: NATIVE BACKFILL; CONCRETE; BENTONITE PELLETS; 8.5" Ø BOREHOLE; CEMENT/ BENTONITE GROUT; 2"Ø STEEL RISER

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS1		1.3	13	0.0
SS2		0.8	4	0.0
SS3		1.2	3	1.3
SS4		2.0	0	1.8
SS5		0.0	2	--
SS6		0.5	8	4.0 16.5
SS7		0.5	19	0.0
SS8		2.0	6	2.6
SS9		2.0	12	0.0
SS10		1.2	21	0.0
SS11		1.0	9	0.0
SS12		1.5	16	0.0
SS13		1.5	25	0.0
SS14		1.5	21	0.0
SS15		2.0	6	0.0
SS16		1.5	5	0.0
SS17		1.5	6	0.0
SS18		1.0	22	0.0
SS19		1.2	14	0.0
SS20		0.7	16	0.0
SS21		0.8	24	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-100
DATE COMPLETED: July 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36			8.5" Ø BOREHOLE	SS22		1.3	28	0.0
38	- 1 to 3/32-inch thick woody layers from 36.5 to 37.3 ft BGS - becoming dense @ 38 ft BGS			SS23		0.8	23	0.0
40			CEMENT/ BENTONITE GROUT	SS24		1.5	42	0.0
42				SS25		1.5	43	0.0
	SM-SAND, with silt, compact, very fine grained, grey-brown	-30.69		SS26		1.0	27	0.0
44	- 1-inch silt seams @ 43.75 and 43.9 ft BGS		2"Ø STEEL RISER	SS27		1.5	26	0.0
46				SS28		1.5	18	0.0
	ML-SILT, with very fine sand, compact, grey-brown	-34.84 -35.19		SS29		1.0		0.0
48	SP-SAND, trace silt, compact, fine grained, grey-brown - very fine grained, with 1/8-inch wide silt seams from 48.6 to 49.1 ft BGS			SS30		1.1	28	0.0
50				SS31		1.2	19	0.0
	Not Sampled	-39.64						
52								
54								
	SP-SAND, trace silt, compact, fine grained, grey-brown	-43.44						
56	- 1-inch silt seam @ 56.1 ft BGS	-44.64		SS32		1.2	28	0.0
	Not Sampled							
58								
60	SP/ML- SAND AND SILT (LAYERED), clean sand and sandy silt, compact, fine grained, dark brown, septic-like odor	-48.44 -49.74		SS33		1.3	18	0.0
62	Not Sampled							
64								
	SM-SILTY SAND, compact, very fine grained, dark brown	-53.44 -54.44		SS34		1.0	20	0.0
66	Not Sampled							
68								

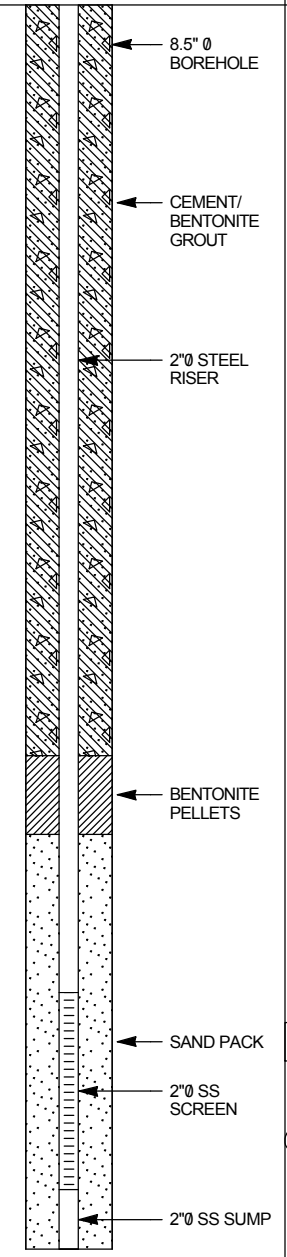
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-100
DATE COMPLETED: July 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	SM-SAND, with silt, compact, very fine grained, dark brown	-58.44
72	Not Sampled	-59.94
74		
	- 1-inch silt seams @ 75.1 and 76.1 ft BGS	-63.44
76	SM-SAND, with silt, compact, very fine grained, dark brown	-64.84
	Not Sampled	
78		
80	SM-SILTY SAND, very fine grained	-68.44
	ML-SANDY SILT, trace clay, soft, low plasticity, dilatant	-69.34
82	SM-SILTY SAND, very fine grained	-70.34 -70.44
	Not Sampled	
84		
	ML-SILT, with sand, trace clay, very stiff, grey, dilatant, grading to trace sand, grading to with clay	-73.44 -74.44
86	Not Sampled	
88		
90	SP-SAND, trace silt, compact, very fine to fine grained, dark brown	-78.44
	Not Sampled	-79.64
92		
94		
	SHELBY TUBE SAMPLE	-83.44
96		
	SHELBY TUBE SAMPLE	-85.94
98		
100	Not Sampled	-88.44
	END OF BOREHOLE @ 101.5ft BGS	-89.94
102		
104		



WELL DETAILS
Screened interval:
-83.44 to -88.44ft NGVD
95.00 to 100.00ft BGS
Length: 5ft

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS35		1.5	12	0.0
SS36		1.4	17	0.0
SS37		2.0	3	0.0
SS38		1.0	19	0.0
SS39		1.2	12	0.0
SH40		2.2	--	--
SH41		2.3	--	--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-100
DATE COMPLETED: July 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106			Diameter: 2in Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-130
DATE COMPLETED: March 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.77						
	0-100' BGS - See Log from 65-100 for Stratigraphy		CONCRETE 6" Ø BOREHOLE 2" Ø STEEL RISER BENTONITE/ CONCRETE GROUT					

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-130
DATE COMPLETED: March 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			8" Ø BOREHOLE					
38								
40								
42			2" ØSTEEL RISER					
44								
46			BENTONITE/ CONCRETE GROUT					
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-130
DATE COMPLETED: March 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72								
74								
76								
78								
80			8" Ø BOREHOLE					
82			2" Ø STEEL RISER					
84								
86			BENTONITE/ CONCRETE GROUT					
88								
90								
92								
94								
96								
98								
100	SM-SILTY SAND, compact, fine to medium grained, poorly graded, dark brown/gray, trace red grained sand, saturated, some vertical striations	-88.23		SS1		1.0	17	0.3
102								
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

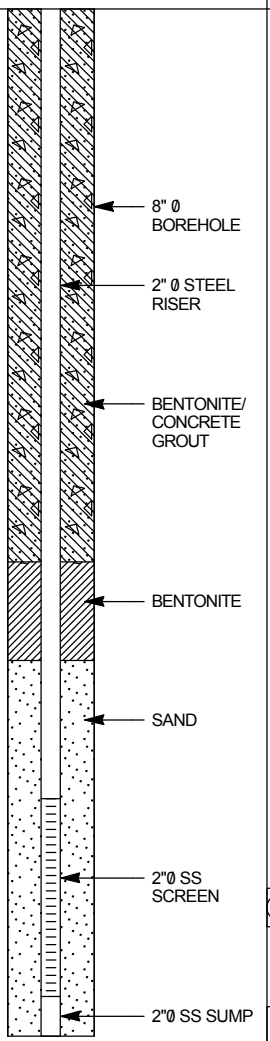
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 65-130
DATE COMPLETED: March 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
106	- trace wood organics, loose, blocky below 105 ft BGS	
		-94.73
	Not Sampled	
108		
110		-98.23
	ML-SILTY SAND with CLAY, trace organics (shell fragments), very soft, medium to low plasticity, homogenous, gray, wet	-99.23
		-99.73
112	CL-SILTY CLAY, trace fine sand, trace organics (shell fragments), very soft, medium plasticity, homogenous, gray, wet	
	Not Sampled	
114		
		-103.23
116	SM-SAND with SILT, trace organics (shell fragments), compact, poorly graded, medium to fine grained, dark brown, trace red and white grained sand, wet	-104.73
	- 4-inch silty sand seam @ 116 ft BGS	
118	Not Sampled	
120		-108.23
	SM-SAND with SILT, trace shell fragments, dense, medium to fine grained, poorly graded, dark brown, trace red and white grained sand, wet	-109.73
122	Not Sampled	
124		
		-113.23
126	SHELBY TUBE SAMPLE	
		-115.23
128	SM-SAND with SILT, compact, dense, poorly graded, medium to fine grained, dark brown, wet, trace red and white grained sand, trace shell fragments	-116.73
	SHELBY TUBE SAMPLE	
130		-118.23
	SM-SAND with SILT, compact, dense, poorly graded, medium to fine grained, dark brown, wet, trace red and white grained sand, trace shell fragments	-119.73
132	END OF BOREHOLE @ 131.5ft BGS	
134		
136		
138		



WELL DETAILS
Screened interval:
-113.23 to -118.23ft NGVD
125.00 to 130.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS2		1.4	8	2.6
SS3		1.5	0	1.8
SS4		1.5	26	14.7
SS5		0.9	47	0.3
SS6		0.9	33	1.7
SS7		1.5	31	7.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 66-15
DATE COMPLETED: June 23, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.75 11.44					
0	OVERBURDEN (not sampled) (see Overburden stratigraphy for well 66-50)		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT BENTONITE SAND PACK 8"Ø BOREHOLE 2"Ø PVC SCREEN 2"Ø PVC SUMP				
16.5	END OF BOREHOLE @ 16.5ft BGS	-4.75					

WELL DETAILS
Screened interval:
1.75 to -3.25ft NGVD
10.00 to 15.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 66-25
DATE COMPLETED: June 23, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.84 10.87					
0	OVERBURDEN (not sampled) (see Overburden stratigraphy for well 66-50)		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26.5	END OF BOREHOLE @ 26.5ft BGS	-14.66					

WELL DETAILS
Screened interval:
-8.16 to -13.16ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 66-50
DATE COMPLETED: June 22, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE 11.81 TOP OF RISER 11.14							
	FILL, sand, trace silt and gravel, orange brown, dry		AT-GRADE PROTECTIVE COVER	SS1		1.0	20	3.7
2				SS2		1.5	24	7
4				SS3		0.5	6	3.2
6	- black and white slag 6.8 to 6.9 ft BGS			SS4		0.8	3	6
8	- same with black and white slag 8.3 to 12.0 ft BGS			SS5		0.8	11	3
10	- becoming wet		▽	SS6		0.1	12	7.2
12	SM-SAND, some silt, trace gravel, fine grained, dark brown, moist	-0.19		SS7		1.1	1	5.3
14	ML-SILT, some fine to medium sand, trace gravel, dark brown, wet	-2.19	CEMENT/ BENTONITE GROUT	SS8		0.5	11	4.1
16		-4.29						
	ML-SILT, little sand, brown to dark gray, wet (NATIVE)	-4.59		SS9		1.7	4	5.1
18	SM-fine to medium SAND, some silt, moist			SS10		1.7	11	4.8
20	- silt seam (ML) 20.5 to 20.6 ft BGS		PVC RISER	SS11		2.0	23	4.5
22	- same with trace gravel 22.0 to 24.0 ft BGS			SS12		2.0	20	4.6
24	ML-SILT, some clay and shell fragments, trace sand, firm, gray	-12.69		SS13		2.0	7	4.7
26	CL-CLAY, some silt and shell fragments, firm, medium plasticity, gray, moist	-14.19 -15.19	8" Ø BOREHOLE	SS14		2.0	25	3.5
28	ML-SILT, some clay, trace sand and shell fragments, firm, gray, moist	-16.19		SS15		2.0	26	5.8
	CL-CLAY, some silt and shell fragments, firm, medium plasticity, gray, moist	-17.09						
30	ML-SILT, some sand and shell fragments, firm, gray, moist	-18.19		SS16		1.7	19	5.5
32	SP-fine to medium SAND, trace silt, dark brown, moist			SS17		2.0	29	5.5
34	ML-SILT, some clay, grey, firm, low plasticity,	-22.19 -22.39						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

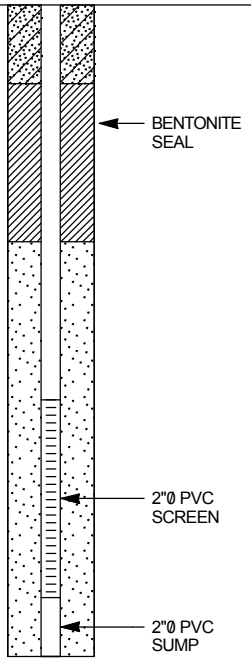
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 66-50
DATE COMPLETED: June 22, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	moist	
36	SM-SAND, some silt, dark brown, moist	
	- silt seam (ML) 35.0 to 35.1 ft BGS	
	- silt seam (ML), some clay, grey, wet 36.0 to 36.2 ft BGS	
38		-26.19
	SP-SAND, trace silt, dark brown, moist	
	- silt seam (ML), some sand and shell fragments, dark brown, moist 39.0 to 39.6 ft BGS	
40	- same with some silt to 40.0 ft BGS	
	- silt seam (ML), orange brown 41.5 to 41.55 ft BGS	
42	- silt seam (ML), some sand, dark grey to brown, moist 41.6 to 42.0 ft BGS	
	- silt seam (ML) @ 43.2 ft BGS	
44		-32.19
	SM-SAND, some silt and shell fragments, fine grained, dark brown to dark grey, moist	
	- clay seam (CL), some silt, soft, low plasticity, grey, wet 44.9 to 45.0 ft BGS	
46		-34.19
	SP-SAND, little silt, fine grained, dark brown, moist	
48	- clay seam (CL), some silt, firm, grey 47.0 to 47.1 ft BGS	-36.89
	- silt seam (ML) 48.6 to 48.7 ft BGS	
50	SM-SAND, some silt, fine grained, dark brown, moist	-38.19
	Not Sampled	-39.69
52	END OF BOREHOLE @ 51.5ft BGS	
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-33.19 to -38.19ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS18		17.0	21	5.6
SS19		1.0	23	7.5
SS20		2.0	13	8.4
SS21		1.5	16	10
SS22		2.0	15	10.1
SS23		1.0	20	6.3
SS24		2.0	15	7
SS25		1.7	21	6.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 67-25
DATE COMPLETED: June 4, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE 11.34 TOP OF RISER 11.12							
0	FILL, 10% gravel, fine to medium grained sand, medium brown, fairly well sorted, dry, no odor		CONCRETE	SS1			17	0
2			2"Ø PVC RISER	SS2			17	0
	- slightly moist below 3 ft BGS			SS3			18	0
4	- higher moisture content		BENTONITE	SS4			9	0
6	- wet below 6 ft BGS		▽	SS5			11	0
	- few large (2"Ø) pieces of gravel present, very wet below 7.5 ft BGS			SS6			11	0
8	- more medium to coarse grained sand between 9.0 and 10.5 ft BGS		CEMENT/ BENTONITE GROUT	SS7			15	0
10	- less silt between 10.5 and 12 ft BGS		8"Ø BOREHOLE	SS8			6	0
12	- small silt pods present between 12 and 13 ft BGS			SS9			14	0
	- finer grained (more silt), shells present between 13 and 13.5 ft BGS			SS10			5	0
14	- less silt below 13.5 ft BGS			SS11			8	0
16			BENTONITE	SS12			6	0
	ML-SANDY SILT with CLAY, trace gravel, dark brown, wet, loose, no odor	-5.16		SS13			8	0
18	- small clay layer between 18.0 and 18.2 ft BGS		SAND PACK	SS14			17	0
20	- greater sand content, shell fragments present between 19.5 and 20.5 ft BGS			S15			25	0
	SM-SILTY SAND, fine to medium grained, wet	-9.16		SS16			27	0
22	- silt pods interspersed throughout, odor below 20.5 ft BGS		2"Ø PVC SCREEN	SS17			17	0
24								
	ML-SILT, trace sand, grey/brown, fairly firm	-13.66						
26	ML-SAND and SILT, grey/brown, shell fragments, wet, loose	-14.16	2"Ø PVC SUMP					
	END OF BOREHOLE @ 26.3ft BGS	-14.99						
28								
30								
32								
34								

WELL DETAILS
Screened interval:
-8.49 to -13.49ft NGVD
19.83 to 24.83ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 67-50
DATE COMPLETED: June 15, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.44						
	TOP OF RISER	10.95						
	0-25' BGS - See Log from 67-25 for Stratigraphy		AT-GRADE PROTECTIVE COVER					
			CEMENT/ BENTONITE GROUT					
			2"Ø PVC RISER					
			8" Ø BOREHOLE					
26	ML-SAND and SILT, shell fragments, gray/brown, very wet, loose	-13.56						
	ML-SILT, 10% sand, gray, dense, homogeneous	-15.56		SS1			50/ 5"	0
28	CL-CLAY with SILT, trace sand, shells, low plasticity, dark gray/brown, very wet	-16.06		SS2			90	0
	ML-SILT, trace sand, shells, dark gray/brown, dense, homogeneous, moist	-17.56						
30	ML-SILT with CLAY, dark gray/brown, wet, compact	-18.56		SS3		1.2	85	0
	SM-SAND with SILT, fine grained sand, dark gray/brown, moist, homogeneous	-19.56						
32	ML-SILT with CLAY, dark gray/brown, wet, compact	-20.36		SS4			95	0
34	SM-SILTY SAND, fine grained sand, dark gray/brown, moist, homogeneous, firm, slight odor	-22.56 -22.76		SS5		0.8	50/ 5"	0

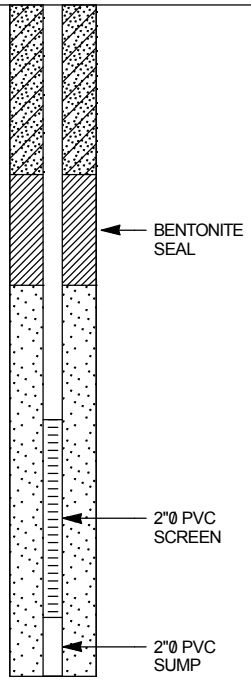
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 67-50
DATE COMPLETED: June 15, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	CL-CLAY with SILT, low plasticity, dark gray/brown, wet	-23.56
	SM-SILTY SAND, trace gravel, fine to medium grained sand, shells present, dark gray/brown, homogeneous	-24.06
38	SM-SANDY SILT with CLAY, wet	
	SM-SILTY SAND, shells present, dark brown, pods of silt, odor	
40	- less silt toward 37 ft BGS	
	ML-SILT, trace sand, dark gray/brown, dense	-29.56
42	- lenses of fine sand below 42 ft BGS	
	SM-SILTY SAND, fine grained sand, dark brown, moist, firm	-31.46
44	-lenses of dense silt below 43 ft BGS	
	- lenses of silt @ 44.7 ft BGS (1" thick) and 44.9 ft BGS (1/8" thick), silt is lighter colored than sand, wood fragments in sand	-33.86
46	ML-SILT	-33.96
	SM-SILTY SAND	-35.06
48	SM-SILTY SAND with pods of silt, fine to medium grained, well-sorted	-35.96
	ML-SILT, dense	-36.06
50	SM-SILTY SAND, ~10-15% silt, well sorted sand, less medium grained than above	-37.56
	SM-SILTY SAND, shell fragments, wet, odor	-38.56
52	ML-SANDY SILT	-38.66
	SM-SILTY SAND, ~10-15% silt, shell fragments, well sorted sand	-39.56
54	Not Sampled	-40.56
	END OF BOREHOLE @ 52.0ft BGS	
56		
58		
60		
62		
64		
66		
68		



WELL DETAILS
Screened interval:
-34.06 to -39.06ft NGVD
45.50 to 50.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS6			45	0
SS7		0.8	95/ 11"	0
SS8		0.8	50/ 5"	0
SS9		0.8	85/ 11"	0
SS10		1.1	100/ 11"	0
SS11			90	0
SS12			80	0
SS13			60	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 68-25
DATE COMPLETED: June 15, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	11.35 10.72					
0	0-26.5' BGS - See Log from 68-50 for Stratigraphy		CONCRETE				
2							
4			2"Ø PVC RISER				
6							
8			CEMENT/ BENTONITE GROUT				
10							
12			8"Ø BOREHOLE				
14							
16			BENTONITE SEAL				
18							
20			SAND PACK				
22							
24			2"Ø PVC SCREEN				
26							
	END OF BOREHOLE @ 26.5ft BGS	-15.15	2"Ø PVC SUMP				
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-8.65 to -13.65ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 68-50
DATE COMPLETED: June 3, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.33						
	TOP OF RISER	10.04						
0	SP-SAND, trace silt, trace gravel, dark brown, strong odor, fairly well sorted		CONCRETE					
2			BENTONITE					
4								
6			2"Ø PVC RISER					
8								0
10			CEMENT/ BENTONITE GROUT					
12			8" Ø BOREHOLE					
	- wet below 13 ft BGS		▽					
14								
	- fine to medium grained sand below 15 ft BGS							
16	- 0.125" clay lense @ 16.3 ft BGS			SS1			10	0
		-5.17						
	SM-SAND with SILT, fine to medium grained sand, dark brown, moist, odor			SS2			6	0
18	- 0.25" clay lense @ 17.6 ft BGS			SS3			19	0
20				SS4			63/ 10"	0
	- medium to coarse grained, trace gravel (1" wide gravel lense), slight odor between 21.0 and 22.5 ft BGS			SS5			94/ 11"	0
22								
		-11.67						
	SM-SILTY SAND, medium to coarse grained sand, dark brown, pods of silt throughout			SS6			49	0
24				SS7			20	0
		-13.67						
	CH-CLAY with SILT, high plasticity, shell fragments, light brown	-14.17						
26				SS8			29	0
	SM-SILTY SAND, medium to coarse grained sand, dark brown, pods of silt throughout	-15.17						
		-15.67						
	CL-CLAY with SILT, medium plasticity, light brown	-16.17		SS9			15	0
28		-16.67						
	SM-SILTY SAND, medium to coarse grained sand, dark brown, pods of silt throughout	-17.37		SS10			9	0
		-18.67						
30	ML-SILT with CLAY, shell fragments, light brown, fairly soft	-19.17		SS11			12	0
	CL-CLAY with SILT, shell fragments, medium plasticity, light brown, fairly firm	-20.17						
32		-20.67		SS12			17	0
	SM-SILT and SAND, shell fragments, fine to medium grained sand, light brown, moist, pockets of sandier material			SS13			38	0
34	CL-CLAY with SILT, shell fragments, medium	-23.17						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

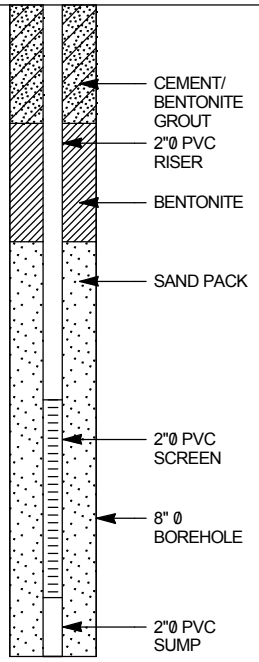
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 68-50
DATE COMPLETED: June 3, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	plasticity, light brown, fairly firm	
36	SM-SILT and SAND, fine sand lenses intermixed in a fine sandy silt, clay present, medium brown, moist	-24.67
	No Recovery	-26.17
38	SP-SAND with SILT, fine to medium grained, dark brown, moist, odor	-27.67
40	- mostly fine grained sand, small percentage of shell fragments, fairly dry, 0.5" pods of silt between 33 and 34.5	
	SP-SAND, fine to medium grained, trace gravel, dark brown, slightly moist, slight odor	
42	SP-GRAVELLY SAND, silt present, dark brown, moist	
	SP-SAND, trace silt, dark brown	-32.17
44	SM-SILTY SAND, fine to medium grained sand, dark brown, moist	-33.67
	- silt lense between 40.3 and 40.5 ft BGS	
46	SM-SAND, trace silt, fine to medium grained sand, dark brown, damp	
	- 0.25" lense of siltier sand @ 44 ft BGS	
48	SM-SAND with SILT, fine to medium grained, dark brown, moist, no odor	
	- slight odor between 46.5 and 48.0 ft BGS	
50	- slightly finer grained between 49.0 and 49.5 ft BGS	-38.67
		-38.92
	SM-SILT and SAND, fine grained sand, dark brown	-39.42
52		-39.67
	SM-SAND with SILT, fine to medium grained, dark brown, moist, no odor	-40.17
	ML-SILT	
54	Not Sampled.	
	END OF BOREHOLE @ 51.5ft BGS	
56		
58		
60		
62		
64		
66		
68		



WELL DETAILS
Screened interval:
-33.67 to -38.67ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS14			39	0
SS15			20	0
SS16			40	0
SS17			15	0
SS18			30	0
SS19			42	0
SS20			19	0
SS21			28	0
SS22			37	0
SS23			27	0
SS24			54	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

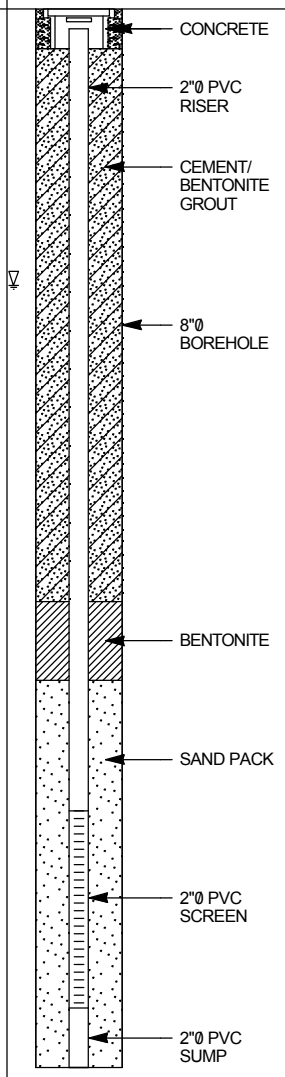
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 69-25
DATE COMPLETED: June 2, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	10.39
	TOP OF RISER	9.81
0	FILL, sand, medium grained, brown, dry, no odor	9.89
	FILL, gravel up to 0.5"Ø, dark brown, dry, no odor	8.89
2	FILL, gravelly sand, medium grained, brown, dry, no odor - slightly moist below 3 ft BGS	
4		
6		
8		1.89
	SP-SAND, medium to coarse grained, black with orange grains, moist, no odor	
10		
12		
14		-3.86
	CL-SILTY SANDY CLAY, organic matter present, gray/black, slightly moist, no odor,	-4.61
16	CL-SANDY CLAY, medium grained sand, wood fragments present, black, moist, no odor, large wood fragments in spoon tip (old beam?)	-6.53
18	CL-SILTY CLAY, gray/black, slightly moist, no odor, some very thin (<1mm) silt lenses present - some reddish-brown wood fragments between 19.25 and 19.75 ft BGS	-9.36
20	SM-SILTY SAND, medium grained, black, moist, no odor	
22	SP-SAND, medium grained, black, moist, no odor - medium to coarse grained below 22.5 ft BGS - medium to fine grained below 23.33 ft BGS	-11.36
24	- medium grained below 24 ft BGS	-14.28
	CL-SILTY CLAY, gray/black, slightly moist, no odor, some silt lenses present, decrease in silt content from above clay	-15.11 -15.44
26	SP-SAND, medium grained, black, moist, no odor	-16.61
28	SM-SILTY SAND, gray/black, slightly moist, no odor, hard	
	END OF BOREHOLE @ 27.0ft BGS	
30		
32		
34		

MONITORING WELL



WELL DETAILS
Screened interval:
-9.91 to -14.91ft NGVD
20.30 to 25.30ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS1		0.9	7	0
SS2		0.4	5	0
SS3		0.3	7	0
SS4		0.3	3	0
SS5		1.5	2	0
SS6		1.5	6	0
SS7		1.5	8	0
S8		1.1	9	0
SS9		0.9	6	0
SS10		1.1	10	0
SS11		0.3	33	0
SS12		4.0	23	0
SS13		4.0	33	0
SS14		1.3	15	0
SS15		1.0	12	0
SS16		1.1	12	0
SS17		1.5	22	0
SS18		1.5	30	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 69-50
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.40 9.72						
	0-25' BGS - See Log from 69-25 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8" Ø BOREHOLE					
24	SM-SILTY SAND, fine grained, dark brown	-14.60 -15.10						
26	ML-SILT, wood fragments, sand lenses, gray, slight odor	-16.60		SS1			50	0
28	SM-SILT with SAND, brown, wet to saturated - alternating silt and silty sand lenses throughout, fine grained sand, firm, odor between 28.0 and 29.0 ft BGS	-18.60		SS2			30	0
30	ML-SILT, wood fragments, sand lenses, gray, slight odor - silty fine sand lense, odor between 30.6 and 31.0 ft BGS			SS3			30	0
32	- with sand, wet, odor, alternating sand lenses (~0.25") below 31.0 ft BGS	-22.20		SS4			15	0
	SM-SILTY SAND	-23.00						
34	ML-CLAYEY SILT, shells, gray, firm, odor	-23.60		SS5			22	0
	SM-SILTY SAND, gray, wet to saturated, sand							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 69-50
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	lenses throughout-wet, loose - and silt, very strong odor below 35.0 ft BGS - silty sand, fine grained, well sorted below 35.5 ft BGS		2"Ø PVC RISER	SS6			10	0
38	- shells, homogeneous below 37.0 ft BGS			SS7			55	0
40	- sandy silt lense (0.125") @ 40.5 ft BGS		CEMENT/ BENTONITE GROUT BENTONITE	SS8		1.0	75	0
42	- silt lense (0.125") between 42.5 and 42.7 ft BGS		SAND PACK	SS9			60	0
44	- silt lense (0.125") between 43.0 and 45.0 ft BGS - intermittent sandy silt lenses, compact between 45.0 and 47.0 ft BGS		8"Ø BOREHOLE	SS10			65	0
46	- strong odor between 47.0 and 49.0 ft BGS			SS11			30	0
48	- silt lense (0.25") @ 48.0 ft BGS		2"Ø PVC SCREEN	SS12			83/ 11"	0
50	- alternating silty sand with silt lenses (0.125"), dense, odor between 50.0 and 51.0 ft BGS			SS13			80/ 11"	0
	Not Sampled	-40.60	2"Ø PVC SUMP					
52	END OF BOREHOLE @ 52.0ft BGS	-41.60						
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-35.10 to -40.10ft NGVD
45.50 to 50.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 70-25
DATE COMPLETED: June 10, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.51 9.81					
0	0-26.5' BGS - See Log from 70-50 for Stratigraphy		CONCRETE				
2							
4			2"Ø PVC RISER				
6							
8			CEMENT/ BENTONITE GROUT				
10							
12			8"Ø BOREHOLE				
14							
16							
18							
20			SAND PACK				
22							
24			2"Ø PVC SCREEN				
26							
	END OF BOREHOLE @ 26.5ft BGS	-15.99	2"Ø PVC SUMP				
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-9.49 to -14.49ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 70-50
DATE COMPLETED: June 7, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.50 9.71						
0	FILL, silty sand, trace gravel, fine to medium grained sand, dark brown, dry		CONCRETE	SS1				0
2				SS2				0
4			2"Ø PVC RISER	SS3			5	0
6	No Recovery	4.50		SS4		0.0		
8	FILL, silty sand, trace gravel, wood fragments, fine to medium grained sand, dark brown, dry	2.50	CEMENT/ BENTONITE GROUT	SS5		0.4	27	0
10				SS6		0.2	18	0
12	SM-SAND and SILT, fine grained, with wood fragments, wet to saturated	-1.50	8" Ø BOREHOLE	SS7			8	0
14	No Recovery	-3.50		SS8		0.0		
16	ML-SANDY SILT, fine grained sand, with wood fragments, wet to saturated	-5.50		SS9			4	0
18	- silt and sand, organics (shell fragments), fine to medium grained sand, odor below 18.0 ft BGS			SS10			7	0
20	SM-SILTY SAND, fine to medium grained, well sorted sand, dark brown, strong odor	-9.50		SS11			17	0
22	- silt lense (~0.25") @ 22.0 ft BGS			SS12			6	0
24	- silt lense, shell fragments, very strong odor between 23.7 and 24.0 ft BGS			SS13			4	0
26	CL-CLAY and SILT, shell fragments, gray	-14.50		SS14			5	0
28	SM-SILTY SAND, well sorted	-15.50		SS15		1.0	7	0
30	ML-SANDY SILT, shell fragments	-16.50		SS16			7	0
32	SM-SILTY SAND	-17.50		SS17			50	0
34	ML-SANDY SILT - brown below 30 ft BGS	-18.50		SS18			35	0
	SM-SILTY SAND, fine grained, well sorted	-20.10						
	- silt lense between 33.8and 34.0 ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

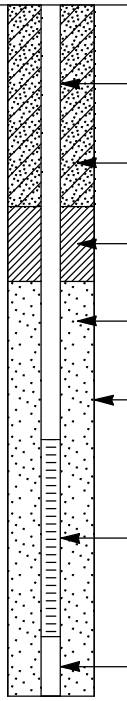
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 70-50
DATE COMPLETED: June 7, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	- sand and silt, wood fragments, silt lense (~0.125 in) @ 35 ft BGS	
38	- silt lense, medium to dark brown, firm between 37.5 and 38.0 ft BGS	
	ML-SANDY SILT	-28.50
40	SM-SILTY SAND, fine grained	-29.50
	ML-SANDY SILT	-30.50
42	SM-SILTY SAND, fine grained	-31.50
44	- silt lense, medium to dark brown, firm between 43.5 and 44.0 ft BGS	
	ML-SANDY SILT	-34.50
46	SM-SILTY SAND, fine grained, silt lenses-brown and firm	-35.50
48	- silt lenses-dark brown, well sorted below 48.0 ft BGS	
50	Not Sampled	-39.50
52	END OF BOREHOLE @ 52.5ft BGS	-42.00
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-35.50 to -40.50ft NGVD
46.00 to 51.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS19			47	0
SS20			60	0
SS21			36	0
SS22			34	0
SS23			53	0
SS24			46	0
SS25			44	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 71-25
DATE COMPLETED: June 7, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Murphy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.82 10.29					
0	0-26.5' BGS - See Log from 71-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SEAL SAND PACK 2"Ø PVC SCREEN 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-15.68					

WELL DETAILS
Screened interval:
-9.18 to -14.18ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 71-50
DATE COMPLETED: June 8, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.70 10.12						
0	FILL, silty sand, with gravel, fine grained, well sorted sand, brown, dry		CONCRETE	SS1				0
2	- trace gravel below 2.0 ft BGS			SS2				0
4			2"Ø PVC RISER	SS3			18	0
6	- orange/brown, wet below 6.5 ft BGS - wood between 7.0 and 7.5 ft BGS			SS4			14	0
8	SM-SILTY SAND, dark brown - wet below 8.0 ft BGS	3.20	CEMENT/ BENTONITE GROUT	SS5		0.1	13	0
10	- fine to medium grained below 10.0 ft BGS			SS6			16	0
12			8"Ø BOREHOLE	SS7			7	0
14	- contains small wood fragments below 14.0 ft BGS			SS8			5	0
16				SS9			6	0
18	- increase in silt @ 17.5 ft BGS			SS10			6	0
20	ML-SANDY SILT, shells, wet to saturated	-8.80						
	SM-SILTY SAND, fine to medium grained, dark brown, wet	-9.30		SS11			7	0
22				SS12			22	0
24				SS13			4	0
26				SS14			9	0
28	CL-SILTY CLAY, shells, gray	-16.80 -17.30						
	SM-SILTY SAND, fine to medium grained, dark brown, wet	-18.30		SS15			4	0
30	CL-CLAY and SILT, with sand, shells, gray	-19.30						
	SM-SILTY SAND, fine to medium grained, dark brown, wet, - wood fragments between 31.5 and 31.6 ft BGS			SS16			12	0
32				SS17			30	0
34				SS18			13	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 71-50
DATE COMPLETED: June 8, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- sand and silt, shells below 35.5 ft BGS, silt lenses between 35.5 and 36.0 ft BGS		2"Ø PVC RISER	SS19			27	0
38	- well sorted, homogenous below 38.0 ft BGS		CEMENT/ BENTONITE GROUT	SS20			13	0
40			BENTONITE	SS21			8	0
42				SS22			3	0
44			SAND PACK	SS23			7	0
46			8"Ø BOREHOLE	SS24			19	0
48			2"Ø PVC SCREEN	SS25			13	0
50	Not Sampled	-39.30						
52	END OF BOREHOLE @ 52.0ft BGS	-41.30	2"Ø PVC SUMP					
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-34.80 to -39.80ft NGVD
45.50 to 50.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 72-25
DATE COMPLETED: June 7, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Murphy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.28 9.78					
	0-26.5' BGS - See Log from 72-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SEAL 2"Ø PVC SCREEN SAND PACK 2"Ø PVC SUMP				
	END OF BOREHOLE @ 26.5ft BGS	-16.22					

WELL DETAILS
Screened interval:
-10.22 to -15.22ft NGVD
20.50 to 25.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 72-50
DATE COMPLETED: June 9, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE TOP OF RISER	10.17 9.66						
	FILL, silty sand, with gravel, fine grained, brown, dry, loose		CONCRETE	SS1				0
2	- shells below 2.0 ft BGS			SS2				0
4	- silt pods, occasional iron staining below 4.0 ft BGS		2"Ø PVC RISER	SS3			22	0
6	- medium to coarse grained sand below 6.0 ft BGS			SS4			12	0
8	- trace gravel, wet		CEMENT/ BENTONITE GROUT	SS5			18	0
	- fine grained below 9.5 ft BGS							
10	ML-SANDY SILT, fine grained sand	0.17 -0.33		SS6			12	0
	SM-SILTY SAND, medium to coarse grained, brown, wet		8" Ø BOREHOLE					
12				SS7			10	0
	ML-SILT	-2.83 -3.33						
14	SM-SILTY SAND, fine grained			SS8			8	0
16								
		-6.83		SS9			6	0
	ML-SANDY SILT, with clay, slight plasticity, dark brown, wet	-7.83						
18	SM-SILTY SAND, fine grained	-8.83		SS10			6	0
	ML-SILT and SAND, fine grained sand, trace clay, shells	-9.83						
20	SM-SILTY SAND, fine grained			SS11			10	0
22	- dark brown below 22.0 ft BGS			SS12			16	0
24				SS13			6	0
26	- silty clay, shells between 25.8 and 26.0 ft BGS							
		-16.83		SS14			15	0
	CL-SILTY CLAY, shells, medium plasticity, grey, firm	-17.83						
28	SM-SILTY SAND, fine grained	-18.83		SS15			38	0
	ML-CLAYEY SILT, shells, grey, stiff	-19.93						
30	SM-SILTY SAND, fine grained, silt lenses intermixed between 31.5 and 32.0 ft BGS			SS16			41	0
32	- shells, fine to medium grained, well sorted sand below 32.0 ft BGS			SS17			16	0
34	- wet to saturated below 34.0 ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 72-50
DATE COMPLETED: June 9, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36				SS18		25.0	6	0
38			2"Ø PVC RISER	SS19			16	0
40			CEMENT/ BENTONITE GROUT	SS20			6	0
42			BENTONITE	SS21			15	0
44			SAND PACK	SS22			6	0
46			8" Ø BOREHOLE	SS23			6	0
48			2"Ø PVC SCREEN	SS24			6	0
50	Not Sampled	-39.83		SS25			9	0
52	END OF BOREHOLE @ 52.0ft BGS	-41.83	2"Ø PVC SUMP					
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-34.83 to -39.83ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 73-25
DATE COMPLETED: June 7, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Murphy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF RISER	10.50 10.27					
0	0-26.5' BGS - See Log from 73-50 for Stratigraphy		CONCRETE 2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8"Ø BOREHOLE BENTONITE SEAL 2"Ø PVC SCREEN SAND PACK 2"Ø PVC SUMP				
26	END OF BOREHOLE @ 26.5ft BGS	-16.00					

WELL DETAILS
Screened interval:
-10.00 to -15.00ft NGVD
20.50 to 25.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 73-50
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Hand Auger
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.39 9.73						
0	FILL, silty sand, with gravel, fine grained, brown, dry, loose		2"Ø PVC RISER	SS1				0
2	- dry to moist below 2.0 ft BGS			SS2				0
4	- fine to medium grained, dry below 4.0 ft BGS			SS3			6	0
6				SS4			28	0
8	- gravel and wood between 7.8 and 8.0 ft BGS		CEMENT/ BENTONITE GROUT	SS5		0.2	59/ 10"	0
10	- wood between 9.7 and 10.0 ft BGS			SS6		0.0	50/ 5"	0
12	ML-SANDY SILT, brown, wet to saturated	-1.61	8" Ø BOREHOLE	SS7		0.4	4	0
14	No Recovery	-3.61		SS8		0.0	25	0
16	ML-SANDY SILT, dark brown, wet to saturated, very strong odor	-5.61		SS9		0.6	6	
18				SS10			9	
20	SM-SILTY SAND, shells, wood fragments, wet to saturated, strong odor - wood between 20.0 and 20.2 ft BGS - grades to fine to medium grained, dark brown, moist, odor below 20.2 ft BGS	-8.61		SS11			26	
22	- shells below 22.0 ft BGS			SS12			8	
24				SS13			6	
26	ML-CLAYEY SILT, sand, shells, fine grained sand, gray, soft	-14.91 -15.61		SS14			4	
28	SM-SILTY SAND, fine to medium grained, dark brown, moist, odor			SS15			25	
30	SM/ML-SAND and SILT	-18.61 -20.11		SS16			20	
32	SM-SILTY SAND, wood fragments, fine grained - shells, thin lenses of very fine grained sand below 32.0 ft BGS			SS17			55	
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 73-50
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Hand Auger
FIELD PERSONNEL: C. Cameron

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- sandy silt lense between 35.4 and 35.5 ft BGS		2"Ø PVC RISER	SS18			82/ 11"	
38			CEMENT/ BENTONITE GROUT	SS19			50/ 5"	
40	ML-SANDY SILT, gray, firm	-29.11		SS20			18	0
	SM-SILTY SAND, shells, fine to medium grained	-29.61	BENTONITE	SS21			14	0
42	- sandy silt lense (~0.25") @ 41.8 ft BGS			SS22			5	0
44			SAND PACK	SS23		1.0	20	0
46	- silt lense (~0.25") between 45.0 and 46.0 ft BGS		8"Ø BOREHOLE	SS24			13	0
48	- silt lenses (~0.25"), gray, soft between 47.5 and 48.0 ft BGS		2"Ø PVC SCREEN	SS25			27	0
50	- silt lense with clay between 49.3 and 49.4 ft BGS							
	Not Sampled	-39.61						
52	END OF BOREHOLE @ 52.0ft BGS	-41.61	2"Ø PVC SUMP					
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-35.11 to -40.11ft NGVD
45.50 to 50.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site

HOLE DESIGNATION: 74-50
DATE COMPLETED: July 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.74					
	0-51.5' BGS - See Log from 74-130 for Stratigraphy		CONCRETE CONCRETE 2"Ø STEEL RISER 8.5" Ø BOREHOLE CEMENT-BENTONITE GROUT				

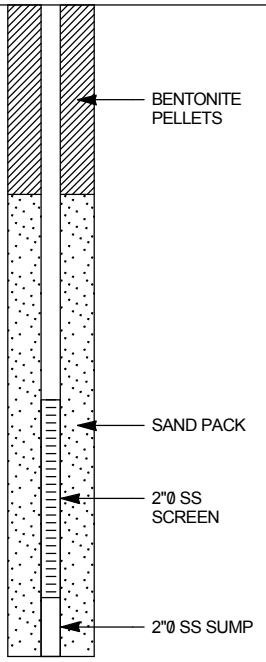
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site

HOLE DESIGNATION: 74-50
DATE COMPLETED: July 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42							
44							
46							
48							
50							
52	END OF BOREHOLE @ 51.5ft BGS	-39.76					
54							
56							
58							
60							
62							
64							
66							
68							



WELL DETAILS
Screened interval:
-33.26 to -38.26ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-75
DATE COMPLETED: July 22, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.74						
	0-76.5' BGS - See Log from 74-130 for Stratigraphy		2"Ø STEEL RISER; 8.5" Ø BOREHOLE; CEMENT-BENTONITE GROUT					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-75
DATE COMPLETED: July 22, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36								
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66			BENTONITE PELLETS					
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-75
DATE COMPLETED: July 22, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SHELBY TUBE SAMPLE	-60.76	SAND PACK 2"Ø SS SCREEN	SH1		0.0	--	--
74								
76	- Not Sampled	-64.76	2"Ø SS SUMP					
78	END OF BOREHOLE @ 76.5ft BGS		WELL DETAILS Screened interval: -58.26 to -63.26ft NGVD 70.00 to 75.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel					
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-100
DATE COMPLETED: July 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.74						
	0-97' BGS - See Log from 74-130 for Stratigraphy		2"Ø STEEL RISER; 8.5"Ø BOREHOLE					

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-100
DATE COMPLETED: July 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36								
38								
40								
42								
44			CEMENT-BENTONITE GROUT					
46								
48			8.5"Ø BOREHOLE					
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-100
DATE COMPLETED: July 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72								
74								
76								
78								
80								
82								
84								
86								
88								
90			BENTONITE PELLETS					
92								
94								
96			SAND PACK	SS1		0.0	13	--
98	SP-SAND, fine grained, no silt, dark gray with red grains	-85.26	2"Ø SS SCREEN	SH2		0.0	--	--
	SM-SAND, fine grained, silty	-87.01		SS3		2.0	54	--
100	Not sampled (Refer to lithology for 74-130)	-87.26	2"Ø SS SUMP					
102	END OF BOREHOLE @ 101.5ft BGS	-89.76						
104								

WELL DETAILS
Screened interval:
-83.26 to -88.26ft NGVD
95.00 to 100.00ft BGS
Length: 5ft

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS3)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-100
DATE COMPLETED: July 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			Diameter: 2in Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-130
DATE COMPLETED: July 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.78						
	ASPHALT	11.53	CONCRETE					
2	SW/GW-GRAVELLY SAND, trace silt, occasional cobbles, loose, medium to coarse grained sand, fine grained gravel, dark brown, slightly moist			SS1		0.2	4	9.1
			2"Ø STEEL RISER	SS2		0.8	6	0.7
4	SP-SAND, trace silt, loose, fine grained, dark brown, dry	8.28		SS3		0.8	8	11.5
6	- moist below 6.5 ft BGS		CEMENT/ BENTONITE GROUT	SS4		1.2	6	0.0
				SS5		1.5	7	0.9
8	- saturated below 9 ft BGS		8.5"Ø BOREHOLE	SS6		1.5	5	0.0
10	- with silt from 10 to 11 ft BGS			SS7		1.2	5	2.5
12	- with 1-inch silt seams @ 11.83, 12, 12.5, and 14.25 ft BGS			SS8		1.4	4	0.0
14	- dark gray with red grains below 15 ft BGS			SS9		1.5	4	0.0
16	- with silt from 16.5 to 18 ft BGS			SS10		1.5	0	0.0
18	- 4-inches silt and sand, wood chips @ 18.33			SS11		1.5	3	0.0
	SM-SAND, with silt, trace shell fragments, very loose to loose, fine grained, gray	-6.55		SS12		0.8	3	0.0
20				SS13		0.8	3	0.0
22				SS14		0.8	7	0.0
	SP-SAND, trace silt, fine grained, dark gray	-10.84						
24				SS15		0.8	18	0.0
26		-14.34		SS16		0.8	--	0.0
	ML-SILT, with clay, trace fine sand, very loose to loose, gray			SS17		0.7	0	0.0
28	- 1-inch fine sand seams @ 28.08, 28.25, 28.75 ft BGS			SS18		1.0	2	0.0
30	- with sand below 30 ft BGS			SS19		1.0	0	0.0
	- SANDY SILT, trace clay			SS20		1.5	8	0.0
32								
	SP-SAND, trace silt, occasional shell fragments, compact, fine grained, dark gray with red grains	-21.22						
34				SS21		1.0	10	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-130
DATE COMPLETED: July 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36				SS22		1.0	18	0.0
				SS23		1.0	24	0.0
38				SS24		1.1	30	0.0
40				SS25		1.3	26	0.0
		-29.59						
42	ML-SANDY SILT, gray			SS26		1.2	5	0.0
		-30.89						
	SM-SAND, with silt, compact, fine grained, gray, no shell fragments observed - 1-inch silt seam @ 43.75 ft BGS							
44				SS27		1.1	15	0.0
46				SS28		1.0	15	0.0
		-34.47						
	SP-SAND, fine grained - 4-inch silt seam @ 46.75 ft BGS			SS29		1.1	20	0.0
		-36.01						
48	SM-SAND, with silt, compact, fine grained, gray, no shell fragments observed			SS30		1.2	23	0.0
50								
52								
54				SS31		1.0	18	0.0
56								
58								
				SS32		1.0	13	0.0
60		-49.22						
62	SP/SM-SAND, trace/with silt, fine grained, gray with red grains							
64				SS33		1.1	22	0.0
66								
68				SS34		1.2	13	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-130
DATE COMPLETED: July 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72								
74				SS35		0.8	19	0.0
76	SM-SILTY SAND, compact, very fine grained	-64.14						
78				SS36		1.0	2	0.0
80								
82								
84	- 6-inch silt seams @ 83.75 and 84.25 ft BGS			SS37		1.3	21	0.0
86								
88								
90	- 1-inch silt seam @ 89 ft BGS			SS38		1.3	19	0.0
92	SP-SAND, fine grained	-79.35						
94				SS39		1.0	21	0.0
96	SM-SILTY SAND, compact, very fine grained, gray-black	-84.22						
98				SS40		1.0	36	5.0
100								
102								
104	- silt between 103.75 and 104 ft BGS			SS41		1.2	20	5.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

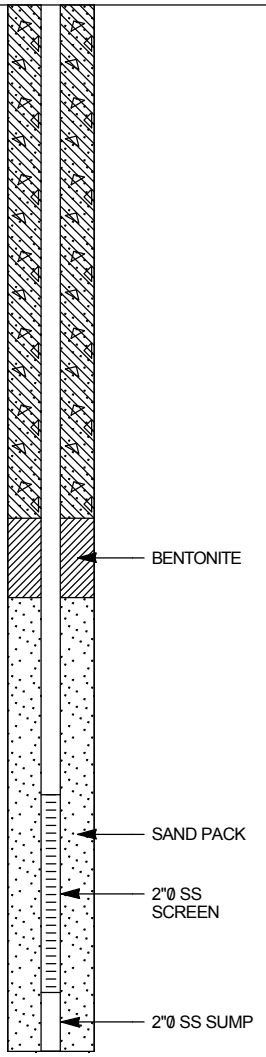
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 74-130
DATE COMPLETED: July 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
106		
	SP-SAND, dense, fine grained, dark gray with red grains	-94.30
108		
110		
112		
114		
116		
	SP/SM-SAND and SILT, very fine grained, gray	-104.59
118		
120		
122		
	SP-SAND, dense, dark gray with red grains	-110.22
124		
	ML-SANDY SILT, gray	-112.72
126		
128		
130		
	END OF BOREHOLE @ 131.5ft BGS	-119.72
132		
134		
136		
138		

MONITORING WELL



WELL DETAILS
Screened interval:
-113.22 to -118.22ft NGVD
125.00 to 130.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS42		1.1	37	8.0
SS43		1.0	37	5.5
SS44		1.0	38	90
SS45		2.0	40	70
SH46		2.3	–	–

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-50
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE TOP OF CASING	12.14 11.87					
	0-50' BGS - See Log from 75-130 for Stratigraphy		CONCRETE 8"Ø BOREHOLE 2"Ø STEEL RISER CEMENT-BENTONITE GROUT				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-50
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38			BENTONITE				
40							
42			SAND PACK				
44							
46			8" Ø BOREHOLE				
48							
50	END OF BOREHOLE @ 50.0ft BGS	-37.86	2"Ø SS SCREEN				
52							
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-32.86 to -37.86ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-75
DATE COMPLETED: August 4, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	12.23					
	OVERBURDEN (not sampled)		CONCRETE CONCRETE 2"Ø STEEL RISER 8.5"Ø BOREHOLE				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-75
DATE COMPLETED: August 4, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38			CEMENT-BENTONITE GROUT				
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64			BENTONITE PELLETS				
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-75
DATE COMPLETED: August 4, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72			SAND PACK; 2"Ø SS SCREEN; 2"Ø SS SUMP				
74							
76	END OF BOREHOLE @ 76.5ft BGS	-64.27					
78			WELL DETAILS Screened interval: -57.77 to -62.77ft NGVD 70.00 to 75.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: CS-SS				
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-100
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	12.21					
0	CONCRETE, 2-12-inch Concrete Slabs		CONCRETE				
2	FILL, wood debris	10.21	CEMENT				
4			2"Ø STEEL RISER				
6							
8							
10							
12			8.5"Ø BOREHOLE				
14							
16							
18							
20							
22	Not Sampled (Refer to 75-130 for stratigraphy)	-9.79					
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-100
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42							
44							
46			CEMENT-BENTONITE GROUT				
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-100
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72							
74							
76							
78							
80							
82							
84							
86							
88							
90			BENTONITE PELLETS				
92							
94							
96			SAND PACK	SH1			–
98	SP-SAND, fine grained, little silt, dark gray to black, moist	-84.79	2"Ø SS SCREEN	SS2			
100	Not Sampled (Refer to 75-130 for stratigraphy)	-86.79					
102	END OF BOREHOLE @ 101.5ft BGS	-89.29	2"Ø SSC SUMP				
104							

WELL DETAILS
Screened interval:
-82.79 to -87.79ft NGVD
95.00 to 100.00ft BGS
Length: 5ft

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-100
DATE COMPLETED: August 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	
106			Diameter: 2in Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-130
DATE COMPLETED: August 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	12.30						
0	ASPHALT	11.93	CONCRETE					
	FILL, SAND & GRAVEL, trace coarse gravel & cobbles, dense, brown, slightly moist			SS1		1.2	33	0.0
2				SS2		0.7	49	1.3
	FILL, SAND, trace coarse sand, dense, fine grained, brown, slightly moist	8.80	2"Ø STEEL RISER					
4				SS3		1.5	36	0.0
	CONCRETE	6.40		SS4		0.2	--	26
6	Refusal - likely on foundation (basement) of former building based on info from Pioneer personnel	4.80						
8	SW/GW-SAND, gravel, fine to coarse grained sand, fine grained gravel, brown			SS5		1.0	13	0.1
	SW-SAND, fine to coarse sand, clean, gray with red grains	2.80						
10	SP-SAND, with silt layers, trace silt, fine grained, gray with red grains	1.80		SS6		1.0	15	0.0
	ML-Silt layers @ about 11.6 to 11.8, 12.75 to 13, 14.5 15, 16 to 16.25, and 16.6 to 11.8		8.5"Ø BOREHOLE	SS7		1.3	6	0.0
12	SM-Silty sand from 16.25 to 16.6							
	Alternating SM and ML from 13.0 to 13.6, with small pieces of wood about 1mm thick			SS8		1.5	22	0.0
14								
				SS9		1.0	27	0.0
16				SS10		1.1	17	0.0
	SP/SM-VERY FINE SAND, trace with silt, dark gray, red grains difficult to see, fibrous woody material from 20 ft BGS	-5.70						
18				SS11		1.7	19	0.0
20				SS12		1.0	27	0.0
				SS13		0.8	18	0.0
22								
	ML-SILT, gray, with white and purple shell fragments, 'dry'	-10.95		SS14		0.9	21	0.0
24	- ML-SILT as above, with clay and trace fine sand, trace wood 'fibers', trace shells, more moist than previous							
	- ML-SILT as above, trace clay with fine sand, trace shells, trace wood fibers, dry appearance			SS15			16	0.0
26				SS16		1.3	19	0.0
	SP/SM-VERY FINE SAND, trace with silt, gray with trace red grains, white shells, woody/rope like from 28 to 28.5, 30 to 31 ft BGS	-15.70						
28				SS17		0.9	43	0.0
30				SS18		0.2	--	0.0
	SP/ML FINE SAND alternating with SILT	-18.70						
32	Fine sand - dark gray with red grains, silt: trace with fine sand, 1 to 2 inch layers			SS19		1.0	64	0.0
	SP-SAND-negligible / trace silt, fine grained, dark gray-black, red grains but difficult to see, septic odor	-20.70						
34				SS20		2.0	68	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-130
DATE COMPLETED: August 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36				SS21		1.5	21	0.0
				SS22		1.3	49	0.0
38				SS23		1.2	47	0.0
40	- trace white shell fragments between 40 and 41.5 ft BGS			SS24		1.0	56	0.0
	- occasional peat-like layers between 41.5 and 45 ft BGS			SS25		1.3	34	0.0
42								
44				SS26		1.0	20	0.0
		-33.20		SS27		1.0	31	0.0
46	SM-SAND, with silt, fine grained, gray, red grains, difficult to see or not visible(?)			SS28		1.7	15	0.0
	- ML-silt with sand, gray, stronger odor from 46.5							
48	- SP-SAND, fine grained, gray with red grains			SS29			9	3.0
50								
		-39.20						
52	ML-SILT-ranges from trace fine sand, 'dry' with clay, trace fine sand, gray							
54				SS30		2.0	1	1.5
		-42.20						
	SP-SAND, fine grained, clean, gray with red grains							
56		-44.20						
	SM-SAND-with silt, fine grained, dark gray -black, red grains: difficult to see							
58				SS31		1.5	10	1.3
60			CEMENT-BENTONITE GROUT					
		-49.20						
62	SP/SM-SAND-trace with silt, fine grained, dark gray, red grains: difficult to see							
	- ML-SILT with fine sand, moist			SS32		1.7	9	1.8
64								
66		-54.20						
	SM/ML-SILT and SAND, gray, red grains not visible, odor noted, oily colored water in drum							
68				SS33		1.5	5	1.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-130
DATE COMPLETED: August 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	CL-SILTY CLAY-dark gray, malleable (very soft)	-59.20						
74	ML-SILT with clay, trace fine sand, cohesive, soft	-61.70		SS34		1.8	13	2.3
	SM-SILTY SAND, dark gray	-62.37						
76								
78								
	SP/SM-SAND, trace with silt, fine grained, dark gray	-66.20		SS35		1.8	9	0.0
80	ML-SILT, with clay, with fine sand, dark gray, soft, occasional wood fragments 1/16 inch width by 3/4 to 4 inches ('splinters')	-67.30						
82								
84				SS36		2.0	3	0.6
86								
88								
	SM-SANDY SILT, dark gray	-76.95		SS37		2.0	0	0.5
90								
92	SP-SAND, fine grained, clean, dark gray with red grains	-79.20						
94	CL-CLAY, with silt, gray, malleable, soft, cohesive	-81.95 -82.45		SS38		2.0	6	0.2
96	SP-SAND, fine grained, gray with red grains, wood 'splinters' (1/16 inch by 2 inches)							
98				SS39		2.0	8	0.6
100	SM-SAND, silty, fine grained, gray, no red grains	-87.30						
102								
104	SM-SAND, some silt, fine grained, no red grains, moist	-90.70		SS40		2.0	22	--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

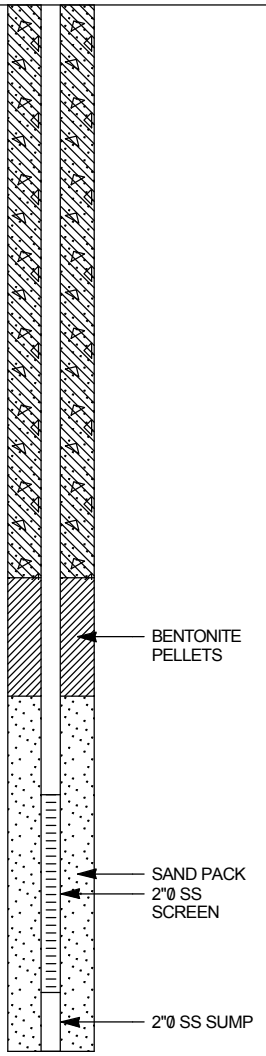
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 75-130
DATE COMPLETED: August 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
106	SM-SAND, some silt, trace shell fragments, dense, fine grained, moist	-92.70
108		
110		
112		
114	SP-SAND, little silt, fine grained, some red grains, moist	-101.20
116		
118	SM-SAND, some silt, dense, fine grained, moist	-105.70
120		
122		
124		
	ML-SILT, some clay, medium plasticity, dark gray, moist	-112.20
126	ML-SILT, little fine sand, dense, low plasticity, gray, moist	-112.70
128		
130		
132	END OF BOREHOLE @ 131.5ft BGS	-119.20
134		
136		
138		

MONITORING WELL



WELL DETAILS
Screened interval:
-112.70 to -117.70ft NGVD
125.00 to 130.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: CS-SS

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS41		2.0	17	--
SS42		2.0	10	--
SS43		2.0	25	--
SS44		2.0	6	--
SS45		1.7	3	--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 76-100
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.19						
	ASPHALT		BENTONITE CHIPS					
	FILL, sand, trace silt, compact, medium to fine grained, poorly graded, brown, some red and white grains, damp	10.19		SS1		1.0	13	6.5
2	- trace coarse grains below 3.0 ft BGS		BACKFILL					
4				SS2		1.0	13	0.0
	SP-SAND, trace silt, occasional gravel, loose, medium to fine grained, poorly graded, occasional coarse sand grains, horizontal stratification/layering, brown, damp	6.19						
6				SS3		1.5	6	0.0
8		3.19						
	SM-SILTY SAND, loose, medium to fine grained, poorly graded, dark brown, occasional red and white grains			SS4		1.5	4	0.0
10	- moist below 9.0 ft BGS - saturated below 10 ft BGS		2"Ø STEEL RISER					
				SS5		2.3	5	0.0
12	- 0.16' silt with sand seam @ 12.5 ft BGS		CEMENT/BENTONITE GROUT					
	SM-SILTY SAND, very loose, medium to fine grained, poorly graded, dark brown, trace red and white fine grains, saturated	-1.81		SS6		1.0	4	0.0
14			8"Ø BOREHOLE					
16				SS7		1.5	9	0.0
18	- 0.16' horizontal silt seam @ 17.5 ft BGS							
				SS8		0.2	2	0.0
20	SM/ML-SAND and SILT, very loose, medium to fine grained, low plasticity, poorly graded, dark brown/gray, saturated	-8.81						
				SS9		2.4	3	0.0
22								
24	- with silt, trace red and white grains below 24 ft BGS			SS10		1.0	4	0.0
	SM-SAND, with SILT, loose, medium to fine grained, poorly graded, occasional red and white fine grains, wet	-13.81						
26				SS11		0.3	5	0.0
28	- very loose below 28 ft BGS							
				SS12		0.4	2	0.0
30	- loose below 30 ft BGS							
32				SS13		0.6	8	0.0
34				SS14		0.5	11	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 76-100
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36								
	- 0.16' silt with sand seam, fine grained @ 37 ft BGS			SS15		0.3	6	0.0
38	- 0.02'-0.04' horizontal silt seam @ 38.2 ft BGS - 0.02'-0.04' horizontal silt seam @ 39 ft BGS			SS16		2.0	4	0.0
40	- 0.02'-0.04' horizontal silt seam @ 39.5 ft BGS - occasional shell fragments below 40.5 ft BGS		2"Ø STEEL RISER					
	CL-SILTY CLAY, with sand, occasional organics (wood fragments), firm, fine grained, low plasticity, homogeneous, gray, wet to saturated	-29.81 -30.31		SS17		3.0	7	0.0
42			CEMENT/BENTONITE GROUT					
	SM/ML-SILT and SAND, trace clay, loose, fine grained, occasional medium grained sand, poorly graded, dark brown, occasional red and white fine grained sand, saturated	-31.81		SS18		1.0	7	0.0
44								
	SM-SAND, with silt, loose, fine to medium grained, poorly graded, dark brown, occasional red and white grains, wet	-33.81	8"Ø BOREHOLE					
46	- 0.04' silt seam, horizontal @ 44.5 ft BGS	-35.81		SS19		2.3	7	0.0
	SM/ML-SILT and SAND, loose, fine grained, low plasticity, poorly graded, occasional red and white grains, dark brown, wet	-36.61 -36.81						
48				SS20		1.0	15	0.0
	CH-SILTY CLAY, occasional fine grained sand, high plasticity, wet to saturated	-38.81						
50	SM/ML-SILT and SAND, trace shell fragments, loose, fine grained, low plasticity, poorly graded, dark brown, occasional red and white grains, wet							
	SM-SAND, with silt, compact, medium to fine grained, poorly graded, dark brown, occasional red and white grains, wet	-41.81		SS21		1.0	11	0.0
52	Not Sampled							
	SM-SAND, with silt, trace shell fragments, compact, medium to fine grained, poorly graded, dark brown, occasional red and white grains, wet	-43.81						
54	- 0.04' silt seam with wood @ 54.5 ft BGS							
	Not Sampled							
56	SM-SAND, with silt, trace shell fragments, compact, medium to fine grained, poorly graded, dark brown, occasional red and white grains, wet	-46.81		SS22		1.0	19	0.0
	Not Sampled	-48.81						
58								
	SM-SAND, with silt, trace shell fragments, compact, medium to fine grained, poorly graded, dark brown, occasional red and white grains, wet	-51.81		SS23		0.5	14	0.0
60		-53.81						
	Not Sampled							
62								
	SM-SAND, with silt, trace shell fragments, compact, medium to fine grained, poorly graded, dark brown, occasional red and white grains, wet	-56.81		SS24		1.0	16	0.0
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 76-100
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	Not Sampled	-58.81						
74	CH-SILTY CLAY, with sand, fine grained sand, soft, gray, wet, layering of silty clay and silty fine sand	-61.81		SS25	X	1.5	4	0.0
76	Not Sampled	-63.81						
78	ML-CLAYEY SILT, with sand, fine grained sand, firm, gray, wet, occasional fine sand with silt seams	-66.81		SS26	X	1.0	8	0.0
80	Not Sampled	-68.81	2"Ø STEEL RISER					
82			CEMENT/BENTONITE GROUT					
84	SM-SILTY SAND, trace clay, compact, poorly graded, dark brown, slightly moist, occasional clayey silt seams	-71.81		SS27	X	1.0	16	0.0
86	Not Sampled	-73.81	8"Ø BOREHOLE					
88	SM-SAND, with silt, compact, poorly graded, brown, wet, occasional silt seams	-76.81		SS28	X	1.0	19	0.0
90	Not Sampled	-78.81						
92			BENTONITE CHIPS					
94	ML-CLAYEY SILT, with sand, very soft, fine grained, low plasticity, horizontal striations, gray, wet to saturated	-81.81		SS29	X	1.0	0	0.0
96	SHELBY TUBE SAMPLE	-83.81	SAND 10-20					
98	ML-CLAYEY SILT, with sand, firm, fine grained, low plasticity, gray, wet, occasional fine grained sand seams	-85.81	2"Ø SS SCREEN	SS30	X	1.5	6	0.0
100	SHELBY TUBE SAMPLE	-87.81	2"Ø SS SUMP					
102	ML-CLAYEY SILT, with sand, firm, fine grained, low plasticity, gray, wet, occasional fine grained sand seams	-89.81		SS31	X	1.5	7	0.0
104	END OF BOREHOLE @ 103.0ft BGS	-91.81	WELL DETAILS Screened interval: -83.81 to -88.81ft NGVD					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 76-100
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			95.00 to 100.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-100
DATE COMPLETED: March 22, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	8.51						
	0-95' BGS - See Log from 77-140 for Stratigraphy		CONCRETE; BENTONITE CHIPS; 9"Ø BOREHOLE; 2"Ø STEEL RISER; CEMENT/BENTONITE GROUT					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-100
DATE COMPLETED: March 22, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			9"Ø BOREHOLE					
38								
40								
42			2"Ø STEEL RISER					
44								
46			CEMENT/BENTONITE GROUT					
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-100
DATE COMPLETED: March 22, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72								
74								
76								
78								
80			9"Ø BOREHOLE					
82			2"Ø STEEL RISER					
84			CEMENT/BENTONITE GROUT					
86								
88								
90								
92			BENTONITE CHIPS					
94								
96	SHELBY TUBE SAMPLE	-86.49	SAND					
98	SM-SAND with silt, compact, fine grained, poorly graded, dark brown, trace red and white fine grained sand, moist - 0.04' sandy silt seam @ 98.2 ft BGS - loose below 99 ft BGS	-88.49	2"Ø SS SCREEN	SS1		1.4	12	29.9
100				SS2		0.5	9	8.7
102	END OF BOREHOLE @ 101.0ft BGS	-92.49	2"Ø SS SUMP					
104			WELL DETAILS Screened interval: -86.49 to -91.49ft NGVD 95.00 to 100.00ft BGS Length: 5ft Diameter: 2in					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-100
DATE COMPLETED: March 22, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106			Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-140
DATE COMPLETED: March 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	8.78						
2	FILL, sand, trace silt, trace fine gravel, trace wood debris, fine to coarse grained sand, compact, poorly graded, dark brown, trace red and white grains, damp		CONCRETE; BENTONITE CHIPS	SS1		3.0	13	0.6
4				SS2		1.0	15	0.2
6	SP-SAND, trace silt, fine to coarse grained, compact, poorly graded, dark brown, trace red and white grains, wet	3.78		SS3		2.1	17	0.1
8	- becoming saturated below 7.5 ft BGS SP-SAND, trace silt, trace coarse grained sand, compact, poorly graded, dark brown, trace red and white grained, wet	0.78	▽	SS4		1.5	14	7.6
10	SP-SAND, trace silt, compact, medium to fine grained, poorly graded, dark brown, wet, trace red and white fine grained sand	-1.22	8"Ø BOREHOLE	SS5		1.5	19	6.0
12	- 0.2' silty sand seam @ 12.6 ft BGS		CEMENT/BENTONITE GROUT					
14	- 0.3' silty sand seam, trace clay, trace wood, fine grained, low plasticity, gray, wet @ 14.5 ft BGS	-6.22	2"Ø STEEL RISER	SS6		1.0	12	0.0
16	SM-SILTY SAND, compact, fine grained, poorly graded, dark brown, trace red and white fine grained			SS7		1.5	16	8.0
18	- 0.2' sandy silt seam @ 17 ft BGS - 0.2' clayey silt seam, trace fine sand, low plasticity, gray, damp @ 17.8 ft BGS	-9.22		SS8		2.0	6	0.0
20	SM-SILTY SAND, trace gravel, loose, fine grained, occasional fine gravel and coarse grained sand, poorly graded, dark brown, trace red and white fine grained sand, wet	-11.22		SS9		1.5	10	0.2
22	- becoming saturated below 19.5 ft BGS SM-SILTY SAND, trace shell fragments	-13.22						
	SP-SAND, with silt, saturated	-14.22						
24	SM-SAND with silt, compact, medium to fine grained, occasional coarse grained sand, poorly graded, dark brown, trace red and white fine grained sand, wet			SS10		1.0	23	1.6
26	- 1.0' silt seam, trace silt, low plasticity @ 27 ft BGS			SS11		1.5	10	0.2
28	SM-SAND with silt, loose, medium to fine grained, trace coarse grained sand, poorly graded, dark brown, trace red and white fine grained sand, wet	-19.22		SS12		1.0	9	0.0
30	- becoming compact, occasional shell fragments below 30 ft BGS			SS13		1.5	18	0.1
32	- becoming silty sand below 33 ft BGS							
34				SS14		1.6	15	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-140
DATE COMPLETED: March 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SM-SILTY SAND, compact, fine to medium grained, poorly graded, dark brown, trace red and white fine grained sand, wet	-26.22		SS15		1.5	21	0.1
38	- 0.16' silt seam, some fine grained sand @ 37.5 ft BGS			SS16		0.5	8	0.1
40	CH/ML-CLAYEY SILT, trace sand, very soft, fine grained, high to medium plasticity, homogeneous, dark gray, wet	-31.22	8"Ø BOREHOLE	SS17		1.5	0	0.3
42			CEMENT/BENTONITE GROUT					
44	- 0.3' clayey silt seam with fine to medium grained sand @ 44.5 ft BGS			SS18		2.0	0	1.1
46	- trace wood and shell fragments below 45 ft BGS		2"Ø STEEL RISER	SS19		2.7	0	3.3
48	- 0.02' sandy silt seam @ 47 ft BGS							
50	- 0.02' clayey silt with sand seam, trace organics @ 49.8 ft BGS	-41.22		SS20		2.0	0	0.0
52	Not Sampled							
54	CH/ML-CLAYEY SILT, trace sand, very soft, fine grained, high to medium plasticity, homogeneous, dark gray, wet	-44.22		SS21		2.0	0	0.0
56	- 0.08' clayey silt with sand seam @ 54.1 ft BGS	-45.22						
58	ML/CH-SILTY CLAY, trace sand, fine grained, horizontal layering with interim sand silt seams (0.02' thick)	-46.22						
60	Not Sampled	-49.22		SS22		2.0	4	0.0
62	ML-SAND and silt, trace clay, very loose, fine grained, trace medium grained sand, homogeneous, gray/brown, wet	-51.22						
64	Not Sampled	-54.22		SS23		1.0	17	0.0
66	SM-SAND with silt, compact, fine grained, trace medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, wet	-56.22						
68	Not Sampled	-59.22		SS24		1.0	13	0.0
	SM-SAND with silt, compact, fine grained, trace medium grained sand, poorly graded, dark brown, trace red and white fine grained sand,							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-140
DATE COMPLETED: March 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	wet - 0.08' sandy silt seam @ 69 ft BGS Not Sampled	-61.22						
72								
	SM-SILTY SAND, trace clay, loose, fine grained sand, very low plasticity, homogeneous, dark gray, wet	-64.22		SS25	X	1.0	7	0.0
74		-66.22						
	Not Sampled							
76								
78	SM-SILTY SAND, trace clay, loose, fine grained sand, very low plasticity, homogeneous, dark gray, wet	-69.22		SS26	X	1.2	10	0.0
80	Not Sampled	-71.22	8"Ø BOREHOLE					
82			CEMENT/BENTONITE GROUT					
	SM-SILTY SAND, compact, fine grained, dark brown, wet - 0.16' sandy silt seam @ 84 ft BGS	-74.22		SS27	X	1.0	10	0.0
84	- fine to medium grained below 84.5 ft BGS	-76.22	2"ØSTEEL RISER					
	Not Sampled							
86								
88	SM-SILTY SAND, compact, fine grained, dark brown, wet - 0.48' sandy silt seam @ 89 ft BGS	-79.22		SS28	X	1.5	15	0.0
90	Not Sampled	-81.22						
92								
	SM-SILTY SAND, loose, fine grained, dark brown, wet	-84.22		SS29	X	1.8	5	0.0
94	- 0.32' sand silt seam @ 94.8 ft BGS	-86.22						
	Not Sampled							
96								
98	SM-SILTY SAND, compact, fine grained, dark brown, wet	-89.22		SS30	X	0.4	11	0.0
100	Not Sampled	-91.22						
102								
	ML-SANDY SILT, loose, fine grained, occasional medium grained sand, very low plasticity, dark gray, occasional shell fragments, moist, blocky	-94.22		SS31	X	1.8	2	0.0
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-140
DATE COMPLETED: March 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	Not Sampled	-96.22						
108	No Recovery - Damaged Sand Trap	-99.22		SS32		0.0	4	
110	Not Sampled	-101.22						
112	SM-SAND with silt, dense, fine grained, occasional medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, moist	-104.22		SS33		0.5	42	0.0
114	Not Sampled	-106.22						
116	SM-SAND with silt, dense, fine grained, occasional medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, moist	-109.22		SS34		1.8	32	0.0
118	Not Sampled	-111.22	8"Ø BOREHOLE					
120			CEMENT/BENTONITE GROUT					
122	SM-SAND with silt, compact, fine grained, occasional medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, wet to saturated	-114.22		SS35		1.8	20	0.0
124	Not Sampled	-116.22	2"ØSTEEL RISER					
126	SM-SAND with silt, compact, fine grained, occasional medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, moist - 0.32' sandy silt seam @ 129.5 ft BGS	-119.22		SS36		1.8	15	0.0
128	Not Sampled	-121.22	BENTONITE CHIPS					
130								
132	SM-SAND with silt, compact, fine grained, occasional medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, moist - 0.32' sandy silt seam @ 134.5 ft BGS	-124.22	SAND 10-20	SS37		1.5	27	0.0
134	SHELBY TUBE SAMPLE	-126.22		SS38		1.2		0.0
136	SM-SAND with silt, compact, fine grained, trace medium grained sand, poorly graded, dark brown, trace red and white fine grained sand, moist - 0.04' sandy silt seam @ 138.6 ft BGS	-128.22		SS39		1.8	27	35.4
138		-130.22	2"Ø SS SCREEN HEAVE-CAVE-IN					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 77-140
DATE COMPLETED: March 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	SM-SILTY SAND, very loose, fine grained, poorly graded, dark brown, trace red and white fine grained sand, moist to wet	-131.72	2"Ø SS SUMP	SS40	X	1.5	0	51.4
	ML-SANDY SILT	-132.22	WELL DETAILS Screened interval: -126.22 to -131.22ft NGVD 135.00 to 140.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel					
144	END OF BOREHOLE @ 141.0ft BGS							
146								
148								
150								
152								
154								
156								
158								
160								
162								
164								
166								
168								
170								
172								
174								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	12.93 9.78						
0	SP-SAND, trace silt, loose, fine to medium grained, brown, moist, red and white grains, scattered shell fragments throughout							0.0
2	- gray at 3.0ft BGS							
4			6" BOREHOLE					0.0
				1RS		10.0		
6								0.0
8			BENTONITE GRAVEL					0.0
10								0.0
12								
		-3.22	PORT 1 SCREEN 1					
	ML-SILT, trace fine grained sand, compact, low plasticity, gray, moist, rootlets and wood material throughout	-3.72						0.0
14	SP-SAND, trace silt, compact, fine grained, gray, with red and white grains, wet, sand size shell fragments throughout		PORT 1 SCREEN 2 SAND PACK					
	- 2" ML-SILT lens at 15.5ft BGS		PORT 1 SCREEN 3	2RS		10.0		
16	- 3" silt lens at 16.0ft BGS		TRANSDUCER #1 PORT 1 SCREEN 4					0.0
	CL-SILTY CLAY, dense, moderate plasticity, gray, wet, no dilatancy	-7.22	PORT 1 SCREEN 5					
18			PORT 1 SCREEN 6					
	SM-SILTY CLAYEY SAND, dense, fine grained, gray, with red grains and white grains, wet, shell fragments throughout	-8.72						0.0
	- larger shell fragments at 19.0ft BGS	-9.72						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet, larger shell fragments throughout	-10.72						
	- several wood pieces at 20.0ft BGS							0.0
22	SP-SAND, trace to with silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
24								0.0
26								0.0
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-17.22						
28	- rootlets and wood debris, larger shell fragments, increased silt content at 28.5ft BGS	-19.22						0.0
30	SM/ML-SAND AND SILT, loose, fine grained, gray, with red grains and white rains, wet, shell fragments and twigs/rootlets throughout			3RS		20.0		
	SM-SILTY SAND, loose, fine grained, gray, with red grains and white grains, wet, shell fragments and twigs/rootlets throughout	-21.22						0.0
32								
	OL-SILTY CLAY, soft, moderate plasticity, dark gray, wet, moderate dilatancy	-23.22						
34								0.0
36			← COATED BENTONITE PELLETS					0.0
38								0.0
	ML-SILT, compact, no plasticity, dark gray,	-29.72 -29.92						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 2/12/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	wet, wood debris throughout	-30.22						
	SM/ML-SAND AND SILT, compact, fine grained, gray, with red grains and white grains, wet							0.0
42	CL-SILTY CLAY, soft, moderate to high plasticity, dark gray, wet, low dilatancy							
44								0.0
	CL-SILTY CLAY, trace to with sand, soft, moderate plasticity, dark gray, wet, moderate dilatancy	-34.72						
46								0.0
48								
	- 3" silty sand lens at 49.0ft BGS		PORT 2 SCREEN 1					0.0
			SAND PACK					
50	ML-SANDY SILT, with clay, compact, fine grained sand, low plasticity, dark gray, wet, rapid dilatancy	-40.22	TRANSDUCER #2	4RS		20.0		
			PORT 2 SCREEN 2					
			PORT 2 SCREEN 3					0.0
52	- increase in clay content at 52.0ft BGS		PORT 2 SCREEN 4					
			PORT 2 SCREEN 5					
54	- 6" clayey silt layer at 54.0ft BGS		PORT 2 SCREEN 6					0.0
56	- increase in sand content at 56.0ft BGS							0.0
	SM-SILTY SAND, loose, very fine grained, gray, red grains and white grains, wet, twigs/rootlets throughout	-47.22						
58								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM/ML-SAND AND SILT, compact, fine grained sand, gray, with red grains and white grains, wet, rapid dilatancy	-50.22	COATED BENTONITE PELLETS					0.0
	CI-SILTY CLAY, stiff, moderate plasticity, gray, wet, moderate dilatancy	-51.72 / -51.92						
62	ML-SANDY CLAYEY SILT, compact, very fine grained sand, low plasticity, gray, wet, rapid dilatancy	-52.72						
	ML-SANDY SILT, compact, very fine grained sand, low plasticity, gray, wet, rapid dilatancy							0.0
64	ML-SANDY CLAYEY SILT, compact, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-54.72	SAND PACK					
66	ML-SILT, with clay, compact, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-56.22	PORT 3 SCREEN 1					0.0
			PORT 3 SCREEN 2					
68			PORT 3 SCREEN 3					
	ML-SANDY SILT, compact, low plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-58.72 / -59.22	TRANSDUCER #3 / PORT 3 SCREEN 4					0.0
70	ML-SILTY CLAY, compact, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-60.22	PORT 3 SCREEN 5	5RS		20.0		
	SM/ML-SAND AND SILT, trace clay, compact, low plasticity, gray, wet, rapid dilatancy, shell fragments throughout		PORT 3 SCREEN 6					0.0
72								
	ML-SANDY SILT, trace clay, compact, low plasticity, gray, wet, rapid dilatancy, minor shell fragments	-63.22						
74								0.0
76	CI-SILTY CLAY, soft, moderate plasticity, gray, wet, rapid dilatancy	-66.22						0.0
	SM/ML-SAND AND SILT, fine grained sand, gray, wet, rapid dilatancy	-67.22						
78	C-SILTY CLAY, soft, moderate plasticity, gray, wet, shell fragments throughout	-68.22						0.0
	SM-SANDY SILT, compact, fine grained, sand, gray, wet	-69.22						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM/ML-SAND AND SILT, trace clay, loose, fine grained sand, gray, wet, shell fragments and rootlets throughout	-70.22	COATED BENTONITE PELLETS					0.0
82	- 3" clayey silt lens at 81.0ft BGS							
	- increase in clay content at 83.0ft BGS							0.0
84								
86								0.0
88	- 2" silty sand lens at 88.5ft BGS							0.0
90	- increase in clay content at 90.0ft BGS		SAND PACK	6RS		20.0		
			PORT 4 SCREEN 1					0.0
92			PORT 4 SCREEN 2					
			PORT 4 SCREEN 3					
94			TRANSDUCER #4 PORT 4 SCREEN 4					0.0
	ML-CLAYEY SANDY SILT, compact, low plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-85.22	PORT 4 SCREEN 5					
96			PORT 4 SCREEN 6					0.0
98								
	SM/ML-SAND AND SILT, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-88.72						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, loose, fine grained, gray, wet, well sorted, shell fragments throughout	-90.22						0.0
102	- clayey sandy silt at 102.5ft BGS							0.0
104								0.0
106	- clayey sandy silt at 106.0ft BGS							
	SP-SAND, trace silt, loose, fine grained, well sorted, wet, shell fragments throughout	-97.72						0.0
108			COATED BENTONITE PELLETS					
110				7RS		20.0		0.0
112								1.1
	ML-SILT, compact, low plasticity, gray, wet, rapid dilatancy	-103.22						
	SM-SILTY SAND, fine grained, well sorted, wet, shell fragments throughout	-103.42						
114	ML-SANDY SILT, loose, fine grained sand, gray, wet, rapid dilatancy	-105.22						21.9
116	SM-SILTY SAND, loose, fine grained, well sorted, gray, wet, shell fragments throughout	-106.22						28.7
118	SP-SAND, trace silt, fine grained sand, gray, wet, shell fragments	-108.22						
	SM-SILTY SAND, loose, fine grained, well sorted, gray, wet, shell fragments throughout	-109.22						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SILT, trace clay, trace fine sand, dense, lwo plasticity, light gray, wet, rapid dilatancy, scattered sliver size wood pieces throughout - 1/4" numerous wood pieces peat size to sliver size at 120.6ft BGS	-110.52 -111.22	SAND PACK PORT 5 SCREEN 1					
122	SM-SILTY SAND, loose, fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout, wet	-112.62 -113.02	PORT 5 SCREEN 2 PORT 5 SCREEN 3					26.6
124	CL-SILTY CLAY, firm, low plasticity, light gray, very moist SM/ML-SAND AND SILT, trace clay, very loose, very fine grained sand, slight plasticity, dark gray, with red grains and white grains, wet, rapid dilatancy, shell fragments and sliver size to rootlet size wood pieces throughout	-115.32	TRANSDUCER #5 PORT 5 SCREEN 4 PORT 5 SCREEN 5	8RS		10.0		28.8
126	SM-SILTY SAND, loose, fine to very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, wood pieces scattered throughout, sliver size up to 3x3/8" - increasing silt content with depth at 127.2ft BGS	-118.02	PORT 5 SCREEN 6					48.2
128	ML-SANDY CLAYEY SILT, very loose, very fine grained sand, slight plasticity, dark gray, with red grains and white grains, wet, rapid dilatancy	-118.42	COATED BENTONITE PELLETS					31.1
130	SM/ML-SAND AND SILT, very loose, very fine grained sand, dark gray, with red grains and white grains, scattered sliver size wood pieces throughout, wet, rapid dilatancy	-120.02						91
132	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							130
134	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, gray, very moist, moderate dilatancy, small shell fragments throughout, scattered sliver size wood pieces throughout	-124.82						
136	ML-SANDY SILT, trace clay, loose, very fine grained sand, low plasticity, dark gray, with red grains and white grains, shell fragments and sliver size wood pieces throughout, wet	-126.12	HEAVED SAND					11.7
138	SM-SILTY SAND, compact, fine to very fine grained, well sorted, dark gray with red grains and white grains, shell fragments and sliver	-129.22						38.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	size wood pieces throughout, wet			9RS		20.0		
142								85
144	ML-SANDY CLAYEY SILT, firm, low plasticity, gray, moist, moderate dilatancy	-134.22						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-134.72						38
146								75
	CL-SANDY SILTY CLAY, firm, low to medium plasticity, light gray, very moist, moderate dilatancy, shell fragments and sliver size wood pieces throughout	-137.62						
148		-138.72						11.5
	ML-CLAYEY SILT, trace fine grained sand, compact, low plasticity, light gray, very moist, moderate dilatancy, small shell fragments throughout, occasional sand laminations (dark gray with red grains and white grains)							60
150	- increase in sand content at 149.5ft BGS	-140.22						
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, scattered sliver size wood pieces throughout, strong odor		← COATED BENTONITE PELLETS					455
152	- occasional silt laminations and silty sand laminations and lenses up to 1/4" thick at 152.5ft BGS							510
154				10RS		10.0		
156								67
158								260
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments throughout, strong odor	-148.52						
	ML-CLAYEY SILT, trace fine grained sand,	-149.92						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	compact, low plasticity, light gray, moist, several dark gray laminations with rotting vegetation and twig size wood pieces, strong odor	-150.22	SAND PACK					
	ML-SANDY CLAYEY SILT, compact, slight plasticity, gray, wet, rapid dilatancy, strong odor	-151.22	PORT 6 SCREEN 1					
162	ML-CLAYEY SILT, trace fine grained sand, compact, low plasticity, gray, with light gray laminations, moist, moderate dilatancy, shell fragments throughout, strong odor		PORT 6 SCREEN 2					101
	ML-SANDY SILT, trace clay, compact, very fine grained, slight plasticity, wet, rapid dilatancy, strong odor, shell fragments throughout	-153.72	PORT 6 SCREEN 3					
164	- 1" lens with numerous wood pieces, sliver size up to 1x2" at 164.9ft BGS	-155.22	TRANSDUCER #6 PORT 6 SCREEN 4					188
	ML-SANDY CLAYEY SILT, compact, low plasticity, gray, with red grains and white grains, wet, shell fragments throughout, occasional light gray laminations, low to moderate dilatancy	-155.92	PORT 6 SCREEN 5					
166	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, strong odor, shell fragments throughout	-157.72	PORT 6 SCREEN 6					250
	ML-SANDY SILT, loose, fine grained, slight plasticity, dark gray, wet, rapid dilatancy	-158.22						
168	ML/CL-CLAYEY SILT/SILTY CLAY, firm, low plasticity, dark gray, with light gray laminations throughout, very moist, moderate dilatancy, several fine grained sand laminations, shell fragments throughout, strong odor	-158.92						310
	SM/ML-SAND AND SILT, compact, very fine grained sand, well sorted, dark gray, with red grains and white grains, shell fragments throughout, scattered wood pieces sliver size up to 1x1", strong odor, wet	-160.22	6" BOREHOLE	11RS		20.0		
170	SM-SILTY SAND/SAND WITH SILT, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, approx 5% of grains are shell fragments, odor present	-162.22						39
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, with shell fragments throughout, faint odor, scattered sliver size wood pieces throughout	-165.02	CMT ANCHOR					
172	CL-SILTY CLAY, firm, low plasticity, gray, moist, moderate dilatancy, faint odor	-165.82						8.6
	- laminated sand at 175.2ft BGS							
174	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, at least 3% shell fragments in matrix, wet, faint odor							
	CL-SILTY CLAY, firm, low plasticity, gray,	-169.92						2.2
176								
								1.4
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	moist, slow dilatancy	-170.22						
	SM/ML-SILTY SAND/SANDY SILT, compact, very fine grained, gray, wet - trace fine grained subrounded gravel (one piece present 3/8") at 181.0ft BGS							0.0
182	CL-GRAVELLY SILTY CLAY, stiff, low plasticity, light gray, moist, scattered shell fragments throughout, gravel ranges pebble size to 1-1/4", subangular to subrounded	-172.22 -172.92 -173.32						
184	GP-CLAYEY GRAVEL, compact, fine to coarse grained (80% coarse grained) rounded to subrounded gravel, pebble size to 1", gray, moist to very moist, trace shell fragments							0.0
186	GC-SILTY SANDY CLAYEY GRAVEL, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, greenish gray, with yellow grains and dark gray grains and reddish brown grains, wet	-175.72						0.0
188	SM/GM-SILTY SANDY GRAVEL, trace clay, compact, fine to medium grained sand, fine and coarse grained subangular to subrounded gravel, light yellowish brown, with green grains and white grains and dark gray grains and yellow grains, wet	-177.12	COATED BENTONITE PELLETS					0.0
190	CL-SILTY SANDY CLAY, trace fine grained subangular gravel (pebbles), compact, low plasticity, greenish gray, with irregular yellowish brown sand laminations, moist to very moist	-179.42		12RS		20.0		
192	GC-SANDY CLAYEY GRAVEL, trace silt, compact, fine to medium grained sand, fine and coarse grained subangular to subrounded gravel (pebble size to 2"), gray, with red grains and yellow grains and white grains and brown grains, wet, irregular brown sand laminations							0.0
194	SM/GM-SAND AND GRAVEL, with silt, trace clay, compact, fine to coarse grained sand, fine and coarse grained subangular to subrounded gravel (pebble size to 1"), poorly sorted, yellowish brown, wet	-183.02						0.0
196	SM-SAND, with fine grained subangular to subrounded gravel, trace to with silt, fine to medium grained, poorly sorted, yellowish brown, with red grains and dark gray grains and white grains and brown grains, wet - silty sand with fine grained gravel, trace clay at 195.5ft BGS	-185.02						0.0
198	- silty sand, trace clay, finer sand grain size at 198.0ft BGS							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
202	SM-SILTY SAND, trace clay, trace fine grained subangular to subrounded gravel, silty clay with sand lenses/pockets, trace to with fine grained subangular to subrounded gravel, core submitted for analysis (200 to 205ft BGS)	-190.22		13RS		5.0		0.0
204								0.0
206	END OF BOREHOLE @ 205.0ft BGS NOTE: GLACIAL CONTACT ASSUMED AT 183.1FT BGS	-195.22						
208	PORT 1 SAND PACK 14 TO 22.5FT BGS (-4.22 TO -12.72FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 13.40, 14.40, 15.40, 16.40 17.40 AND 18.40FT BGS (-3.62, -4.62, -5.62, -6.62, -7.62 AND -8.62FT NGVD) TRANSDUCER (# 1142141) 15.90FT BGS (-6.12FT NGVD)							
210								
212	COATED BENTONITE PELLETS 22.5 TO 49.3FT BGS (-12.72 TO -39.52FT NGVD)							
214	PORT 2 SAND PACK 49.3 TO 56.0FT BGS (-39.52 TO -46.22FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 49.00, 50.00, 51.00, 52.00, 53.00 AND 54.00FT BGS (-39.22, -40.22, -41.22, -42.22, -43.22 AND -44.22FT NGVD)							
216	TRANSDUCER (# 1142323) 49.50FT BGS (-39.72FT NGVD)							
218	COATED BENTONITE PELLETS 56.0 TO 64.5FT BGS (-46.22 TO -54.72FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
222	PORT 3 SAND PACK 64.5 TO 72.5FT BGS (-54.72 TO -62.72FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 66.40, 67.40, 68.40, 69.40, 70.40 AND 71.40FT BGS (-56.62, -57.62, -58.62, -59.62, -60.62 AND -61.62FT NGVD) TRANSDUCER (# 1141745) 68.90FT BGS (-59.12FT NGVD)							
224	COATED BENTONITE PELLETS 72.5 TO 89.0FT BGS (-62.72 TO -79.22FT NGVD)							
226	PORT 4 SAND PACK 89.0 TO 97.5FT BGS (-79.22 TO -87.72FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 91.53, 92.53, 93.53, 94.53, 95.53 AND 96.53FT BGS (-81.75, -82.75, -83.75, -84.75, -85.75 AND -86.75FT NGVD) TRANSDUCER (# 1141683) 94.03FT BGS (-84.25FT NGVD)							
228								
230	COATED BENTONITE PELLETS 97.5 TO 120.0FT BGS (-87.72 TO -110.22FT NGVD)							
232	PORT 5 SAND PACK 120.0 TO 128.0FT BGS (-110.22 TO -118.22FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 121.55, 122.55, 123.55, 124.55, 125.55 AND 126.55FT BGS (-111.77, -112.77, -113.77, -114.77, -115.77 AND -116.77FT NGVD) TRANSDUCER (# 1140302) 124.05FT BGS (-114.27FT NGVD)							
234								
236	COATED BENTONITE PELLETS 128.0 TO 130.5FT BGS (-118.22 TO 120.72FT NGVD)							
238	HEAVED SAND 130.5 TO 142.0FT BGS (-120.72 TO -132.22FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 77C
DATE COMPLETED: May 8, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
242	COATED BENTONITE PELLETS 142.0 TO 160.5FT BGS (-132.22 TO -150.72FT NGVD)							
244	PORT 6 SAND PACK 160.5 TO 168.0FT BGS (-150.72 TO -158.22FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 161.30, 162.30, 163.30, 164.30, 165.30 AND 166.30FT BGS (-151.52, -152.52, -153.52, -154.52, -155.52 AND -156.52FT NGVD) TRANSDUCER (# 1140294) 163.80FT BGS (-154.02FT NGVD)							
246								
248	COATED BENTONITE PELLETS 168.0 TO 175.0FT BGS (-158.22 TO -165.22FT NGVD)							
250								
252								
254								
256								
258								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 78-25
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	10.29						
0	0-20' BGS - See Log from 78-50		CONCRETE					
2			BENTONITE CHIPS					
4								
6								
8								
10			2"Ø STEEL RISER					
12			CEMENT/BENTONITE GROUT					
14								
16			8"Ø BOREHOLE					
18								
20	SHELBY TUBE SAMPLE (Refer to 78-50 for stratigraphy)	-9.71	SAND	SS1		0.0		
22	SP-SAND, trace silt, compact, medium to fine grained, occasional coarse sand, poorly graded, dark brown, trace red and white fine grained sand, moist	-11.71	2"Ø SS SCREEN	SS2		1.0	18	0.2
24	SHELBY TUBE SAMPLE (Refer to 78-50 for stratigraphy)	-13.71		SS3		1.0		
26	END OF BOREHOLE @ 26.0ft BGS	-15.71	2"Ø SS SUMP					
28								
30								
32								
34								

WELL DETAILS
Screened interval:
-9.71 to -14.71ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 78-50
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	10.29						
0	ASPHALT	9.97	CONCRETE					
2	FILL, sand and gravel, trace silt, occasional stone, compact, medium to coarse grained, well graded, brown, damp			SS1		0.3	17	0.0
	- trace gravel, loose, fine to coarse grained below 3 ft BGS			SS2		1.5	8	0.0
6	ML-SANDY SILT, stiff, fine grained, very low plasticity, horizontal layering, brown/rusty (reddish and brown), damp	4.29 3.89		SS3		1.5	9	0.0
8	SP-SAND, with silt, loose, medium to fine grained, poorly graded, brown, occasional red and white fine grained sand, moist			SS4		1.0	10	0.6
10	- compact, saturated below 8 ft BGS - loose to compact, dark brown, wet to saturated below 10 ft BGS		8"Ø BOREHOLE					
12			CEMENT/BENTONITE GROUT	SS5		2.3	9	1.3
	- 0.16' silty sand layer @ 12.8 ft BGS	-2.71						
14	SM-SILTY SAND, loose, fine grained, occasional medium grained sand, poorly graded, dark brown, occasional red and white fine grained sand, moist to wet			SS6		1.0	8	0.3
16	- compact, saturated below 15 ft BGS		2"Ø STEEL RISER	SS7		2.3	9	0.1
	- 0.16' sandy silt seam @ 17.5 ft BGS							
18	- loose, wet below 18 ft BGS			SS8		0.5	5	0.1
20	SP-SAND, with silt, with shell fragments, loose, medium to fine grained, poorly graded, dark brown, red and white medium to fine grained sand, wet to saturated	-9.71						
22				SS9		1.5	7	0.3
	- trace silt, compact, occasional coarse grained sand below 23 ft BGS							
24				SS10		0.5	12	0.3
	ML-SANDY SILT	-14.71 -15.21						
26	SP-SAND, with shell fragments, trace silt, compact, medium to fine grained, occasional coarse grained sand, poorly graded, dark brown, red and white medium to fine grained sand, wet to saturated			SS11		1.1	21	0.4
28								
				SS12		1.0	25	0.4
30								
32				SS13		0.8	20	1.0
	SM/SP-SAND with SILT, with shell fragments, compact, fine to medium grained, trace coarse grained sand, poorly graded, dark brown, trace	-22.71						
34				SS14		1.0	15	0.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

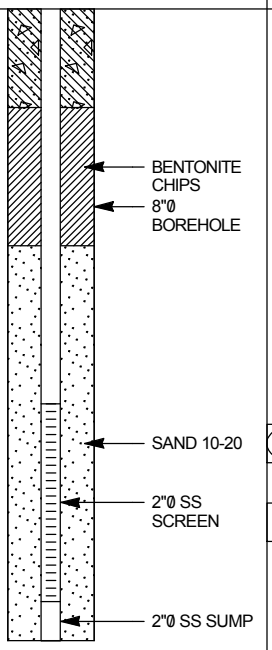
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 78-50
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36	red and white fine grained sand, wet	
38		
40		-29.71
42	SM/ML-SAND and SILT, compact/stiff, poorly graded, very low plasticity, very fine grained, sand and silt layering throughout, brown/gray, moist, occasional woody layers intermixed	
44		
46		-34.71
48	SHELBY TUBE SAMPLE	-36.71
50	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, occasional red and white fine sand grains, wet	
52	- 0.02' wood and shell fragment layer @ 50.8 ft BGS	-40.71
54	END OF BOREHOLE @ 51.0ft BGS	
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-34.71 to -39.71ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS15		0.8	23	0.8
SS16		1.0	13	0.2
SS17		1.5	13	0.1
SS18		0.5	9	0.2
SS19		1.8		
SS20		0.5	23	0.1
SS21		0.8	21	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.48 10.92						
	ASPHALT	10.88						
	SP-SAND (FILL), with fine and coarse grained subangular to subrounded gravel, trace silt, loose, fine to medium grained, well sorted, brown, with yellow grains and red grains, damp	9.68						0.0
2	SM-SILTY SAND (FILL), loose, fine grained, well sorted, brown and gray, moist - 2" sandy silt at 2.1ft BGS	8.98						
4	SM-SILTY SAND (FILL), loose, fine grained, well sorted, brown and gray, wet, wood debris up to 1-1/2x2" throughout - 1-1/2" sandy silt at 3.0ft BGS - wet wood debris at 3.3ft BGS - gray, very moist to wet, rotting/decaying type odor at 4.0ft BGS - 3/4" sandy silt at 4.4ft BGS - piece of wood debris 2-1/2"x2.1' long (tree bark) at 5.0ft BGS			1RS		10.0		0.0
6								0.0
8	- wet at 7.5ft BGS		BENTONITE GRAVEL					0.0
10								0.0
12	- 3" sandy clayey silt at 11.8ft BGS - 1'x1" wood debris (tree bark) at 12.2ft BGS - 2-1/2" sandy silt at 12.5ft BGS - 1-1/2" silty clay at 13.3ft BGS							
14				2RS		10.0		0.0
16	- 1" silty clay at 16.2ft BGS - 1" silty clay at 16.6ft BGS		6" BOREHOLE					0.0
18			SAND PACK					
	ML-SANDY SILT (FILL), trace clay, compact, slight plasticity, gray, moist, wood debris up to 1-1/2x1-1/2"	-6.92						
	- 0.3" silty clay at 18.6ft BGS	-7.32	PORT 1 SCREEN 1 PORT 1					0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND (FILL), loose, fine grained, well sorted, gray, wet, wood pieces up to 1/2x1/2" throughout, rotting/decaying type odor - 3/4" sandy silt at 19.6ft BGS	-9.02	SCREEN 2 PORT 1 SCREEN 3					0.0
22	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - very loose at 23.5ft BGS		TRANSDUCER 1 PORT 1 SCREEN 4 PORT 1 SCREEN 5					0.0
24	SM-SAND, with silt, very loose, fine to medium grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout - 2-1/2" sandy clayey silt at 24.9ft BGS	-12.52	PORT 1 SCREEN 6					
26	SM/ML-SAND AND SILT, very loose, fine grained sand, no plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-14.32 -15.12						0.0
28	ML-SANDY SILT, few clay, loose, slight plasticity, gray to greenish gray, wet, rapid dilatancy, peat/sliver size wood fibers throughout	-16.52						
	SM-SILTY SAND, loose, fine to medium grained sand, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 2" sand, trace silt at 29.9ft BGS							0.0
30	ML-SANDY SILT, trace clay, loose, very fine grained sand, slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout	-18.62		3RS		20.0		
	CL-SILTY CLAY, very soft, low plasticity, gray, wet	-20.02 -20.72						1.0
32	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-21.12 -21.42						
34	ML-SANDY CLAYEY SILT, loose, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout		COATED BENTONITE PELLETS					1.6
	SM-SILTY SAND, trace clay, very loose, very fine grained sand, slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments and wood pieces sliver size to 1/2x1/4" throughout - 1x1" piece of wood at 34.0ft BGS - 2-1/2" very soft silty clay, mottled gray and olive gray, with sliver size wood pieces at 34.2ft BGS	-23.52 -24.02 -24.52						
36								2.0
38	CL-SILTY CLAY, trace sand, soft, low plasticity, gray, wet, moderate dilatancy							
	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-27.42						7.0
	SP-SAND, trace silt, loose, fine to medium							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - loose, fine grained at 37.5ft BGS - 1" sandy silt at 38.8ft BGS							2.0
42	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, scattered wood pieces up to 1x1/2" - silty sand, trace clay, no wood present at 40.0ft BGS - silty sand, no wood present at 40.5ft BGS	-30.92	SAND PACK PORT 2 SCREEN 1					0.0
44	ML-SANDY SILT, loose, very fine grained, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout, scattered sliver size wood pieces - several silty clay laminations at 43.0ft BGS	-32.82 -33.62	PORT 2 SCREEN 2					
46	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		PORT 2 SCREEN 3 TRANSDUCER 2 PORT 2 SCREEN 4					0.0
48	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 1/2" sandy silt at 47.2ft BGS - sand, with silt, very fine grained at 47.6ft BGS		PORT 2 SCREEN 5 PORT 2 SCREEN 6					0.0
50	SC-CLAYEY SILTY SAND, loose, fine grained sand, slight plasticity, gray, with red grains and white grains, wet, shell fragments throughout - 1" silty clay at 49.8ft BGS - 1/2" silty clay at 50.0ft BGS	-38.02 -38.72		4RS		20.0		0.0
52	SM-SILTY SAND/SAND WITH SILT, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - few sandy silt laminations/lenses up to 1/2" throughout at 51.0ft BGS	-40.72						
54	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - laminated silt at 53.5ft BGS - laminated silt at 55.0ft BGS	-43.62						0.0
56	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, scattered sliver size wood pieces - few silt laminations throughout at 56.0ft BGS							0.0
58			COATED BENTONITE PELLETS					0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY SILT, few clay, loose, very fine grained sand, slight plasticity, gray, with red grains and white grains, wet, rapid to moderate dilatancy, shell fragments throughout, several silty clay laminations/lenses up to 0.3" thick	-48.52						0.0
62								
64	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - few silt laminations throughout at 64.5ft BGS	-52.52						0.0
	ML-SANDY SILT, trace clay, loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-54.02						
66								0.0
68			SAND PACK					
			PORT 3 SCREEN 1					0.0
70			PORT 3 SCREEN 2	5RS		20.0		
			PORT 3 SCREEN 3					0.0
72			TRANSDUCER 4 PORT 3 SCREEN 4					
			PORT 3 SCREEN 5					
74	- 1" sandy silty clay, several twig size wood pieces at 74.3ft BGS		PORT 3 SCREEN 6					0.0
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, silt laminations, shell fragments throughout	-63.52						
76								0.0
78	- sand, with silt, very fine grained at 78.5ft BGS							0.0
	SP-SAND, trace silt, compact, very fine	-68.02						

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-68.82						
	ML-SANDY SILT, few clay, compact, very fine grained sand, slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout	-70.32						8.9
82	- 2-1/2" silty sand at 81.6ft BGS							
	CL-SILTY CLAY, few sand, firm, low plasticity, gray, wet, slow to moderate dilatancy	-71.52						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-71.92						2.0
84			COATED BENTONITE PELLETS					
	ML/CL-CLAYEY SANDY SILT/SILTY SANDY CLAY, firm, low plasticity, gray, wet, moderate dilatancy	-74.02						
86	- 1" silty clay at 85.0ft BGS							2.8
	SC-SILTY CLAYEY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, several silty clay laminations and lenses up to 0.3" thick	-75.52						
	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-76.02						
88	ML-SILT, few sand, few clay, compact, slight plasticity, gray, very moist, moderate dilatancy							1.5
90	ML-SANDY SILT, compact, very fine grained sand, no plasticity, gray, wet, rapid dilatancy	-78.32		6RS		20.0		
	ML-SILT, few clay, few sand, compact, slight plasticity, gray, wet, moderate to rapid dilatancy, several sand laminations and silty clay laminations	-79.22						2.3
92								
	ML/CL-SILTY CLAY/CLAYEY SILT, trace sand, firm, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-81.22						
94			SAND PACK					1.7
			PORT 4 SCREEN 1					
	ML-SANDY SILT, few clay, several silty clay laminations, compact, slight plasticity, gray, wet, rapid dilatancy	-83.82	PORT 4 SCREEN 2					
96		-84.72						10.5
	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		PORT 4 SCREEN 3					
		-86.02	PORT 4 SCREEN 4					
98	ML-SILT, few sand, few clay, compact, slight to low plasticity, gray, wet, moderate dilatancy, silty clay laminations, shell fragments throughout		PORT 4 SCREEN 5					0.4
			PORT 4					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY SILT, compact, very fine grained sand, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout	-88.52	SCREEN 6					0.0
102	- trace clay, reduced sand content at 102.0ft BGS - silt, few sand, few clay at 102.5ft BGS							0.0
104	- sandy silt, trace clay at 105.0ft BGS							0.0
106	ML/CL-CLAYEY SILT/SILTY CLAY, trace sand, firm, low plasticity, gray, wet, moderate dilatancy, clay laminations and lenses up to 0.3", shell fragments throughout	-95.02						0.0
108	- 3" silty clay at 106.8ft BGS							0.0
110	CL-SILTY CLAY, with clayey silt layers, few sand, laminated sand lenses, firm, low plasticity, gray, with light gray laminations/layers, wet, moderate dilatancy, shell fragments throughout	-98.52		7RS		20.0		0.0
112								0.0
114								0.0
116								0.0
118								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
120	CL-SILTY CLAY, firm, low plasticity, light gray with gray laminations (varved), very moist, slow dilatancy, homogeneous, shell fragments throughout	-108.52	COATED BENTONITE PELLETS					0.0
122								0.0
124								0.0
126								0.0
128								0.0
130				8RS		20.0		0.0
132								0.0
134								0.0
136								0.0
138								0.0

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SAND, with silt, very loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-128.52	SAND PACK PORT 5 SCREEN 1					
	SP-SAND, trace silt, very loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-129.52	TRANSDUCER 3 TRANSDUCER 5 PORT 5 SCREEN 2 PORT 5 SCREEN 3					0.0
142	- loose, very fine grained, occasional silt laminations and clay laminations at 142.0ft BGS		PORT 5 SCREEN 4					0.0
144			PORT 5 SCREEN 5					
146			PORT 5 SCREEN 6					0.0
	CL-SILTY CLAY, stiff, low plasticity, gray, moist, shell fragments throughout	-135.52						
148								0.0
	- trace fine grained subrounded gravel (pebble size) at 149.5ft BGS - piece of angular gravel 2x1-1/2"x1/2" at 149.7ft BGS			9RS		20.0		
150	- increase in pebble content and shell fragment content at 149.8ft BGS - fine grained, gravel up to 1/2", several dark gray laminations at 149.9ft BGS	-139.22						0.0
152	- 1x2" piece of gravel, several green pebbles at 150.2ft BGS - 1/4" layer of shell fragments in greenish matrix (at least 80% shell fragment content) at 150.6ft BGS	-140.82						
154	GC-SILTY CLAYEY GRAVEL, trace sand, loose, fine to coarse grained subangular to subrounded gravel, pebble size up to 1-1/2x2.8", minimum 2% visible shell fragments throughout, greenish gray, wet							0.0
	GC-SILTY CLAYEY GRAVEL, trace sand, loose, fine to coarse subangular to subrounded pebble size to 1x2" gravel, gray, wet, no shell fragments		COATED BENTONITE PELLETS					
156	- increase in gravel content at 155.0ft BGS - dark brown at 155.5ft BGS	-146.02						0.0
158	- gray at 156.0ft BGS							
	GM-SANDY SILTY GRAVEL, trace clay, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel pebble size up to 2x1-1/2", poorly sorted, gray, wet							0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
162	GW-SANDY GRAVEL, trace silt, compact, fine to coarse grained sand, fine to coarse grained subangular to subrounded gravel, pebble size to 1-1/2x2", poorly sorted, grayish brown, wet	-149.52	SAND PACK PORT 6 SCREEN 1					0.0
164			PORT 6 SCREEN 2					0.0
			PORT 6 SCREEN 3					
166			TRANSDUCER 6 PORT 6 SCREEN 4					0.0
		-155.52	PORT 6 SCREEN 5					
168	GM-SANDY GRAVEL, with silt, compact, fine to coarse grained sand, fine and coarse grained subangular to subrounded gravel, pebble size to 1x2", poorly sorted, grayish brown, wet	-156.02	PORT 6 SCREEN 6					0.0
170	GW-SANDY GRAVEL, trace silt, compact, fine to coarse grained sand, fine and coarse grained subangular to subrounded gravel, poorly sorted, pebble size up to 1-1/2x2", grayish brown, wet			10RS		20.0		
		-159.52						0.0
172	GM/GC-GRAVEL, with silt and clay, trace sand, compact, fine to coarse grained subrounded to subangular gravel, pebble size up to 1-1/2", poorly sorted, light gray, wet	-160.72	COATED BENTONITE PELLETS					
	GM-SILTY SANDY GRAVEL, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, pebble size up to 1x1/2", poorly sorted, yellowish brown, wet	-161.32						
174	SM-SILTY SAND, trace clay, trace fine to coarse grained subangular gravel up to 1/2x1", compact, fine to medium grained angular sand, poorly sorted, yellowish brown, wet							0.0
176			CMT ANCHOR					0.0
178		-168.32						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GM-GRAVEL, with silt, trace sand, compact, fine to coarse grained subangular to subrounded gravel, pebble size up to 1/2x1", poorly sorted, gray, wet	-168.52						
	END OF BOREHOLE @ 180.0ft BGS							
182	NOTE:							
	GLACIAL CONTACT ASSUMED AT 152.3FT BGS							
184	PORT 1 SAND PACK 17.5 TO 25.1FT BGS (-6.02 TO -13.62 NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.05, 20.05, 21.05, 22.05, 23.05 AND 24.05FT BGS (-7.57, -8.57, -9.57, -10.57, -11.57 AND -12.57FT NGVD) TRANSDUCER (# 1200805) 21.55FT BGS (-10.07FT NGVD)							
186								
188	COATED BENTONITE PELLETS 25.1 TO 42.7FT BGS (-13.62 TO -31.22FT NGVD)							
190	PORT 2 SAND PACK 42.7 TO 50.0FT BGS (-31.22 TO -38.52FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.02, 45.02, 46.02, 47.02, 48.02 AND 49.02FT BGS (-42.54, -43.54, -44.54, -45.54, -46.54 AND -47.54FT NGVD)							
192	TRANSDUCER (# 1203026) 46.52FT BGS (-45.04FT NGVD)							
194	COATED BENTONITE PELLETS 50.0 TO 67.8FT BGS (-38.52 TO -56.32FT NGVD)							
196	PORT 3 SAND PACK 67.8 TO 75.0FT BGS (-56.32 TO -63.52FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.01, 70.01, 71.01, 72.01, 73.01 AND 74.01FT BGS (-57.53, -58.53, -59.53, -60.53, -61.53 AND -62.53FT NGVD)							
198								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TRANSDUCER (# 1141749) 71.51FT BGS (-60.03FT NGVD)							
	COATED BENTONITE PELLETS 75.0 TO 92.9FT BGS (-63.52 TO -81.42FT NGVD)							
202								
	PORT 4 SAND PACK 92.9 TO 100.5FT BGS (-81.42 TO -89.02FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.91, 95.91, 96.91, 97.91, 98.91 AND 99.91FT BGS (-83.43, -84.43, -85.43, -86.43, -87.43 AND -88.43FT NGVD)							
204								
	TRANSDUCER (# 1203041) 97.41FT BGS (-85.93FT NGVD)							
206								
	COATED BENTONITE PELLETS 100.5 TO 139.8FT BGS (-89.02 TO -128.32FT NGVD)							
208								
	PORT 5 SAND PACK 139.8 TO 147.1FT BGS (-128.32 TO -135.62FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 140.84, 141.84, 142.84, 143.84, 144.84 AND 145.84FT BGS (-129.36, -130.36, -131.36, -132.36, -133.36 AND -134.36FT NGVD)							
210								
	TRANSDUCER (# 1204319) 141.34FT BGS (-129.86FT NGVD)							
212								
	COATED BENTONITE PELLETS 147.1 TO 162.8FT BGS (-136.52 TO -158.72FT NGVD)							
214								
	PORT 6 SAND PACK 162.8 TO 170.2FT BGS (-151.32 TO -158.72FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 163.28, 164.28, 165.28, 166.28, 167.28 AND 168.28FT BGS (-151.8, -152.8, -153.8, -154.8, -155.8 AND -156.8FT NGVD)							
216								
	TRANSDUCER (# 1204311) 165.78FT BGS (-154.3FT NGVD)							
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 78C
DATE COMPLETED: May 29, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	COATED BENTONITE PELLETS 170.2 TO 180FT BGS (-158.72 TO -168.52FT NGVD)							
222	CMT ANCHOR 175FT BGS (-163.52NGVD)							
224								
226								
228								
230								
232								
234								
236								
238								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 79-50
DATE COMPLETED: February 5, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60						
0	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown, damp		CEMENT					
2								
4				1RS				
6	- woody debris layer between 6.5 and 6.8 ft BGS							
8								
10			CEMENT/ BENTONITE GROUT					
12								
14	SM-SAND, with silt, compact, fine to medium grained, poorly graded, dark brown, moist	-1.90	2"Ø SS RISER	2RS				
16								
18								
20								
22								
24	- very dense, cemented below 24.5 ft BGS			3RS				
26	- silty sand, compact, grey, saturated below 26 ft BGS							
28								
30	- with silt, dark brown, moist below 30.5 ft BGS							
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 79-50
DATE COMPLETED: February 5, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36				4RS				
38	- very dense, cemented below 38 ft BGS		BENTONITE					0
40								
42								
44				5RS				
46			2"Ø SS SCREEN					0
48								
50			SAND PACK					
52			8"Ø BOREHOLE	6RS				0
54	END OF BOREHOLE @ 54.0ft BGS	-42.40						
56	Ground surface elevation is estimated.							
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-33.40 to -38.40ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

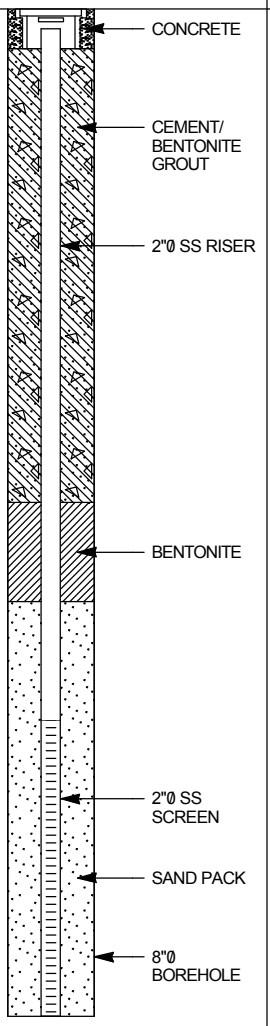
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 80-25
DATE COMPLETED: February 5, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.60
0	NOT SAMPLED - no recovery	
4	SP-SAND, trace silt, trace gravel, loose, fine grained, poorly graded, brown, damp	8.60
10	SM-SAND, with silt, loose, fine grained, poorly graded, dark brown, saturated	1.10
12	SP-SAND, trace silt, trace gravel, loose, fine grained, poorly graded, brown, damp	-0.90
14	SM-SAND, with silt, trace woody debris, compact, fine to medium grained, poorly graded, moist	-3.40
16	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown	-4.40
22	SM-SILTY SAND, compact to dense, fine grained, slightly plastic, poorly graded, grey, saturated	-9.90
24	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown	-12.90
26	END OF BOREHOLE @ 25.5ft BGS	-13.90
	Ground surface elevation is estimated.	



WELL DETAILS
Screened interval:
-6.40 to -13.90ft NGVD
18.00 to 25.50ft BGS
Length: 7.5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
1RS			
2RS			
3RS			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 81-50
DATE COMPLETED: February 3, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60						
0	SP-SAND, trace cobbles, trace gravel, loose, fine to medium grained sand, coarse grained gravel, poorly graded, brown, damp		CONCRETE					0
2								
4			CEMENT/ BENTONITE GROUT					
6	- trace silt, moist below 6 ft BGS		2"Ø SS RISER	1RS				0
8	SM-SILTY SAND, very dense, fine to medium grained, poorly graded, grey, saturated, cemented	4.10						0
10	- 2" thick woody debris lense below 7.5 ft BGS							
12	- 2" thick woody debris lense below 11.2 ft BGS							0
14				2RS				
16	ML-SILT, with sand, dense, fine grained sand, poorly graded, grey, damp	-4.40 -4.90						0 0
18	SM-SILTY SAND, very dense, fine to medium grained, poorly graded, grey, saturated, cemented							
20								
22								
24		-13.40		3RS				0
26	SP-SAND, trace silt, very dense, fine to medium grained sand, poorly graded, saturated, cemented	-14.40						
28	SM-SILTY SAND, very dense, fine to medium grained, poorly graded, grey, saturated, cemented							
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

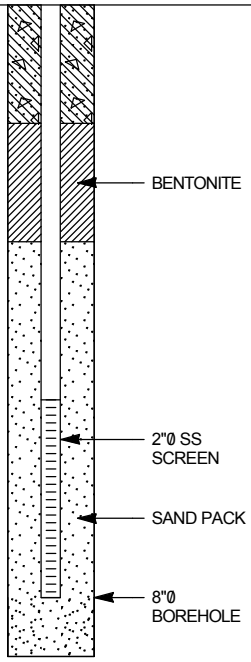
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 81-50
DATE COMPLETED: February 3, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
36		
38		
40		
42	ML-SILT, with sand, fine grained sand, poorly graded, grey, damp	-29.40
	SM-SILTY SAND, very dense, fine to medium grained, poorly graded, grey, saturated, cemented	-29.90
44		
46		
48	SP-SAND, with silt, very dense, fine grained sand, poorly graded, damp, cemented	-35.40
	SM-SILTY SAND, very dense, fine to medium grained, poorly graded, grey, saturated, cemented	-36.90
50	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, saturated	-37.90
52	END OF BOREHOLE @ 52.0ft BGS	-40.40
	Ground surface elevation is estimated.	
54		
56		
58		
60		
62		
64		
66		
68		

MONITORING WELL



WELL DETAILS
Screened interval:
-33.40 to -38.40ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE

NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
4RS				
5RS				
6RS				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-30
DATE COMPLETED: July 12, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	TOP OF CASING	12.61					
	GROUND SURFACE	10.46					
	0-40' BGS - See Log from 82-230 for Stratigraphy		2"Ø PVC RISER; 6" Ø BOREHOLE; CEMENT-BENTONITE GROUT; BENTONITE PELLETS; SAND PACK; 2"Ø PVC SCREEN				
28	SP-SAND, medium grained, well sorted, minor shell fragments, dark reddish brown, wet	-18.54					
30	Core sent to lab	-20.54					
32	SP-SAND, medium to fine grained, well sorted, minor shell fragments, dark brown, wet,	-21.54		1SB			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-30
DATE COMPLETED: July 12, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
34	cemented	-23.54	2"Ø PVC SUMP; BENTONITE CHIPS				
36							
38							
40	END OF BOREHOLE @ 40.0ft BGS	-29.54					
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							

WELL DETAILS
Screened interval:
-18.54 to -23.54ft NGVD
29.00 to 34.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-100
DATE COMPLETED: July 9, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	TOP OF CASING GROUND SURFACE	12.70 10.10					
	0-101' BGS - See Log from 82-230 for Stratigraphy		2"Ø PVC RISER 6" Ø BOREHOLE				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-100
DATE COMPLETED: July 9, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
38							
40							
42			CEMENT-BENTONITE GROUT				
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							
70							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-100
DATE COMPLETED: July 9, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
74							
76							
78							
80							
82							
84							
86			BENTONITE PELLETS				
88							
90			SAND PACK				
92							
94			2"Ø PVC SCREEN				
96							
98			2"Ø PVC SUMP				
100	END OF BOREHOLE @ 100.0ft BGS	-90.90	BENTONITE CHIPS				
102							
104							
106							

WELL DETAILS
Screened interval:
-79.90 to -84.90ft NGVD
90.00 to 95.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-150
DATE COMPLETED: July 8, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	TOP OF CASING GROUND SURFACE	12.86 9.71					
	0-160' BGS - See Log from 82-130 for Stratigraphy		2"Ø PVC RISER 6" Ø BOREHOLE				

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-150
DATE COMPLETED: July 8, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-150
DATE COMPLETED: July 8, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
72			CEMENT-BENTONITE GROUT				
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-150
DATE COMPLETED: July 8, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
106							
108							
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-150
DATE COMPLETED: July 8, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: M. Davis

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
142			BENTONITE PELLETS				
144			SAND PACK				
146							
148			2"Ø PVC SCREEN				
150			2"Ø PVC SUMP				
152							
154							
156			BENTONITE CHIPS				
158							
160	END OF BOREHOLE @ 160.0ft BGS	-150.29					
162							
164							
166							
168							
170							
172							
174							

WELL DETAILS
Screened interval:
-135.29 to -140.29ft NGVD
145.00 to 150.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	TOP OF CASING GROUND SURFACE	12.87 9.72						
0	FILL, gravel							
1								
2	GW-SILTY SANDY GRAVEL, <10% fine, 30-40% fine to coarse sand, 50-60% gravel, subrounded to subangular, tan, moist	8.22		1CB		5.0		
3	SP-SAND, fine to medium, <10% silt, brown, moist, shell fragments	6.72						0.0
4			2"Ø PVC RISER					
5	- increasing moisture with depth							
6								
7								
8								
9								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
11				2CB		10.0		
12			6" Ø BOREHOLE					
13	SM-SILTY SAND, 15-20% silt, 80-90% fine sand, slight plasticity, dark brown, wet, slightly indurated	-3.28 ▽						0.0
14								
15	SP-SAND, with <10% silt, fine to medium sand, saturated, dark brown, shell fragments	-5.28						0.0
16								
17								
18	MH-CLAYEY SILT, minor fine sand, very plastic, indurated, brown, wet	-8.28						
19	ML-CLAYEY SILT, 10-20% sand, 10-20% clay, 60-70% silt, slightly plastic, high organic content i.e. (wood chips), dark brown, wet	-9.28		3CB		7.5		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
21	ML-SANDY SILT, minor clay (<10%), 20-30% fine to medium sand, 50-60% silt, slightly plastic, dark brown, minor wood chips, saturated	-11.28						
22								
	MH-CLAYEY SILT, moderate plasticity, shell fragments, minor wood chips, grey, wet	-12.78						
23								
24								
	Core sent to lab	-14.78						
25				1SB		5.0		
	MH-CLAYEY SILT, moderate plasticity, shell fragments, minor wood chips, grey, wet	-15.78						
26								
27								
	SM-SILTY SAND, approx. 20% silt, 70-80% fine to medium sand, slightly plastic, shell fragments, dark brown, wet	-17.78						0.0
28								
29								
	SP-SAND, medium grained, well sorted, minor shell fragments, dark reddish brown, wet	-19.28						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
31				4CB		7.5		
32				GW-01				
33								
34								
35	SP-SAND, fine to medium grained, small shell fragments, dark brown, wet	-25.28						0.0
36								
37								
38								
39								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
41				5CB		10.0		
42								
43								
44								
45								
46								
46	ML-SILT, slightly plastic, wood chips, grey, wet	-36.78						
47	SM-SILTY SAND, 10-20% silt, 80-90% fine to medium sand, shell fragments, grey, wet	-37.28						
48								
49								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
51	SP-SAND, fine to medium grained, slightly cemented, cementation increases with depth, shell fragments, grey, moist	-40.28		6CB		10.0		
52				GW-02				
53								
54								
55	ML-SILT, with 10-20% fine sand, 80-90% silt, slight plasticity, grey, wet	-44.78						
	SM-SILTY SAND, 10-20% silt, 80-90% fine to medium sand, minor shell fragments, gray, wet	-45.28						0.0
56								
57	SP-SAND, poorly graded, fine to medium grained, medium grain sand size shell fragments, dark brown, wet	-47.28						
58								
59								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	- sand is slightly cemented			7CB		10.0		
61								
62								
63								
64								
65	- moderately cemented, cementation increasing with depth							0.0
66								
67								
68	ML-CLAYEY SILT, slightly to moderately plastic, slightly indurated, gray, damp (<50% liquid limit)	-58.28						
69								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
71				8CB		10.0		
72				GW-03				
73								
74								
75	SM-SILTY SAND, 15-25% silt, 75-85% fine to medium sand, silt percentage increases with depth, dark brown, wet Note: thin layer of wood chips at contact with next layer	-65.28						0.0
76								
77								
78								
79	ML-CLAYEY SILT, slightly to moderately plastic, medium brown, wet	-69.28						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
81	SM-SILTY SAND, 30-40% silt, 60-70% fine sand, slightly plastic, minor shell fragments, dark brown, wet	-70.28						
82	MH/CL-CLAYEY SILT/SILTY CLAY, moderately plastic, indurated, dark brown	-72.28		9CB		15.0		
83								
84								
85								
86								
	ML-SILT, upper 6" is slightly cemented, dark brown, damp	-76.78						
87				GW-04				
88	SP-SAND, medium grained, minor shell fragments, dark brown, wet	-78.28						
89	SM-SILTY SAND, 30-40% silt, 60-70% fine sand, minor shell fragments, dark brown, wet	-79.28						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
90	SP-SAND, fine to medium grained, minor shell fragments, dark brown, wet	-80.28						0.0
91								
92								
93								
94						7.5		
95	Core sent to lab	-84.78		2SB				
	SP-SAND, fine to medium grained, minor shell fragments, dark brown, wet	-85.78						
96	ML-SANDY SILT, 10-20% fine sand, 80-90% silt, slightly plastic, dark brown, wet	-86.28						
97								
	SM-SILTY SAND, 20-30% silt, 70-80% fine sand, thin layers of ML and SP throughout core (1-2" thick), SP layers are medium sand with minor shell fragments, ML layers are sandy (10-20% fine sand), dark brown, wet	-87.78						0.0
98								
99								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
101								
102								
103								
104				10CB		12.5		
	ML-SILT, slightly indurated, minor shell fragments, brown, wet	-94.78						
105								
106								
107								
	- SP layer, medium sand, well sorted from 107.5ft BGS to 107.8ft BGS			GW-05				
108		-98.28						
	SP-SAND, medium grained, well sorted, medium grained shell fragments, dark brown, wet							
109								
	- ML layer from 109.5ft to 109.75ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
111		
112		
113	ML-SILT, brown, wet	-103.28
	SP-SAND, medium grained, well sorted, shell fragments, dark brown, wet	-103.53
	ML-SILT, 10-20% very fine sand, slightly plastic, brown, wet	-103.78
114		
	Core sent to lab	-104.78
115		
	SP/ML-SAND, well sorted, interbedded with silt, individual beds are 3-4" thick, dark brown sand with shell fragments, slightly plastic brown silt, all layers wet	-105.78
116		
117		
118		
119	MH-CLAYEY SILT, moderately plastic, brown, wet	-109.28

MONITORING WELL: CEMENT-BENTONITE GROUT

SAMPLE

NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
				0.0
3SB		7.5		
				0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
121	SM-SILTY SAND, 10-30% silt, 70-90% fine sand, layer of wood chips at upper contact, minor woodchips throughout, becomes more silty with depth, dark brown, wet	-110.28						
122	SP-SAND, well sorted, medium grained, shell fragments, dark brown, wet	-112.28		11CB		10.0		
123								
124								
125	ML-SANDY SILT, 10-20% fine sand, 80-90% silt, slightly to moderately plastic, silt content increases with depth, dark brown, wet, layer of wood chips at base of layer	-115.28						
126								
127	SP-SAND, well sorted, medium sand, shell fragments, dark brown, wet	-117.28						
	NO CORE, fell out of SB sampler, material in nose of bit was sand, well sorted, fine grained, <10% silt, minor shell fragments, dark brown, wet	-117.78						
128								
129								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
131								
132								
	CL-SILTY CLAY, moderate plasticity, gray, wet	-122.78						0.0
133	- 2" fine sand lens at approx. 133ft BGS							
134								
	Core sent to lab	-124.78						
135				4SB		4.0		
	SP-SAND, well sorted, medium grained, shell fragments, dark brown, wet	-125.78						
136								
	LOST CORE	-126.78						
137								
	SP-SAND, well sorted, medium grained, shell fragments, dark brown, wet	-127.78						
138								
139								
	Core sent to lab	-129.28		5SB				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (4SB, 5SB)

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
141	SP-SAND, with silt, fine to medium grained, shell fragments, approx 10% silt, dark brown, wet	-130.28				5.0		
142								0.0
143								
144								
145	Core sent to lab	-134.78		6SB GW-06		5.0		
146	SP-SAND, well sorted, fine to medium grained, shell fragments, dark brown, wet	-135.78						
147								0.0
148								
149	Core sent to lab	-139.78						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	- subrounded gravel in lower 1ft			7SB		5.0		
	SP-SAND, well sorted, fine to medium grained, shell fragments, dark brown, wet	-140.78						
151	GW-SILTY SANDY GRAVEL, approx 10-15% silt, 20-25% sand, 60-70% subangular to subrounded gravel, shell fragments, greenish gray, wet	-141.28						
152								0.0
153								
	GC-SANDY CLAYEY GRAVEL, medium to coarse angular sand, angular to subrounded gravel, cobbles up to 3" diameter, clay is moderately plastic, clay content increases with depth, green, wet	-143.78						
154	Core sent to lab	-144.78						
155				8SB		5.0		
	GC-SANDY CLAYEY GRAVEL, medium to coarse angular sand, angular to subrounded gravel, cobbles up to 3" diameter, clay is moderately plastic, clay content increases with depth, green, wet	-145.78						
156								
157								0.0
158								
159								
	Core sent to lab	-149.78						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
				9SB		5.0		
161	GC-SANDY CLAYEY GRAVEL, medium to coarse angular sand, 50-60% angular to subrounded gravel decreasing with depth, cobbles up to 3" diameter, clay is moderately plastic, clay content increases with depth, green, wet	-150.78						
162		-152.78						0.0
163	SP-SAND, fine to medium grained, <10% silt, minor shell fragments, dark gray, wet, fining upward sequences							
164								
165	SP-SILTY SAND, medium to coarse grained, gray, angular, wet, fining upward sequence, with pebbles and gravel in lower 1ft of section	-155.28						
166				12CB		7.0		
167				GW-07				
168	SW-GRAVELLY SAND, with approx. 10% silt, 10-20% pebbles to gravel, 70-80% coarse grained angular sand, subrounded to subangular gravel, yellow brown, wet, contact between upper and lower yellow brown sand contains more silt and clay (appears to be reworked materials at contact between sections)	-158.28						
169								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	ML-CLAYEY SANDY SILT, moderately plastic, fine to coarse sand, includes minor angular to subangular pebbles, reddish brown, moist	-160.28						0.0
171	ML-CLAYEY SANDY SILT, moderately plastic, fine sand, reddish brown, moist	-161.28						
172	Core sent to lab	-162.28		10SB		5.0		
173	ML-CLAYEY SANDY SILT, moderately plastic, fine sand, reddish brown, moist	-163.28						
	ML-CLAYEY SANDY SILT, with 10-15% angular to subrounded pebbles, moderately plastic, 10-15% fine grained sand, dark gray/green, moist	-163.48						
174	SW-SILTY GRAVELLY SAND, 10-20% silt, 20-25% gravel, 55-75% sand, gravel is pebbles to 1" diameter, angular to subrounded fine to coarse grained sand, indurated, light brown/tan, damp to dry	-164.28						
175	SW-SILTY GRAVELLY SAND, 10-20% silt, 20-25% gravel, 55-75% sand, gravel is pebbles to 1" diameter, angular to subrounded fine to coarse grained sand, indurated, light brown/tan, damp to dry, appears rock pushed Lexan liner up into core barrel and prevented additional sample collection - liner deformed and broken below 2.5'	-165.28						0.0
176						2.5		
177	Core sent to lab	-167.28		11SB				
178	NO RECOVERY, based on drill rig behavior, appears to be drilling through gravel with cobbles	-168.28						
179								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
181	GW-SILTY SANDY GRAVEL, coarse angular sand, pebbles to 3" gravel, gravel is subangular to subrounded, dark brown, moist, recovered approx. 1' of core from interval above, very hard drilling, Lexan liner cannot withstand, switched to core barrel	-170.28		12SB		2.0		0.0
182	GW-SILTY SANDY GRAVEL, coarse angular sand, pebbles to 3" gravel, gravel is subangular to subrounded, dark brown, moist	-172.28						0.0
183								
184								
185								
186				13CB		8.0		
187	ML-SANDY SILT, with minor gravel, gravel includes pebbles to 1.5' diameter, very fine sand with minor coarse angular grains, brown, moist	-177.28		GW-08				
188								
189	GW-SILTY SANDY GRAVEL, coarse angular sand and pebbles, angular to subrounded gravel including cobbles, dark brown, indurated, moist	-178.78						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 007843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
191								0.0
192	GW-CLAYEY SANDY GRAVEL, slightly to moderately plastic, 10-20% fines, 10-20% sand, 60-80% pebbles and angular to subrounded gravel, minor cobbles, reddish brown, moist	-182.28						
193								
194				14CB		7.5		
195								
196								
197								0.0
198								
199	Disturbed sample sent to lab	-189.98				4.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
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Tacoma, Washington

HOLE DESIGNATION: 82-230
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FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
201	GW-CLAYEY SANDY GRAVEL, slightly to moderately plastic, 10-20% fines, 10-20% sand, 60-80% pebbles and angular to subrounded gravel, minor cobbles, reddish brown, moist	-190.98		13SB				
		-191.78						
202	Lost bottom 1' of core							
		-192.78						0.0
203	GW-CLAYEY SANDY GRAVEL, slightly to moderately plastic, 10-20% fines, 10-20% very angular sharp sand, 55-75% very angular sharp pebbles and angular to subrounded gravel, cobbles 3-5", reddish brown, moist							
204								
205								
206				15CB		7.5		
207				GW-09				
208	SW-CLAYEY SILTY SAND, with cobbles to 4", slightly plastic, fine to coarse angular sand, tan/brown, wet	-198.28						
209								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
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Tacoma, Washington

HOLE DESIGNATION: 82-230
DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	ML-SANDY SILT, fine sand, slightly plastic, minor subangular to subrounded pebbles, in last 1ft of section contains higher sand content, including coarse sand, generally a fining upward sequence, tan to brown near bottom, moist, indurated	-200.28						0.0
211								
212								
	GW-CLAYEY SILTY GRAVEL, approx. 20% fines, 20-30% sand, 50-60% gravel, coarse sand and angular to subangular pebbles, subangular to subrounded gravel, brown, moist	-202.78						
213								
	ML-SILT, minor sand grains, minor gravel, well indurated, reddish brown to gray green with depth, moist	-204.08		16CB		8.5		
214								
	CL-SILTY CLAY, moderately plastic, gravel clasts in lower 6", green, moist, no dense	-205.28						
215								
216								
	GW-SANDY GRAVEL, 30-40% fine to coarse sand, 60-70% gravel, minor silt, coarse sand and subangular to subrounded pebbles, subangular to subrounded gravel, reddish brown, moist, unconsolidated/not dense	-206.78						
217								0.0
218								
	SP-SILTY SAND, approx. 10% silt, medium to very coarse grained very angular sand, dark gray green, wet, unconsolidated, not dense	-209.28						
219								
	Core sent to lab	-209.78						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
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DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
				14SB		5.0		
	SM-CLAYEY SILTY SAND, approx. 20% fines, slightly plastic, fine to coarse grained angular to subangular sand, green, wet, unconsolidated, not dense	-210.78						
221		-211.28						
	GW-SANDY GRAVEL, with silt, minor clay, approx. 10% fines, 30-40% sand, 50-60% gravel, fine to coarse grained angular sand, angular to subrounded gravel, dark brown, moist, unconsolidated, not dense		BENTONITE PELLETS					
222								
	- clay content increases with depth							0.0
223								
224	GW-SILTY SANDY GRAVEL, 10% fines, 30-40% sand, 50-60% gravel, fine to coarse grained angular to subangular sand, coarse grained angular to subangular pebbles, subangular to subrounded gravel, brown, wet, unconsolidated, not dense	-214.28						
225								
226	SP-SAND, fine to coarse grained, minor gravel at top, coarse angular to subangular sand and pebble layer at bottom, generally a fining upward sequence, dark brown, wet, unconsolidated, not dense	-216.28		17CB		7.5		
227	SP-SAND, well sorted, predominantly medium grained, dark brown/black, wet, unconsolidated, not dense, (disturbed sample sent to lab)	-217.28		GW-10				
228	GW/SW-SANDY GRAVEL/GRAVELLY SAND, approx. 50% sand, fine to coarse grained, subangular to subrounded gravel (up to 3" diameter), dark brown, wet, unconsolidated, (disturbed sample sent to lab)	-218.28	SAND PACK					
229	GW-CLAYEY SILTY SANDY GRAVEL, approx. 10-15% fines, 20-25% sand, 60-70% gravel, fine to medium grained sand, angular to subrounded pebbles and gravel, gray brown, wet, unconsolidated, not dense, (disturbed sample sent to lab)	-219.28	2"Ø PVC SCREEN					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843.GPJ CRA_CORP.GDT 1/11/11

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DATE COMPLETED: June 24, 2010
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FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
231								0.0
232	CL-GRAVELLY CLAY, moderately plastic, angular to subrounded gravel, pebble to 3" diameter, reddish brown, wet	-222.28						
233	GW-CLAYEY SILTY SANDY GRAVEL, 10-15% fines, 20-25% sand, 60-70% gravel, fine to coarse grained sand, angular to subrounded pebbles and gravel, greenish brown, wet, unconsolidated, not dense, layer of cobbles at base	-223.28	2"Ø PVC SUMP	18CB				
234								
235			BENTONITE CHIPS					
236	CL-GRAVELLY CLAY, moderately plastic, angular to subrounded pebbles and small gravel, larger (2-3") subangular to subrounded gravel, includes cobbles to 4", gray to reddish brown with depth, wet	-225.78						
237	GW-CLAYEY SILTY SANDY GRAVEL, approx. 20% fines, 20-25% sand, 55-60% gravel, slightly plastic, angular to subrounded sand and pebbles, subrounded to round gravel to 1.5" diameter, reddish brown, wet, unconsolidated, not dense	-227.28 -227.78						0.0
238	SP-SAND, fine to medium grained, dark gray, wet, unconsolidated	-228.28						
239	SW-SILTY GRAVELLY SAND, minor clay, slightly plastic, approx. 20% fines, 20-30% gravel, 50-60% sand, coarse grained angular to subrounded sand and gravel, greenish gray, moist							
	Core sent to lab	-229.78						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DATE COMPLETED: June 24, 2010
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: E. Turner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
241	ML-CLAYEY SANDY GRAVELLY SILT, slightly plastic, sand and gravel content increases with depth, coarse grained angular to subangular sand and pebbles, subrounded gravel, includes cobbles to 4" diameter, greenish gray, moist	-230.78		15SB		5.0		
242	ML-SILT, slightly plastic, slightly indurated, greenish brown, damp	-232.28	NATIVE MATERIAL					
243	CL-SANDY GRAVELLY CLAY, moderately plastic, coarse grained angular to subrounded sand and pebbles, subangular to subrounded gravel up to 1.5" diameter, gravel content increases with depth, greenish dark gray, moist	-232.78						0.0
244	ML-SILT, slightly indurated, greenish tan with reddish brown staining, damp	-233.98						
245	Core sent to lab	-234.78		16SB		5.0		
246	ML-SILT, slightly more indurated, more greenish tan with reddish brown staining, damp	-235.78						
247	GC-CLAYEY SANDY GRAVEL, slightly plastic, approx. 10-20% fines, 20-30% sand, 50-70% gravel, coarse grained angular to subrounded sand and pebbles, subangular to subrounded gravel up to 2.5" diameter, moderately indurated, dark gray, moist	-236.78						
248	END OF BOREHOLE @ 247.5ft BGS Note: CB=Core Barrel SB=Split Barrel	-237.78	WELL DETAILS Screened interval: -217.28 to -222.28ft NGVD 227.00 to 232.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: PVC					
249								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	13.97 11.46						
0	SM-SILTY SAND (FILL), trace gravel							
1								
2								
3								
4								
5				1RS		10.0		
6								
7								
8								
9			BENTONITE GRAVEL					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
11	SP-SAND (FILL), trace silt, trace fine grained subrounded gravel, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	1.46	6" BOREHOLE					2.5
12	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - silt lamination at 12.0ft BGS	-0.54		2RS		4.0		
13	- 0.2" laminated sand and silt at 12.4ft BGS - laminated silt at 12.9ft BGS - 1/8" silt at 13.6ft BGS							
14				-001				
15	- 0.2' ML-SANDY CLAYEY SILT lens at 14.8ft BGS - two pieces of subangular gravel, up to 1" diameter at 15.0ft BGS							
16	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, gray, with red grains and white grains, wet, sand size to 1/2x1" shell fragments throughout	-4.24						8.1
17	- intact shell 1x3/4" at 17.3ft BGS			3RS		5.0		
18	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, faint chemical-type odor, wet, sand size shell fragments throughout - 1/4" silty clay at 18.3ft BGS	-6.44	SAND PACK					6.9
19			PORT 1 SCREEN 1					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

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DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
21	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sand to pebble size shell fragments throughout - 1/8" silt at 20.7ft BGS	-8.54	PORT 1 SCREEN 2					
	CL-SILTY CLAY, soft, low plasticity, gray, very moist, slow dilatancy, shell fragments throughout up to 1/2x3/4" - negative DNAPL dye test at 21.2ft BGS	-9.74	PORT 1 SCREEN 3	-003				75
22			TRANSDUCER #1 PORT 1 SCREEN 4	4RS		5.0		
23	- 1/8" fine grained silty sand, strong odor, positive DNAPL dye test at 23.0ft BGS		PORT 1 SCREEN 5	-002				1060
24	- negative DNAPL dye test at 24.0ft BGS		PORT 1 SCREEN 6	-004				
25	ML-SANDY SILT, trace clay, loose, fine grained sand, slight plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-13.54						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand to pebble size shell fragments throughout - 1/8" numerous shell fragments at 26.4ft BGS - 0.3" silty clay at 26.5ft BGS - single pieces of subangular gravel 1/4x1/2" at 26.6ft BGS	-13.94						60.4
27				5RS		5.0		
28								16.4
29	- silt lamination at 28.9ft BGS							

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CHEMICAL ANALYSIS ( )

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FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
31	- shell fragments up to 3/8" x 5/8" at 30.2ft BGS	-18.94						
	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-19.84						35.8
32	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - very fine grained at 31.7ft BGS - 0.2" silty clay nodule at 32.0ft BGS - 1-1/2" silty sand with 1/8" lens peat fibers and wood pieces up to 1x1/16" at 32.2ft BGS - pice of wood 1-1/4x1/2" at 32.4ft BGS			6RS		5.0		
33	- fine grained at 32.6ft BGS - single piece of gravel 1/8x1/4" at 33.0ft BGS - fine to medium grained at 33.1ft BGS							
34	ML-SILT, few clay, trace sand, loose, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout, irregular thickness and irregular shape/direction, sand lenses throughout, laminations up to 3/4"	-22.04	COATED BENTONITE PELLETS	-005				9.6
35	ML-SANDY SILT, trace clay, loose, no plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout	-23.54						
36								7.1
37	- irregular size and direction sand laminations and lenses up to 1/4" thick throughout at 36.8ft BGS - sliver size wood pieces scattered at 37.0ft BGS - shell fragments up to 1/4" at 37.5ft BGS			7RS		5.0		
38								
39	SP-SAND, trace silt, compact, fine to very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - several silt lenses up to 1" thick in 3" section at 38.6ft BGS	-26.84						5.1
	- several sliver size wood pieces in 2" section at 39.6ft BGS - 1-1/2" layered sand and layered silt, sliver							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	size wood pieces in silt layers at 39.8ft BGS - 2" silty fine sand at 40.0ft BGS - shell fragments up to 1/4" at 40.2ft BGS							13.7
41								
42	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, scattered sliver size wood pieces, sand size shell fragments throughout	-30.54		8RS 006		3.0		
	- 1/8" lens with numerous sliver size wood pieces at 42.8ft BGS							
43	- 1/4" shell fragments at 42.9ft BGS	-31.54						
	NO RECOVERY (43-45ft BGS)		SAND PACK					
44			PORT 2 SCREEN 1					
45	SP-SAND, trace silt, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-33.54 -33.84	PORT 2 SCREEN 2					
46	ML-SANDY SILT, few clay, very loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout, several sand laminations and clay laminations		PORT 2 SCREEN 3					11.6
47	SP-SAND, with silt, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, scattered sliver size wood pieces	-35.44	TRANSDUCER #2 PORT 2 SCREEN 4	9RS		5.0		
	- piece of wood 2-1/4x1/8" at 47.2ft BGS	-36.04						
48	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, scattered peat size to sliver size wood pieces, sand laminations and silt laminations		PORT 2 SCREEN 5					
49			PORT 2 SCREEN 6					13.7
	- 1" sandy silt at 49.8ft BGS							

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CHEMICAL ANALYSIS

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FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
51	SP-SAND, trace silt, trace fine grained subrounded to subangular pebble size gravel, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments up to 1/2x1/8" throughout	-38.54						13.2
52								
53	SM/GM-SANDY GRAVEL/GRAVELLY SAND, with silt, loose, fine grained sand, fine grained subangular to subrounded pebble size gravel to 1/2x1/4" gray, with red grains and white grains, wet, shell fragments throughout up to 1/8x0.8"	-41.04		10RS		5.0		
	- piece of subangular gravel 0.6x0.2" at 53.0ft BGS	-41.94						10.6
54	- piece of subangular gravel 1/2x2" at 53.3ft BGS							
	SP-GRAVELLY SAND, trace silt, compact, fine to medium grained sand, fine grained subangular to subrounded pebble size to 1/2" gravel, dark gray, with red grains and white grains, wet, shell fragments throughout	-42.64		-007				
55	SM-SILTY SAND, compact, fine to very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-44.14						
	- two pieces of gravel up to 3/8" at 54.9ft BGS							
56	GP-SANDY GRAVEL, trace silt, loose, fine grained subangular to subrounded gravel up to 3/8", medium to fine grained sand, poorly sorted, brown, with red grains and white grains, wet, shell fragments throughout	-44.64						4.2
57	- piece of subrounded gravel 3/4x1" at 56.0ft BGS							
	ML-SILT, few clay, few sand, very loose, slight plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout, clay laminations and lenses up to 0.2" and sand laminations/lenses up to 1/4"			11RS		4.5		
58	- clayey silt at 57.6ft BGS							
	- silt, few sand, few clay at 57.9ft BGS	-46.74						
	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, wet, rapid dilatancy	-47.14						2.8
59	SP-SAND, trace to with silt, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-47.64	COATED BENTONITE PELLETS					
	SM-SILTY SAND, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout, several sand laminations							

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, trace fine grained subrounded pebble size gravel, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-48.64 -49.14						
61	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments throughout							2.8
62	SP-SAND, trace to with silt, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments throughout	-50.74		12RS		5.0		
63	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, wet, rapid dilatancy, sand laminations, sand size shell fragments throughout	-51.44		-008				3.0
64	SM-SILTY SAND, loose, very fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout, wet - 2x4" rounded gravel at 64.9ft BGS	-52.74						
65								
66	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - 1/4" silt at 65.9ft BGS - 1/4" silt at 66.2ft BGS	-54.24						188
67	- 1-1/2" silty sand with sand laminations at 66.5ft BGS - 1/16" lens with numerous pebble size gravel at 66.6ft BGS							
68	- silt lamination at 66.8ft BGS - 3" section with multiple silt laminations at 67.1ft BGS - 2" silt, moist at 67.5ft BGS - fine silty sand laminations at 67.8ft BGS - 1/4" silty sand at 68.7ft BGS - 1/4" silty sand at 68.8ft BGS		SAND PACK	13RS		5.0		223
69	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, sand laminations, sand size shell fragments throughout	-57.54	PORT 3 SCREEN 1					
	SP-SAND, trace silt, compact, very fine	-58.34						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments throughout - silt and silty sand laminations at 70.0ft BGS	-59.14	PORT 3 SCREEN 2					
71	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, sand laminations, sand size shell fragments throughout	-60.04	PORT 3 SCREEN 3					631
72	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 4" laminated sand, silty sand and silt at 72.4ft BGS - negative DNAPL dye test at 72.5ft BGS		TRANSDUCER #3 PORT 3 SCREEN 4	14RS		5.0		
73			PORT 3 SCREEN 5	-009				
74	SM/ML-SILTY SAND/SANDY SILT, thinly layered/interbedded/laminated silty sand, sand and silt, compact, fine grained, no plasticity, gray, wet, sand size shell fragments throughout	-62.14	PORT 3 SCREEN 6					947
75	ML-SILT, few clay, few sand, compact, slight plasticity, gray, wet - negative DNAPL dye test at 75.0ft BGS	-63.54 -64.04						
76	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, silt and silty sand laminations/lenses up to 1/4" thick, sand size shell fragments throughout	-65.14						581.3
77	ML-SILT, few clay, trace sand, compact, slight plasticity, gray, very moist, sand laminations, shell fragments throughout	-65.54						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, silt laminations, sand size shell fragments throughout - negative DNAPL dye test at 77.5ft BGS			15RS		5.0		
78	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, silt laminations, sand size shell fragments throughout	-66.54						
79		-67.74						342.1
	ML-SANDY SILT, compact, very fine grained sand, no plasticity, gray, wet, rapid dilatancy, sand laminations, sand size shell fragments throughout	-68.34						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
81	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, silt laminations, sand size shell fragments throughout			-010				527.6
		-70.44						
82	SM/ML-SILT SAND AND SANDY SILT, interbedded/layered/laminated silty sand and sandy silt, compact, slight plasticity, dark gray sand, gray silty sand/silt, wet, sand size shell fragments throughout - negative DNAPL dye test at 82.5ft BGS			16RS		5.0		
83	ML-SILT, few clay, trace sand, firm, slight plasticity, gray, wet, moderate to rapid dilatancy	-71.64						210.8
84			COATED BENTONITE PELLETS					
	CL-SILTY CLAY, firm, low plasticity, light gray and gray layers (varved appearance), very moist, slow dilatancy, shell fragments throughout	-72.79						
85	ML-SANDY SILT, loose, fine to very fine sand, no plasticity, gray, with red grains, wet, rapid dilatancy, sand laminations and lenses up to 1/4", sand size shell fragments throughout	-73.54						
86								258.3
87	- 2-1/2" very fine grained sand at 86.8ft BGS			17RS		5.0		
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, scattered sliver size wood pieces, sand size shell fragments throughout	-76.24						
88								894
89	ML/SM-SANDY SILT, interbedded/layered/laminated sand and silty sand, compact, no plasticity, gray, with red grains, wet, wet, sand size shell fragments throughout, strong odor	-77.54		-012				

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CHEMICAL ANALYSIS ( )

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DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
91	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, wet, silt laminations, sand size shell fragments throughout - negative DNAPL dye test at 90.0ft BGS	-78.54 -79.24						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, laminated, sand size shell fragments throughout - negative DNAPL dye test at 91.0ft BGS	-80.04		-011				1054
92	ML-SANDY SILT, compact, very fine grained, no plasticity, gray, wet, rapid dilatancy, sand laminations, sand size shell fragments throughout - negative DNAPL dye test at 92.5ft BGS			18RS		5.0		
93			SAND PACK					
94	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, occasional silt laminations, sand size shell fragments throughout, strong chemical-type odor - negative DNAPL dye test at 94.5ft BGS - 1/4" laminated clay, silt, sand at 94.7ft BGS - 1/2" silty sand at 94.8ft BGS - 1/4" silty sand at 94.9ft BGS	-82.34	PORT 4 SCREEN 1					1604
95		-83.54	PORT 4 SCREEN 2					
	SM-SILTY SAND, loose, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments throughout - negative DNAPL dye test at 95.0ft BGS	-84.04						
96	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 1/2" silty very fine sand at 96.2ft BGS	-85.24	PORT 4 SCREEN 3					491
97	ML-SANDY SILT, compact, no plasticity, gray, moist, several sliver size dark gray wood pieces at top of contact, medium brown sand lamination at base contact - multiple pieces of cemented irregular shaped sandy silt up to 1/2x1-1/2x2" at 96.9ft BGS		TRANSDUCER #4 PORT 4 SCREEN 4	19RS		4.0		
98		-86.74	PORT 4 SCREEN 5					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout							396
99	NO RECOVERY (99-100ft BGS)	-87.54	PORT 4 SCREEN 6					

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CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

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PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-88.54						
101		-89.74						441
	ML-SANDY SILT, compact, no plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout, several sand laminations - 1/4" lens clayey sand, numerous sliver size wood pieces at 101.8ft BGS							
102		-91.14		20RS		5.0		
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, and size shell fragments throughout, scattered sliver size wood pieces, occasional dark gray, laminations			-013				
103								112
104	- 3/8" hardened silt nodule at 104.4ft BGS - two brown sand laminations at 104.6ft BGS							
105		-93.74						
	ML-SANDY SILT, compact, fine grained, no plasticity, gray, very moist - 1/2" fine grained sand, several sliver size wood pieces at 105.5ft BGS	-94.44						
106	SM/ML-SILTY SAND AND SANDY SILT, compact, very fine grained sand, no plasticity, silt layered up to 2" thick, wet, several sand laminations, sand size shell fragments throughout							326.7
		-95.44						
107	ML-SANDY SILT, compact, very fine grained sand, slight plasticity, gray, very moist	-95.74						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-96.14		21RS		5.0		
108	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - very fine sand at 108.1ft BGS							
	- 1-1/2" sandy silt at 108.3ft BGS	-97.34						271
109	ML-SANDY SILT, trace clay, compact, very fine grained sand, no plasticity, gray, very moist	-97.64						
	CL-SILTY CLAY, firm, low plasticity, gray, very moist, slow dilatancy, shell fragments	-98.34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-013)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	throughout							
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout							
111								262
			COATED BENTONITE PELLETS					
112	ML-SILT, few sand, few clay, compact, slight plasticity, gray, very moist, shell fragments throughout	-100.54		22RS		0.0		
113								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-101.84						268
114								
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-102.74		-014				
115	CL-SILTY CLAY, stiff, low plasticity, gray, moist to very moist	-103.54						
116	ML-SANDY SILT, compact, very fine grained sand, no plasticity, gray, wet, rapid dilatancy	-104.54						1207
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-105.04 -105.44						
117	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, wet, sand size shell fragments throughout	-105.84		23RS		5.0		
118	ML-SANDY SILT, trace clay, compact to dense, very fine grained sand, no plasticity, gray,wet, rapid dilatancy - high pH (>12) at 117.5ft BGS - 2" silty clay at 118.1ft BGS							623
119	ML/CL-SILTY CLAY/CLAYEY SILT, hard, low to slight plasticity, gray, moist, breaks into chunks - 1" sandy silt at 119.9ft BGS	-107.64		-015				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, several silt laminations	-108.54						
		-109.14						
121	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, several silt laminations, wet, sand size shell fragments throughout - 1-1/2" laminated sand and laminated silt at 120.7ft BGS							1174
122	- 1/2" fine sand at 121.0ft BGS - 0.3" sand, pH 12.0 in free liquid at 121.3ft BGS	-110.64						
	- 1/2" sand at 121.5ft BGS - 0.3" sand at 121.7ft BGS	-111.14		24RS		5.0		
123	ML-SANDY SILT, few clay, very dense, cemented, no plasticity, dark gray and light gray, moist	-111.74						
	SM-SILTY SAND, compact to very dense, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout		SAND PACK					256
124	SP-SAND, trace to with silt, compact to dense, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout		PORT 5 SCREEN 1					
125	ML-SANDY CLAYEY SILT, dense, slight plasticity, gray, moist, sand size shell fragments throughout	-113.54	PORT 5 SCREEN 2					
126	- 3-1/4" sandy silty clay, hard, moist at 125.9ft BGS		PORT 5 SCREEN 3					260
127	SM-SILTY SAND, compact to dense, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-115.44	TRANSDUCER #5 PORT 5 SCREEN 4					
		-116.24		25RS		5.0		
128	SP-SAND, trace silt, compact to dense, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout		PORT 5 SCREEN 5					
129			PORT 5 SCREEN 6					661
	ML-SANDY SILT, trace clay, compact to dense, very fine grained, slight plasticity, gray, with red grains and white grains, moist to very moist, sand size shell fragments throughout	-117.84						
		-118.34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-118.54						
131	SP-SAND, trace silt, compact to dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout - fine grained at 130ft BGS - very fine grained at 130.3ft BGS							1222
132	- several dark gray wood pieces in 0.2" lens up to 1/8x1/16" at 130.5ft BGS	-120.54						
	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, wet, several dark gray sand laminations	-120.84		26RS		5.0		
133	SP-SAND, trace silt, compact to dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, gray sand lamination - gray sand lamination at 132.4ft BGS - negative DNAPL dye test at 132.5ft BGS	-121.34 -121.84		-016				
134	ML-SANDY SILT, compact, fine grained, no plasticity, gray, moist to very moist, several dark gray laminations, sand size shell fragments throughout							881
135	SP-SAND, trace silt, compact to dense, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet - 1/4" laminated sand and silty sand at 133.6ft BGS - 2.3" laminated sand and silty sand at 133.7ft BGS	-123.14 -123.54						
136	- very fine grained at 134.4ft BGS							
	SM-SILTY SAND, compact to dense, very fine grained, well sorted, gray, with red grains and white grains, wet, sand size shell fragments throughout	-124.64 -125.04						100.8
137	SP-SAND, trace silt, fine grained, well sorted, loose, dark gray, with red grains and white grains, wet, odor, elevated pH - negative DNAPL dye test at 135.0ft BGS			27RS		0.0		
138	ML-SILT, hard, no plasticity, dark gray, moist, odor							
	SP-SAND, trace silt, fine grained, compact, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout, odor, elevated pH (10.8 to 10.95)							330.5
139								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CL-SILTY CLAY, soft, moderate plasticity, dark gray, wet, coarse sand size shell fragments throughout, wood fibers, odor	-128.54						
	- 1" sand lens at 140.4ft BGS							
	- negative DNAPL dye test, netural pH (7.75) at 140.5ft BGS	-129.34						
141	ML-SANDY CLAYEY SILT, soft, low plasticity, dark gray, wet, coarse sand size shell fragments and wood debris, odor							912
142								
	- negative DNAPL dye test, neutral pH (7.85) at 142.5ft BGS			28RS-017		5.0		
143								
		-132.34						1519
144	CL-SILTY CLAY, soft, moderate plasticity, dark gray, wet, coarse sand size shell fragments, odor							
145	- increase in shell fragments at 145.0ft BGS							
	- neutral pH (7.23) at 145.5ft BGS							
146								75.8
	- 0.01' sand lens at 146.7ft BGS		COATED BENTONITE PELLETS					
147								
	- 0.2' ML-SANDY CLAYEY SILT lens, neutral pH (7.25) at 147.5ft BGS			29RS		0.0		
148	- wood fibers at 148.2ft BGS							
		-137.34						17.5
149	ML-SANDY CLAYEY SILT, firm, low plasticity, rapid dilatancy, dark gray, wet, sand size shell fragments throughout							
		-138.24						
	SM-SILTY SAND, trace clay, fine grained, well							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	sorted, dark gray, with red grains and white grains, sand size shell fragments throughout - neutral pH (7.64) at 150.5ft BGS							
151	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red and white grains, wet, high concentration of rounded sand size shell fragments	-139.44						0.0
152	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, high concentration of well rounded sand size shell fragments - neutral pH (7.56) at 152.5ft BGS - 0.3' SP-SAND lens at 152.7ft BGS	-140.24		-018 30RS		5.0		
153								
154	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, high concentration of well rounded sand size shell fragments	-141.94						0.0
155	ML-SANDY SILT, compact, fine grained sand, no plasticity, dark gray, wet, sand size shell fragments throughout, neutral pH (7.99)	-143.04						
156	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, well rounded sand size shell fragments throughout	-143.54						5.4
157	- neutral pH (7.3) at 157.5ft BGS			31RS		5.0		
158								
159	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-147.24						0.0
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, well rounded, shell fragments	-148.04						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-018)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	throughout							
	SM/ML-SAND AND SILT, loose, fine grained sand, well sorted, dark gray, with red grains and white grains, wet, well rounded sand size shell fragments throughout, netural pH (7.31)	-149.04						
161								0.0
	- 0.2' ML-SANDY SILT lens at 161.5ft BGS							
162				-019				
	- neutral pH (7.47) at 162.5ft BGS			32RS		5.0		
163								
	ML-SANDY SILT, compact, no plasticity, rapid dilatancy, dark gray, wet	-152.04	SAND PACK					
164	SP-SAND, with silt , compact fine grained, well sorted, dark gray, with red grains and white grains, wet, well rounded sand size shell fragments throughout	-152.54	PORT 6 SCREEN 1					0.0
			PORT 6 SCREEN 2					
165								
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, well rounded sand size shell fragments throughout, netural pH (7.29)	-153.94	PORT 6 SCREEN 3					
166								0.3
			TRANSDUCER #6					
			PORT 6 SCREEN 4					
167								
	ML-SILT, compact, low plasticity, moderate dilatancy, wet, dark gray, neutral pH (7.35)	-155.64						
				33RS		5.0		
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-156.14	PORT 6 SCREEN 5					
168	- larger partially intact shell fragment at 167.7ft BGS							
	CI-SANDY SILTY CLAY, stiff, low plasticity, dark gray, moist	-157.14	PORT 6 SCREEN 6					0.4
169	- 0.1' SP-SAND lens at 169.2ft BGS							
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white	-158.14						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains, wet, sand size shell fragments throughout							
171								
	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-160.34	COATED BENTONTIE CHIPS					
172								
173								
174								
175	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-163.54 -163.74 -163.94	CMT ANCHOR	34RS		7.0		
176	SC-CLAYEY SAND, with gravel, fine to coarse sand, poorly sorted, fine grained gravel, light gray to brown, wet GC-CLAYEY SANDY GRAVEL, loose, fine to coarse grained subrounded to angular gravel, light gray to brown, wet							
177	NO RECOVERY (177-180ft BGS) - LARGE ROCK IN CORE BARREL	-165.54						
178								
179								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	END OF BOREHOLE @ 180.0ft BGS	-168.54						
	NOTE:							
181	GLACIAL CONTACT ASSUMED AT 175.2FT BGS							
	PORT 1 SAND PACK 18.0 TO 25.0FT BGS (-6.54 TO -13.54FT NGVD)							
182	INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.42, 20.42, 21.42, 22.42, 23.42 AND 24.42FT BGS (-7.96, -8.96, -9.96, -10.96, -11.96 AND -12.96FT NGVD)							
	TRANSDUCER (# 1142329)							
183	21.92FT BGS (-10.46FT NGVD)							
	COATED BENTONITE PELLETS 25.0 TO 43.0FT BGS (-13.54 TO -31.54FT NGVD)							
184								
	PORT 2 SAND PACK 43.0 TO 50.0FT BGS (-31.54 TO -38.54FT NGVD)							
185	INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.43, 45.43, 46.43, 47.43, 48.43 AND 49.43FT BGS (-32.97, -33.97, -34.97, -35.97, -36.97 AND -37.97FT NGVD)							
	TRANSDUCER (# 1142140)							
186	46.93FT BGS (-35.47FT NGVD)							
	COATED BENTONITE PELLETS 50.0 TO 68.0FT BGS (-38.54 TO -56.54FT NGVD)							
187								
	PORT 3 SAND PACK 68.0 TO 75.0FT BGS (-56.54 TO -63.54FT NGVD)							
188	INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.34, 70.34, 71.34, 72.34, 73.34 AND 74.34FT BGS (-57.88, -58.88, -59.88, -60.88, -61.88 AND -62.88FT NGVD)							
	TRANSDUCER (# 1203032)							
189	71.84FT BGS (-60.38FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
	COATED BENTONITE PELLETS 75.0 TO 93.0FT BGS (-63.54 TO -81.54FT NGVD)							
191	PORT 4 SAND PACK 93.0 TO 100.0FT BGS (-81.54 TO -88.54FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.30, 95.30, 96.30, 97.30, 98.30 AND 99.30FT BGS (-82.84, -83.84, -84.84, -85.84, -86.84 AND -87.84FT NGVD) TRANSDUCER (# 1141685) 96.80FT BGS (-85.34FT NGVD)							
192								
193	COATED BENTONITE PELLETS 100.0 TO 123.0FT BGS (-88.54 TO -111.54FT NGVD)							
194	PORT 5 SAND PACK 123.0 TO 130.0FT BGS (-111.54 TO -118.54FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 124.30, 125.30, 126.30, 127.30, 128.30 AND 129.30FT BGS (-112.84, -113.84, -114.84, -115.84, -116.84 AND -117.84FT NGVD) TRANSDUCER (# 1204326) 126.80FT BGS (-115.34FT NGVD)							
195								
196	COATED BENTONITE PELLETS 130.0 TO 163.25FT BGS (-118.54 TO -151.79FT NGVD)							
197	PORT 6 SAND PACK 163.25 TO 169.5FT BGS (-151.79 TO -158.04FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 163.94, 164.94, 165.94, 166.94, 167.94 AND 168.94FT BGS (-152.48, -153.48, -154.48, -155.48, -156.48 AND -157.48FT NGVD) TRANSDUCER (# 1204313) 166.44FT BGS (-154.98FT NGVD)							
198								
199	COATED BENTONITE PELLETS 169.5 TO 180.0FT BGS (-158.04 TO -168.54FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 83C
DATE COMPLETED: June 6, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
	CMT ANCHOR 175.0FT BGS (-163.54FT NGVD)							
201								
202								
203								
204								
205								
206								
207								
208								
209								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/26/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	13.54 11.12						
	ASPHALT	10.92						
2	SM-SILTY SAND (FILL), trace fine grained rounded gravel, compact, no plasticity, dark gray, moist, diesel-type odor - 1-2" paper debris at 1.2ft BGS							7.7
	SM-SAND, with silt, loose, fine grained, poorly graded, dark gray with few red and white grains, trace fine shell fragments, damp, diesel-type odor	8.62						
4				1RS		10.0		
6								
8								3.8
	SP-SAND, trace silt loose, fine grained, poorly graded, dark gray, trace shell fragments, some red and white grains, moist, faint diesel-type odor - wet, faint diesel-type odor, observed sheen at water table at 10.0ft BGS	2.12						
10								
12			BENTONITE GRAVEL					1.0
14				2RS		9.5		
16			6" BOREHOLE					
18			PORT 1 SCREEN 1					0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22	- fine to medium grained, dark gray with occasional red and white and brown grains, shell fragments throughout at 20.0ft BGS - fine grained, trace to with silt at 21.5ft BGS		PORT 1 SCREEN 2 PORT 1 SCREEN 3 TRANSDUCER 1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					0.0
24								
26			SAND PACK	3RS		9.0		
28	- fine to medium grained, trace to with silt at 27.0ft BGS							0.0
30								
32	SM-SAND, with silt, compact, fine grained, poorly graded, dark gray with red and white grains, occasional shell fragments, wet - occasional wood (up to 1.5" long x 1/16" Ø and as small as rootlet size) at 31.5ft BGS - wood (2" x 1/4", flat) at 32.4ft BGS	-19.88 -21.38						0.0
34	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red, brown and white grains, small shell fragments, scattered peat fibers - 1.5" clayey sandy silt, scattered rootlets, observed two 1/8" shells at top of lens at 33.5ft BGS	-22.48 -23.88		4RS		10.0		
36	ML/SM-SANDY SILT/SILTY SAND, trace peat fibers, compact, fine grained, dark gray, few medium red and white grains, small shell fragments, rapid dilatancy - silty clay, 1/8" thick discontinuous at 34.7ft BGS	-25.88						
38	SM-SAND, with silt, compact, fine to medium grained, trace coarse grained, poorly graded, trace wood from peat fiber (size to 2" x 3/4"), occasional shell fragments (up to 1/2" x 3/4"), dark gray sand with red and white grains	-27.78						0.0
	SM/ML-SANDY SILT, compact, no plasticity, fine grained, gray, few red and white grains,		COATED					

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	moist - occasional silty clay stringers, appear discontinuous, very thin at 38.5ft BGS	-29.38	BENTONITE PELLETS					
42	MH-CLAYEY SILT, soft, medium plasticity, gray, moist to very moist	-31.18						0.0
	SP-SAND, trace to with silt, compact, fine grained, poorly graded, dark gray, some red and white grains, occasional shell fragments, moist - 0.2' wood fiber (1 piece) at 42.3ft BGS	-32.18						
44	SM-SILTY SAND, trace wood, loose, fine grained, poorly graded, dark gray, with red and white grains, shell fragments, wet	-32.98	PORT 2 SCREEN 1					
	ML-SANDY CLAYEY SILT, loose, slight plasticity, gray, moist	-34.38	PORT 2 SCREEN 2	5RS		10.0		
46	SP-SAND, with silt, loose, fine grained, poorly graded, gray with red, brown and white grains, shell fragments, wet		PORT 2 SCREEN 3					
	SM/ML-SANDY SILT, compact to loose, fine grained, no plasticity, gray, wet - lenses of laminated sand/silt at 46.5ft BGS	-35.88	TRANSDUCER 2 PORT 2 SCREEN 4					0.0
48	SM-SILTY SAND, occasional rootlet-sized wood fibers, compact, fine grained, gray with red, brown and white grains, shell fragments, wet		PORT 2 SCREEN 5					
			PORT 2 SCREEN 6					
50	SM/ML-SANDY SILT, trace rootlets, loose, fine grained, no plasticity, gray, wet, trace shell fragments	-38.88						
52			SAND PACK					0.0
54	- sandy clayey silt at 55.0ft BGS			6RS		10.0		
56	- 1/2" lens clayey silt at 56.0ft BGS							
	SP-SAND, trace to with silt, compact, fine grained, dark gray with red, brown and white grains, shell fragments, wet	-45.38						
58	SM-SILTY SAND, compact, fine grained, poorly graded, gray with red and white grains, wet - 1.5" lens laminated silty clay and sand at 57.8ft BGS	-46.38						0.0

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 0.4' laminated clayey silt/silt/sand layers at 60.0ft BGS							
62	- 1/2" discontinuous clayey/silt/sand lens, trace wood rootlets at 61.8ft BGS							
		-51.28						0.0
	SM/ML-SANDY SILT, compact, fine grained, gray with some white grains, wet							
	- 1/2" lens clayey silt at 63.5ft BGS							
64								
	- 3.5" silty sand at 64.7ft BGS		COATED BENTONITE PELLETS	7RS		10.0		
66		-54.88						
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray with red and white grains, wet, with thin laminated silt (1mm silts)							
	- fine to medium grained, increase in grain size at 67.5ft BGS							0.0
68	- laminated silt and wood fibers (occasional) at 68.0ft BGS							
			PORT 3 SCREEN 1					
70	- fine grained, trace shell fragments, trace rootlets at 70.0ft BGS		PORT 3 SCREEN 2					
			PORT 3 SCREEN 3					
72	- with silt at 72.0ft BGS		TRANSDUCER 3					
		-61.38	PORT 3 SCREEN 4					0.0
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, wet, few shell fragments, red and white grains	-61.88	PORT 3 SCREEN 5					
74	SM/ML-SANDY SILT, compact, fine sand, no plasticity, gray with red and white grains, small shell fragments, rootlets, wet		PORT 3 SCREEN 6					
	- thin laminated silt, clay, sand at 74.7ft BGS							
	SM-SILTY SAND, compact, fine grained, poorly graded, gray with red and white grains, wet	-63.88		8RS		10.0		
76	- thinly laminated clay/silt/sand at 75.8ft BGS		SAND PACK					
	- 1" layer with wood fibers at 76.1ft BGS	-65.18						
	SP-SAND, trace to with silt, compact, fine to medium grained, poorly graded, dark gray with red and white grains, wet, few shell fragments							0.0
78	- 1/4" laminated silt and clay at 77.9ft BGS							

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
82	- slight increase in grain size, larger shell fragments, several shells intact at 80.0ft BGS - 1" lens gray silty clay at 82.3ft BGS - 3/4" lens silt, hard, damp at 83.0ft BGS							
84	- 2.5" lens laminated sand/silt at 85.1ft BGS			9RS				
86	- 2" lens laminated sand/silt at 86.3ft BGS							
88	- occasional irregular stiff clay lenses and/or thinly laminated sand/silt lenses at 87.5ft BGS		COATED BENTONITE PELLETS					
90	- occasional thinly laminated silt/organic silt, sand lenses up to 1/2" thick at 91.0ft BGS							
92	- scattered fine grained subangular gravel (<1% approx. 3/8"), red at 92.0ft BGS - 1/2" laminated silt at 92.5ft BGS							0.0
94	- increasing shell fragment size (1/4") at 95.0ft BGS		PORT 4 SCREEN 1 PORT 4 SCREEN 2	10RS		10.0		
96	- 3" lens silt at 96.1ft BGS		PORT 4 SCREEN 3					
98	- shell fragments greater than 1" at 97.0ft BGS - 1-1/2" laminated silt and organic silt at 97.5ft BGS - fine grained sand at 98.0ft BGS		TRANSDUCER 4 PORT 4 SCREEN 4 PORT 4 SCREEN 5					0.0
	- 3" lens laminated silt and thin sand, several flat wood pieces up to 1-1/2" x 1/2" sliver		PORT 4 SCREEN 6					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	size at 99.5ft BGS							
	- shell fragments 1/8" or smaller at 101.0ft BGS							
102			SAND PACK					0.0
104	- 2" section laminated silt and sand, dark gray at 104.5ft BGS			11RS		10.0		
106								
108								0.0
110	- lens clayey silt, light gray at 109.9ft BGS							
112								0.0
	MH-CLAYEY SILT, with thin laminated sand, soft, medium plasticity, light gray, moist, thin sand lenses/lamination, dark gray with red grains, white grains and shell fragments and rootlets	-101.88	COATED BENTONITE PELLETS					
114				12RS		10.0		
116	- increase in sand lens thickness 2" and greater at 116.0ft BGS							0.0
118	- 3" laminated silt, light and dark gray at 117.7ft BGS	-106.88						
	SM-SAND, with silt, compact, fine grained, poorly graded, dark gray with red grains and white grains, wet							

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HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
122	- silty sand, dark gray with few red grains and white grains, shell fragments throughout at 120.0ft BGS		SAND PACK					0.0
	- 1-1/2" silt, with clay at 123.0ft BGS - larger shell fragments at 123.5ft BGS							
124			PORT 5 SCREEN 1					
			PORT 5 SCREEN 2	13RS		10.0		
126			PORT 5 SCREEN 3					
	ML-SILT, with clay, minor laminations, soft, low plasticity, gray with thin dark gray lamination, very moist	-114.88 -115.38	TRANSDUCER 5					
	SM-SILTY SAND, compact, fine grained, dark gray with red grains and white grains, shell fragments, wet		PORT 5 SCREEN 4					0.0
128	- 2" laminated silt at 128.5ft BGS - sand with silt at 128.7ft BGS		PORT 5 SCREEN 5					
			PORT 5 SCREEN 6					
130								
	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, wet	-119.88						
132								0.0
	- fine to medium grained, dark gray with red grains and white grains, and shell fragments at 133.0ft BGS							
134				14RS		10.0		
136								
								0.0
138								
	- 4" section silty sand, with small flat wood pieces 0.04-0.08" x 0.39" length at 139.0ft BGS	-128.28						

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
142	ML-SILT, trace clay, trace fine sand, loose, no plasticity, moderate to rapid dilatancy, medium gray, scattered (<1%) shell fragments and wood fibers throughout - 3" section silty sand and sandy silt with flat pieces numerous small wood twigs to 1" size at 140.7ft BGS							0.0
144	- 1" section silt with sand, numerous wood pieces and sizes (rootlet to 1" square flat size) at 144.3ft BGS - 2" section silt with sand, numerous wood pieces various sizes (twig to rootlet size) at 144.8ft BGS		COATED BENTONITE PELLETS	15RS		10.0		
146	- occasional fine silty sand lenses (thin) at 146.0ft BGS							
148								0.0
150	- 1/2" section with numerous wood pieces at 150.0ft BGS							
152	- 2" section with increased large shell fragments at 151.2ft BGS							0.0
154	- 2" section with fine grained subangular to subrounded gravel (1/2"x1" to 1/4"x1/2"), scattered coarse grained sand, bright green and yellowish brown at 152.8ft BGS - approx. 1/2" lens granular sand, green, yellow, white (granular appearance), green sand grains are soft (possible glauconite) at 153.0ft BGS	-141.98		16RS		10.0		
156	SW/GW-GRAVEL AND SAND, trace silt, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, several elongated granulars, poorly sorted, gray, with yellow and white grains, wet							0.0
158	- decreased sand grain size (fine), increased silt content (trace to with silt) at 158.0ft BGS	-148.78	SAND PACK PORT 6 SCREEN 1					

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GC-CLAYEY GRAVEL, trace fine grained sand, compact, fine to coarse grained, subrounded, medium gray, wet	-149.48	PORT 6 SCREEN 2					
	SM/GM-SAND AND GRAVEL, with silt, compact, fine to medium grained sand, fine to coarse grained subrounded to subangular gravel, poorly sorted, brownish gray, wet	-150.68	PORT 6 SCREEN 3					
162	GM-SILTY SANDY GRAVEL, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel (3/8" to 3"), brownish gray, wet		PORT 6 SCREEN 4					0.0
			PORT 6 SCREEN 5					
164	CI-SILTY CLAY, firm to stiff, medium plasticity, light gray with thin dark gray layers, moist	-152.88	TRANSDUCER 6 PORT 6 SCREEN 6	17RS		10.0		
166								
								0.0
168	SC-SILTY SANDY CLAY, trace fine grained gravel (pebble size to 3/4"), stiff, slight plasticity, several green nodules (0.12-0.31" in diameter), several discontinuous curved pencil tip width green lenses, light gray, moist	-156.88 -157.88						
170	GM-SILTY SANDY GRAVEL, trace clay, compact, fine to medium grained sand, fine grained subrounded and subangular gravel (pebble size to 3/4"), poorly sorted, greenish gray, very moist to wet - light gray at 170.0ft BGS							
172	- 6" greenish gray at 172.5ft BGS							0.0
	SW/GW-SAND AND GRAVEL, trace silt, compact, fine to medium grained sand, fine grained subangular to subrounded gravel, poorly sorted, grayish brown, wet	-162.38						
174				18RS		10.0		
	SW-SAND, with silt, trace fine grained subangular to subrounded gravel (pebble size to 1/2"), poorly sorted, light grayish brown, moist	-164.38						
176			COATED BENTONITE PELLETS					
								0.0
178								
	SW/GW-SILTY SAND AND GRAVEL, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, brown, wet	-167.38						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CORE SENT TO LAB (not logged)	-168.88						
182								0.0
184								
186				19RS		10.0		
188								0.0
190	END OF BOREHOLE @ 190.0ft BGS	-178.88						
	NOTE:							
192	GLACIAL CONTACT ASSUMED AT 153.1FT BGS							
	PORT 1 SAND PACK 23.6TO 30.7FT BGS (-12.48 TO -19.58FT NGVD)							
194	INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.5, 20.5, 21.5, 22.5, 23.5 AND 24.5FT BGS (-8.38, -9.38, -10.38, -11.38, -12.38 AND -13.38FT NGVD)							
	TRANSDUCER (#1142144)							
196	22.00FT BGS (-10.88FT NGVD)							
	COATED BENTONITE PELLETS 30.7 TO 48.6FT BGS (-19.58 TO -37.48FT NGVD)							
198	PORT 2 SAND PACK							

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	48.6 TO 56.0FT BGS (-37.48 TO -44.88FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.53, 45.53, 46.53, 47.53, 48.53 AND 49.53FT BGS (-33.41, -34.41, -35.41, -36.41, -37.41 AND -38.41FT NGVD) TRANSDUCER (#1142138) 47.03FT BGS (-35.91FT NGVD)							
202								
	COATED BENTONITE PELLETS 56.0 TO 73.4FT BGS (-44.88 TO -62.28FT NGVD)							
204								
	PORT 3 SAND PACK 73.4 TO 80.3FT BGS (-62.28 TO -69.18FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.42, 70.42, 71.42, 72.42, 73.42 AND 74.42FT BGS (-58.30, -59.30, -60.30, -61.30, -62.30 AND -63.30FT NGVD) TRANSDUCER (#1142133)							
206								
208	71.92FT BGS (-60.80FT NGVD)							
	COATED BENTONITE PELLETS 80.3 TO 98FT BGS (-69.18 TO -86.88FT NGVD)							
210								
	PORT 4 SAND PACK 98 TO 105.7FT BGS (-86.88 TO -94.58FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.4, 95.4, 96.4, 97.4, 98.4 AND 99.4FT BGS (-83.28, -84.28, -85.28, -86.28, -87.28 AND -88.28FT NGVD) TRANSDUCER (#1142132)							
212								
	96.90FT BGS (-85.78FT NGVD)							
214								
	COATED BENTONITE PELLETS 105.7 TO 122.0FT BGS (-94.58 TO -110.88FT NGVD)							
216								
	PORT 5 SAND PACK 122.0 TO 129.9FT BGS (-110.88 TO -118.78FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 124.28, 125.28, 126.28, 127.28, 128.28 AND							
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 84C
DATE COMPLETED: February 14, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	129.28FT BGS (-113.16, -114.16, -115.16, -116.16, -117.16 AND -118.16FT NGVD) TRANSDUCER (# 1137316) 126.78FT BGS (-115.66FT NGVD)							
222	COATED BENTONITE PELLETS 129.9 TO 157.6 FT BGS (-118.78 TO -146.48FT NGVD)							
224	PORT 6 SAND PACK 157.6 TO 164.8FT BGS (-146.48 TO -153.68FT NGVD)							
226	INDIVIDUAL 3-INCH SCREEN BOTTOMS 159.42, 160.42, 161.42, 162.42, 163.42 AND 164.42FT BGS (-148.30 -149.30, -150.30, -151.30, -152.30 AND -153.30FT NGVD) TRANSDUCER (# 1137310) 163.92FT BGS (-152.80FT NGVD)							
228	COATED BENTONITE PELLETS 164.8 TO 190.0FT BGS (-153.68 TO -178.88FT NGVD)							
230								
232								
234								
236								
238								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 85C
DATE COMPLETED: March 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER GROUND SURFACE	14.59 12.01						
2	SW/GW-SAND AND GRAVEL (FILL), loose, medium to coarse grained sand, fine to coarse grained subangular and subrounded gravel up to 1-1/2" diameter, well graded, brown, moist							
		9.61						0.0
4	SP-SAND (FILL), trace silt, compact, fine grained, poorly graded, brown, moist - trace fine grained subangular and subrounded gravel at 3.0ft BGS - trace concrete debris at 3.5ft BGS							
6				1RS		10.0		
8								0.0
	- very moist at 8.2ft BGS							
	- wet at 9.0ft BGS		BENTONITE GRAVEL					
10	- dark gray and brown at 10.0ft BGS							
		0.31						
12	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - 1/2" lens silt at 12.8ft BGS		6" BOREHOLE					0.0
14								
	- 1-1/2" silt, trace clay at 15.0ft BGS			2RS		10.0		
16								
	- slightly reduced grain size at 16.5ft BGS							
								0.0
18	- 1/2" lens silty clay at 17.8ft BGS		SAND PACK					
	- very fine grained at 18.5ft BGS		PORT 1 SCREEN 1					
		-7.79						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 2/12/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 85C
DATE COMPLETED: March 20, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM/ML-SAND AND SILT, very loose, fine grained sand, light gray, wet	-8.39	PORT 1 SCREEN 2					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet		PORT 1 SCREEN 3					
22			TRANSDUCER 1					
			PORT 1 SCREEN 4					0.0
	- 1/2" lens silt at 22.5ft BGS - 1" lens sandy silt, with numerous sliver size pieces of wood at 22.8ft BGS		PORT 1 SCREEN 5					
24			PORT 1 SCREEN 6					
	- 2" silty sand at 24.8ft BGS - increase in shell fragment size and content at 25.0ft BGS							
26								
	- 2" silty clay at 26.5ft BGS							
	- 1/2" lens sandy silt at 27.5ft BGS							0.0
28								
30				3RS		20.0		
	- 2" silty clay, numerous small shell fragments at 31.2ft BGS	-19.29						
32	ML-SILT, with sand, trace clay, loose, no plasticity, light gray, wet, rapid dilatancy, scattered shell fragments throughout							0.0
	CL-SILTY CLAY, trace fine grained sand, soft, low plasticity, light gray, wet	-21.49						
34	- sandy silty clay at 34.5ft BGS		COATED BENTONITE PELLETS					
	- 1/4" silty sand lens at 35.3ft BGS							
36	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, small shell fragments throughout, wet	-23.99						
	- 1" lens sandy silt at 36.3ft BGS - wood pieces throughout, twig size up to 3x3/8" at 36.5ft BGS							0.0
38		-25.99						
	ML-SANDY SILT, trace clay, very loose, fine grained sand, slight plasticity, light gray, wet, rapid dilatancy - 1" silty sand lens with sliver size wood pieces at 38.2ft BGS							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	- clayey sandy silt at 42.4ft BGS - sandy silt, trace clay, rapid dilatancy at 43.0ft BGS		SAND PACK PORT 2 SCREEN 1 PORT 2 SCREEN 2 PORT 2 SCREEN 3 TRANSDUCER 2 PORT 2 SCREEN 4 PORT 2 SCREEN 5 PORT 2 SCREEN 6					0.0
44								
46								
48								0.0
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout	-36.49						
50				4RS		20.0		
	- 1" section with numerous sliver to rootlet size wood pieces at 51.2ft BGS	-39.49						
52	SM-SILTY SAND, compact, fine grained sand, gray, with red grains and white grains, wet	-40.49						0.0
	ML-SANDY SILT, trace clay, loose, low plasticity, fine sand, rapid dilatancy, scattered fine sand size shell fragments throughout							
54								
56								
58			COATED BENTONITE					0.0

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, and shell fragments throughout, wet	-47.99 -48.39	PELLETS					
62	SM-SILTY SAND, compact, fine to medium grained sand, dark gray, with red grains and white grains, shell fragments throughout, wet - increase in size of shell fragments, several intact, up to 3/4x1-1/2" at 62.7ft BGS							0.0
64								
66		-54.29						
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
68			SAND PACK PORT 3 SCREEN 1					
70	- 1/4" lens fine grained sand at 69.8ft BGS - fine grained at 70.0ft BGS		PORT 3 SCREEN 2	5RS		20.0		
			PORT 3 SCREEN 3					
72	- 1/4" lens silty sand at 72.5ft BGS - 1" lens sandy silt at 72.8ft BGS		TRANSDUCER 3 PORT 3 SCREEN 4					0.0
			PORT 3 SCREEN 5					
74	- 3/4" lens silty sand at 74.9ft BGS - 1" lens silty fine sand at 75.5ft BGS		PORT 3 SCREEN 6					
76								
78	- 1/2" lens silty sand at 77.5ft BGS - very fine grained at 78.2ft BGS							0.0

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
82	- fine grained at 80.2ft BGS							0.0
84	- 2" very fine grained at 84.2ft BGS		COATED BENTONITE PELLETS					
86	- 1" clayey silt at 86.0ft BGS - 2" silty sand at 86.1ft BGS - 2" silt and layered sand at 86.3ft BGS							0.0
88	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-76.49						
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-77.49		6RS		20.0		
90	- 1/8" lens silt at 92.0ft BGS							0.0
92	ML-SANDY SILT, trace clay, compact, fine grained, slight plasticity, gray, moist, rapid dilatancy	-80.99 -81.49						
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-81.99	SAND PACK PORT 4 SCREEN 1					
94	ML-SANDY CLAYEY SILT, compact, slight plasticity, gray, wet, slow to medium dilatancy	-83.49 -83.79	PORT 4 SCREEN 2					
96	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-83.99	PORT 4 SCREEN 3					
	CI-SILTY CLAY, soft, medium plasticity, light gray, wet		TRANSDUCER 4 PORT 4 SCREEN 4					0.0
98	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-85.89	PORT 4 SCREEN 5					
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet		PORT 4 SCREEN 6					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
102	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - fine grained at 101.0ft BGS	-87.99						0.0
104								
106	ML-SANDY SILT, layered with sand and silty sand, loose, very fine sand, slight plasticity, dark gray, with red grains and white grains, wet	-93.19						
108	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-95.49						0.0
110				7RS		20.0		
112	SM-SILTY SAND, compact, very fine sand, gray, with red grains and white grains, wet	-98.99	COATED BENTONITE PELLETS					
	CL-SANDY SILTY CLAY, firm, low plasticity, gray, wet, layered with thin sand lenses up to 2" thick	-100.49						0.0
114	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments throughout	-101.49						
116								
118	- fine grained at 118.5ft BGS							0.0

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- piece of flat wood, 1x1-1/2" at 120.2ft BGS - 1.3' section has 4 pieces of fine grained subangular to subrounded gravel, 1/4" diameter up to 1/4x1" at 120.5ft BGS							
122								0.0
	- 2" layered sand and silty clay at 123.5ft BGS							
124			SAND PACK PORT 5 SCREEN 1					
			PORT 5 SCREEN 2					
126			PORT 5 SCREEN 3 TRANSDUCER 5					
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-114.79	PORT 5 SCREEN 4					0.0
128	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - fine grained at 128.5ft BGS	-115.69	PORT 5 SCREEN 5					
			PORT 5 SCREEN 6					
130				8RS		20.0		
132								0.0
134	- slightly reduced grain size at 134.0ft BGS							
136	- 1/8" lens silty sand at 136.0ft BGS - two pieces of fine grained sand at 136.5ft BGS - 1/8" lens very fine grained sand at 136.8ft BGS							0.0
138								
	- fine to medium grained at 139.0ft BGS							

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		-129.29						
142	SC-SILTY CLAYEY SAND, compact, slight plasticity, fine grained sand, medium gray, wet - 2" fine grained sand, trace silt at 141.5ft BGS	-129.89 -130.29	COATED BENTONITE PELLETS					0.0
144	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet SM-SILTY SAND, compact, fine grained, medium gray, wet - 1-1/2" silty clay at 142.6ft BGS - silty clayey sand at 142.8ft BGS - silty sand at 143.0ft BGS							
146	- sand size reduced to very fine grained at 145.5ft BGS - sand size increasing to fine grained at 145.9ft BGS							0.0
148		-136.29						
150	SP-SAND, trace silt, compact, very fine grained, well sorted, medium gray, with red grains and white grains, wet - 1/8" lens silty sand at 149.7ft BGS - 1/2" lens silty sand at 150.1ft BGS			9RS		20.0		
152	- 1/4" lens silty sand at 150.9ft BGS - fine grained, dark gray, with red grains and white grains, shell fragments throughout at 152.5ft BGS - 3/8" lens sandy silt at 153.2ft BGS							0.0
154			SAND PACK PORT 6 SCREEN 1					
156			PORT 6 SCREEN 2 PORT 6 SCREEN 3					
158			PORT 6 SCREEN 4 PORT 6 SCREEN 5 TRANSDUCER 6 PORT 6					0.0
		-147.79						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY CLAYEY SILT, firm, slight plasticity, light gray, very moist to wet, medium dilatancy		SCREEN 6					
162								0.0
164								
166	- 1/2" fine grained sand at 166.5ft BGS							
168	- several lenses silty clay up to 1/2" thick at 167.5ft BGS							0.0
	SP-SAND, trace silt, compact, fine grained, well sorted	-157.29		10RS		20.0		
170								
172	CL-SILTY SANDY CLAY, firm, medium plasticity, light gray, wet	-160.19						0.0
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-161.49 -161.69						
174	ML-SANDY CLAYEY SILT, compact, slight plasticity, light gray, wet, medium to slow dilatancy							
176	CL-SILTY SANDY CLAY, soft, low plasticity, light gray, wet	-163.59						
	ML-SANDY SILT, trace clay, compact, slight plasticity, rapid dilatancy, wet	-164.99 -165.49						0.0
178	SM-SILTY SAND, compact, fine grained, medium gray, wet							
	ML-SANDY SILT, compact, fine grained, slight plasticity, rapid dilatancy, wet	-167.29						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 2" silty clay at 180.0ft BGS							
	- occasional small shell fragments throughout, sand size red and white grains at 181.0ft BGS							
182								
	- sandy clayey silt at 182.8ft BGS							0.0
184								
	CL-SILTY CLAY, firm, low plasticity, light and medium gray, very moist	-172.59						
	ML-SANDY SILT, trace clay, compact, slight plasticity, light gray, very moist to wet, occasional small shell fragments throughout, slow to medium dilatancy	-173.19						
186								
								0.0
188								
190				11RS		20.0		
192								
	- 1" lens silty clay at 192.3ft BGS - 1/2" lens silty clay at 192.4ft BGS - 1/2" lens silty clay at 192.7ft BGS							0.0
	- sandy clayey silt at 193.5ft BGS							
194								
	- sandy silt, trace clay at 194.5ft BGS							
196								
	- 1/2" lens silty clay at 196.2ft BGS							
	- wet at 197.0ft BGS							0.0
198								
	- 2-1/2" sandy silty clay, light and medium gray at 199.4ft BGS							

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202	SP-SAND, trace silt, very loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-187.99	COATED BENTONITE PELLETS					0.0
204								
206	CL-SANDY SILTY CLAY, firm, low plasticity, light gray, wet	-192.99						
208	CL-SILTY CLAY, firm, low plasticity, dark and medium gray, small shell fragments throughout	-194.49						0.0
210				12RS		20.0		
212								0.0
214	- two hardened/cemented silt fragments, may be coating shell fragments, breaks into chunks when hammered, larger piece is 3/4x1-1/2" irregular shape at 215.0ft BGS							
216	- intact shell greater than 1-1/2" on largest plane, appears to be filled with hardened silt, able to scrub silt off of shell exterior at 215.3ft BGS							
218								0.0

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- shell fragments throughout, consistent, medium gray at 220.0ft BGS							
222								0.0
224								
226								
228								0.0
230				13RS		20.0		
232								0.0
234								
236								
238								0.0

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	END OF BOREHOLE @ 240.0ft BGS	-227.99						
	NOTE:							
242	PORT 1 SAND PACK 17.6 TO 25.8FT BGS (-5.59 TO -13.79FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.14, 20.14, 21.14, 22.14, 23.14 AND 24.14FT BGS (-7.13, -8.13, -9.13, -10.13, -11.13 AND -12.13FT NGVD) TRANSDUCER (# 1142328) 21.64FT BGS (-9.63FT NGVD)							
244								
246	COATED BENTONITE PELLETS 25.8 TO 43.2FT BGS (-13.79 TO -31.19FT NGVD)							
248	PORT 2 SAND PACK 43.2 TO 50.8FT BGS (-31.19 TO -38.79FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.31, 45.31, 46.31, 47.31, 48.31 AND 49.31FT BGS (-32.30, -33.30, -34.30, -35.30, -36.30 AND -37.30FT NGVD) TRANSDUCER (#1141755) 46.81FT BGS (-34.80FT NGVD)							
250								
252	COATED BENTONITE PELLETS 50.8 TO 68.0FT BGS (-38.79 TO -55.99FT NGVD)							
254	PORT 3 SAND PACK 68.0 TO 75.5FT BGS (-55.99 TO -63.49FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.33, 70.33, 71.33, 72.33, 73.33 AND 74.33FT BGS (-57.32, -58.32, -59.32, -60.32, -61.32 AND -62.32FT NGVD) TRANSDUCER (#1142135) 71.83FT BGS (-59.82FT NGVD)							
256								
258	COATED BENTONITE PELLETS 75.5 TO 93.7FT BGS (-63.49 TO -81.69FT NGVD)							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	PORT 4 SAND PACK 93.7 TO 100.8FT BGS (-81.69 TO -88.79FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
262	94.41, 95.41, 96.41, 97.41, 98.41 AND 99.41FT BGS (-82.40, -83.40, -84.40, -85.40, -86.40 AND -87.40FT NGVD) TRANSDUCER (#1142131) 96.91FT BGS (-84.90FT NGVD)							
264	COATED BENTONITE PELLETS 100.8 TO 123.2FT BGS (-88.79 TO -111.19FT NGVD)							
266	PORT 5 SAND PACK 123.2 TO 130.8FT BGS (-111.19 TO -118.79FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
268	124.50, 125.50, 126.50, 127.50, 128.50 AND 129.50FT BGS (-112.49, -113.49, -114.49, -115.49, -116.49 AND -117.49FT NGVD) TRANSDUCER (# 1137317) 126.50FT BGS (-114.99FT NGVD)							
270	COATED BENTONITE PELLETS 130.8 TO 153.5FT BGS (-118.79 TO -141.49FT NGVD)							
272	PORT 6 SAND PACK 153.5 TO 161.0FT BGS (-141.49 TO -148.99FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
274	154.70, 155.70, 156.70, 157.70, 158.70 AND 159.70FT BGS (-142.69, -143.69, -144.69, -145.69, -146.69 AND -147.69FT NGVD) TRANSDUCER (# 1137313) 159.20FT BGS (-147.19FT NGVD)							
276	COATED BENTONITE PELLETS 161 TO 240.0FT BGS (-148.99 TO -227.99FT NGVD)							
278								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.80 10.37						
	ASPHALT	10.60						
	NO RECOVERY, cleared by vac truck (0.2-8' BGS)							
2								
4				1VAC				
			6" BOREHOLE					
6								
8		2.80	BENTONITE GRAVEL					
	SP-SAND (FILL), trace silt, loose, fine grained, poorly graded, dark gray, with red grains and white grains, shell fragments, occasional brown lenses, very moist to wet							
10	- wet at 10.0ft BGS - 1/2" lens silt at 10.4ft BGS							0.0
	- trace fine grained, brown and black sand, trace fine grained subangular and subrounded gravel at 11.3ft BGS	-0.90						
12	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments throughout	-1.70 -2.10						
	ML-SANDY SILT, trace clay, very loose, no plasticity, medium gray, wet			2RS		12.0		
14	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-4.20						0.0
	CI-SILTY CLAY, soft, medium plasticity, light gray, moist, wood pieces throughout (sliver size to 1/2"x3")	-4.70 -5.10						
16	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet		SAND PACK PORT 1 SCREEN 1					
	CI-SILTY CLAY, firm, medium plasticity, light gray, moist, minor amount sliver size wood pieces throughout	-7.20	PORT 1 SCREEN 2					
18	- 2" lens silty fine grained sand and small shell fragments, wet at 17.4ft BGS		PORT 1 SCREEN 3					0.0
	SP-SAND, trace silt, compact, fine to medium grained, poorly sorted, dark gray, with red		TRANSDUCER #1					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains and white grains, shell fragments throughout, wet - scattered twig size wood pieces up to 1/4"x1-1/2" at 18.7ft BGS - 2" section trace fine grained subangular and subrounded gravel up to 1/2"x3/4" at 20.3ft BGS - 1/4" lens silty sand, trace sliver size wood pieces at 21.7ft BGS - 5" section with numerous large size shell fragments at 23.5ft BGS - reduced grain size at 24.5ft BGS - 2" lens very fine sand, with silt at 24.8ft BGS		PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					
22								0.0
24								
26								
28								0.0
	SM-SILTY SAND, compact, very fine grained, medium gray, wet	-18.20 -18.70						
30	SM/ML-SILT AND SAND, compact, very fine grained, no plasticity, medium gray, wet, rapid dilatancy			3RS				
32	- 3" lens silty very fine sand at 32.2ft BGS		COATED BENTONITE PELLETS					0.0
	ML-CLAYEY SANDY SILT, very loose, medium gray, saturated, scattered shell fragments, rapid dilatancy	-22.20						
34								
36	SC-SILTY CLAYEY SAND, very loose, fine grained, medium gray, saturated, shell fragments and wood pieces throughout	-25.20 -25.90						
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
38	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-27.20						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-29.20	SAND PACK; PORT 2 SCREEN 1					
42	- fine to medium grained at 42.1ft BGS		PORT 2 SCREEN 2					0.0
44	- piece of flat wood 1"x1" at 44.0ft BGS		PORT 2 SCREEN 3					
	- sparse small wood pieces throughout, various sizes at 45.0ft BGS		TRANSDUCER #2 PORT 2 SCREEN 4					
46			PORT 2 SCREEN 5					
			PORT 2 SCREEN 6					0.0
48	- single grain gravel, rough, subrounded, 3/8" diameter at 48.4ft BGS							
50				4RS		20.0		
	ML-SILT, with sand, compact, no plasticity, light gray, moist	-40.50						
52	- trace small wood pieces at 51.7ft BGS - thin layers silt, clay, wet sand at 52.0ft BGS	-41.90						0.0
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
54								
56			COATED BENTONITE PELLETS					
	- 1/8" lens silt at 57.7ft BGS							0.0
58								
	- 1/8" lens silt at 59.4ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM/ML-SANDY SILT, loose, fine grained sand, rapid dilatancy, brownish gray, wet, trace small wood pieces	-49.20						
	SM-SAND, with silt, compact, fine grained, gray, wet	-50.70 -51.00						
62	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
64	- finer grained at 64.0ft BGS							
	- trace to with silt at 65.0ft BGS							
66			SAND PACK PORT 3 SCREEN 1					
68			PORT 3 SCREEN 2 PORT 3 SCREEN 3					0.0
	SM-SILTY SAND, compact, fine grained, medium gray, red grains and white grains, shell fragments throughout, wet	-58.70	TRANSDUCER #3 PORT 3 SCREEN 4 PORT 3 SCREEN 5	5RS		20.0		
70			PORT 3 SCREEN 6					
72	- 2" lens clayey silt at 72.4ft BGS	-61.70						0.0
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							
74	- slight increase in grain size at 75.0ft BGS							
76	- twig size piece of wood at 76.7ft BGS - fine grained at 77.0ft BGS							
	- trace to with silt at 77.5ft BGS							0.0
78	- trace silt at 78.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1/8" lens silt at 81.0ft BGS - 1/4" lens silt at 81.8ft BGS - very fine grained at 82.6ft BGS		COATED BENTONITE PELLETS					0.0
82								
84	SM-SILTY SAND, compact, very fine grained, gray, with red grains and white grains, wet	-73.00						
86								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-75.70						0.0
88								
90	- piece of flat wood, 3/8"x3/4" at 90.0ft BGS			6RS		20.0		
			SAND PACK PORT 4 SCREEN 1					
92	ML-SILT, with sand, trace clay, compact, slight plasticity, light gray, very moist, rapid dilatancy - 3" clayey sandy silt at 92.3ft BGS - occasional thin 0.04" sand lamina, wet at 92.6ft BGS	-81.20	PORT 4 SCREEN 2					0.0
94	- clayey sandy silt, several small sliver size wood pieces at 94.0ft BGS	-83.70	PORT 4 SCREEN 3					
	SM-SILTY SAND, compact, very fine grained, gray, with red grains and white grains, shell fragments throughout, wet		TRANSDUCER #4 PORT 4 SCREEN 4 PORT 4 SCREEN 5					
96			PORT 4 SCREEN 6					
98								0.0
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-88.20						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, shell fragments throughout, wet	-89.70						
	ML-SANDY SILT, compact, no plasticity, fine grained, gray, with red grains and white grains, wet, rapid dilatancy	-90.70						
102	SM-SILTY SAND, compact, fine grained, well graded, gray, wet, visible white grains and red grains	-91.60						0.0
104	SM/ML-SILT AND SAND, compact, no plasticity, fine sand, gray, with red grains and white grains, wet, rapid dilatancy	-93.20						
106	SM-SILTY SAND, compact, very fine grained, gray, with red grains and white grains, wet	-94.70						0.0
108								
110	- shell fragments throughout at 110.0ft BGS		COATED BENTONITE PELLETS	7RS		20.0		
112								0.0
114	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-102.70						
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet	-103.70						
116	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-105.70						
118								0.0
	SM/ML-SAND AND SILT, compact, fine	-108.70						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grained sand, gray, with red grains and white grains, wet		SAND PACK					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-110.20	PORT 5 SCREEN 1					
122	SM-SILTY SAND, compact, very fine grained, with red grains and white grains, scattered shell fragments, wet	-111.70	PORT 5 SCREEN 2					0.0
124			PORT 5 SCREEN 3					
			TRANSDUCER #5					
126	SP-SAND, trace silt, compact, very fine grained, well sorted, gray, with red grains and white grains, wet	-115.20	PORT 5 SCREEN 4					
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-116.20	PORT 5 SCREEN 5					
128			PORT 5 SCREEN 6					0.0
130	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-119.20		8RS		20.0		
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-120.50						
132								0.0
	ML-SANDY SILT, compact, no plasticity, gray, wet, rapid dilatancy	-122.70						
134								
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet	-124.70 -125.20						
136	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-125.70						
	ML-SANDY SILT, trace clay, slight plasticity, compact, light gray, very moist, rapid dilatancy	-127.20						0.0
138	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, few small shell fragments, wet	-127.70 -128.20						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	white grains, shell fragments, wet	-129.20						
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, shell fragments throughout, wet	-129.50						
142	ML-SANDY SILT, compact, no plasticity, light gray, very moist to wet, rapid dilatancy							
	SP-SAND, trace to with silt, compact, fine grained, brownish gray, with red grains and white grains, shell fragments, wet							0.0
	- 1" silt at 140.7ft BGS	-132.70						
144	SM-SILTY SAND, compact, fine grained, poorly graded, gray, with red grains and white grains, shell fragments throughout		COATED BENTONITE PELLETS					
	- 1/2" lens silt at 143.5ft BGS							
	- 1/2" lens silt at 144.0ft BGS							
146	- 3" lens silt at 144.9ft BGS							
	- silty very fine sand at 145.5ft BGS							
148								0.0
150	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-139.20		9RS		20.0		
		-140.20						
	ML-SANDY SILT, compact, no plasticity, light gray, very moist	-140.40						
152	SM-SILTY SAND, compact, fine grained sand, gray, with red grains and white grains, shell fragments throughout, occasional thin silt lenses less than 1/2" thick							0.0
154								
156								
158								0.0
	- sand with silt at 159.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- silty sand at 159.9ft BGS	-149.20	SAND PACK					
	ML-SILT, with sand, trace clay, compact, slight plasticity, light gray, very moist, low to medium dilatancy		PORT 6 SCREEN 1					
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-150.70	PORT 6 SCREEN 2					0.0
162	- sand, trace silt, slight increase in grain size at 163.0ft BGS		PORT 6 SCREEN 3					
164			TRANSDUCER #6					
			PORT 6 SCREEN 4					
166			PORT 6 SCREEN 5					
			PORT 6 SCREEN 6					0.0
168	- 2" section with several thin 1/4" silty clay layers and sand layers at 168.3ft BGS							
	- very fine grained at 169.3ft BGS							
170				10RS		20.0		
	ML-SILT, trace sand, compact, slight plasticity, light gray, slow dilatancy, scattered small shell fragments throughout	-159.70						
172								0.0
174			CMT ANCHOR COATED BENTONITE PELLETS					
176								
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-166.20						0.0
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	END OF BOREHOLE @ 180.0ft BGS	-169.20						
	NOTE:							
182	PORT 1 SAND PACK 16.0 TO 23.0FT BGS (-5.20 TO -12.20FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 16.95, 17.95, 18.95, 19.95, 20.95 AND 21.95FT BGS (-6.15, -7.15, -8.15, -9.15, -10.15 AND -11.15FT NGVD) TRANSDUCER (# 1142327) 19.45FT BGS (-8.65FT NGVD)							
184								
186	COATED BENTONITE PELLETS 23.0 TO 41.0FT BGS (-12.20 TO -30.20FT NGVD)							
188	PORT 2 SAND PACK 41.0 TO 48.0FT BGS (-12.20 TO -30.20FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 42.0, 43.0, 44.0, 45.0, 46.0 AND 47.0FT BGS (-31.20, -32.20, -33.20, -34.20, -35.20 AND -36.20FT NGVD) TRANSDUCER (#1141757) 44.50FT BGS (-33.70FT NGVD)							
190								
192	COATED BENTONITE PELLETS 48.0 TO 66.0FT BGS (-37.20 TO -55.20FT NGVD)							
194	PORT 3 SAND PACK 66.0 TO 73.2FT BGS (-55.20 TO -62.40FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 67.01, 68.01, 69.01, 70.01, 71.01 AND 72.01FT BGS (-56.21, -57.21, -58.21, -59.21, -60.21 AND -61.21FT NGVD) TRANSDUCER (#1141750) 69.51FT BGS (-58.71FT NGVD)							
196								
198	COATED BENTONITE PELLETS 73.2 TO 91.0FT BGS (-62.40 TO -80.20FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 86C
DATE COMPLETED: March 19, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	PORT 4 SAND PACK 91.0 TO 98.0FT BGS (-80.20 TO -87.20FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
202	92.01, 93.01, 94.01, 95.01, 96.01 AND 97.01FT BGS (-81.21, -82.21, -83.21, -84.21, -85.21 AND -86.21FT NGVD) TRANSDUCER (#1141741) 94.51FT BGS (-83.71FT NGVD)							
204	COATED BENTONITE PELLETS 98.0 TO 120.9FT BGS (-87.2 TO -110.1FT NGVD)							
206	PORT 5 SAND PACK 120.9 TO 128.0FT BGS (-110.1 TO -117.2FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
208	122.06, 123.06, 124.06, 125.06, 126.06 AND 127.06FT BGS (-111.26, -112.26, -113.26, -114.26, -115.26 AND -116.26FT NGVD) TRANSDUCER (# 1140304) 124.56FT BGS (-113.76FT NGVD)							
210	COATED BENTONITE PELLETS 128.0 TO 160.8FT BGS (-117.2 TO -150.0FT NGVD)							
212	PORT 6 SAND PACK 160.8 TO 169.3FT BGS (-150.0 TO -158.FFT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
214	161.65, 162.65, 163.65, 164.65, 165.65 AND 166.65FT BGS (-150.85, -151.85, -152.85, -153.85, -154.85 AND -155.85FT NGVD) TRANSDUCER (# 1140287) 164.15FT BGS (-153.35FT NGVD)							
216	COATED BENTONITE PELLETS 169.3 TO 180.0FT BGS (-150.00 TO -169.2FT NGVD)							
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	12.31 11.77						
0	ASPHALT	12.11						
	NO RECOVERY, cleared with vac truck (0.2-8' BGS)							
2								0.0
4			6" BOREHOLE					
6								
8								0.0
	SP-SAND (FILL), trace silt, trace fine grained rounded gravel, loose, fine to medium grained, poorly graded, dark gray with white grains and red grains, shells, wet	4.31	BENTONITE GRAVEL					
10	- 1" lens brown and dark gray at 10.5ft BGS			1RS		20.0		
	- 1/2" silt lens, layered at 11.5ft BGS							
12								0.0
	SP-SAND, trace silt, compact, fine grained, poorly sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-0.69						
14	- 2" lens layered silt and sand, rootlet size wood fibers in silt at 14.5ft BGS							
	- 1/2" lens silt, trace clay, contains sliver size wood piece at 15.6ft BGS							
16								
	- 3/4" lens silty clay at 17.3ft BGS - 1/2 lens increase in shell fragment quantity at 17.4ft BGS - 0.4" lens layered silt, dark and light gray at 18.2ft BGS - 2.2" lens silty clay at 18.5ft BGS - occasional sliver size wood pieces up to 0.8"x0.2" at 18.8ft BGS		SAND PACK PORT 1 SCREEN 1					0.0
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- well sorted, slight increase in grain size at 20.0ft BGS		PORT 1 SCREEN 2					
			PORT 1 SCREEN 3					
22	- 3/4" lens clayey silt at 22.2ft BGS - increase in size of shell fragments at 22.3ft BGS - shell fragments from pencil tip size up to 1/2"x1" at 23.0ft BGS		TRANSDUCER #1 PORT 1 SCREEN 4					0.0
			PORT 1 SCREEN 5					
24	- 3/8" lens wood at 24.5ft BGS - 1/2" lens silt at 24.9ft BGS		PORT 1 SCREEN 6					
26	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet	-13.49 -14.09						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
28	- increase in shell fragment size and content at 28.0ft BGS - 1/4" lens silt at 28.2ft BGS - numerous small shell fragments at 28.3ft BGS	-16.19 -16.69						
30	SC-SILTY CLAYEY SAND, very loose, no plasticity, medium gray, shell fragments up to 1-1/4"x2", wet			2RS		20.0		
	SM-SAND, with silt, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-18.49						
32	- 1/4" lens sandy silt at 29.6ft BGS	-19.69						
	ML-SANDY SILT, trace clay, compact, no plasticity, medium gray, occasional shell fragments and sliver size wood pieces, wet, rapid dilatancy	-20.69						0.0
34	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, shell fragments throughout, wet		COATED BENTONITE PELLETS					
	CL-SILTY CLAY, trace sand, very soft, slight plasticity, medium gray, occasional pencil tip size shell fragments, occasional sliver size pieces of saturated wood, wet							
36								
								0.0
38	SC-CLAYEY SILTY SAND, very loose, no plasticity, medium gray, wet	-25.69 -26.19						
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	- slight increase in grain size at 41.4ft BGS - slight decrease in grain size at 41.9ft BGS		SAND PACK PORT 2 SCREEN 1					0.0
44	- 2" section trace fine grained subangular to subrounded gravel up to 1/2"x7/8" at 45.0ft BGS		PORT 2 SCREEN 2 PORT 2 SCREEN 3					
46			TRANSDUCER #2 PORT 2 SCREEN 4					0.0
48	- 8" section increase in shell fragment size and occasional wood pieces up to 1/4"x3/4" at 47.5ft BGS		PORT 2 SCREEN 5 PORT 2 SCREEN 6					
50	- 1/4" lens fine grained sand at 50.3ft BGS - 1/4" lens silty sand at 51.2ft BGS			3RS		20.0		
52	- 1/4" lens fine grained sand at 52.5ft BGS - 1/4" lens fine grained sand at 52.8ft BGS							0.0
54	SM-SAND, with silt, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet, occasional silty sand lenses up to 1/2" thick	-42.29 -42.99						
56	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
58	- 1/4" lens silty sand at 59.6ft BGS		COATED BENTONITE PELLETS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- occasional sliver size wood pieces at 60.3ft BGS - 2" silty sand, numerous sliver size to rootlet size wood pieces at 61.2ft BGS	-49.19						
62	SM-SAND, with silt, compact, fine grained, dark gray, with red grains and white grains, scattered small shell fragments throughout, wet	-49.99						0.0
	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, shell fragments, wet	-50.39						
64	ML-SANDY SILT, compact, fine grained sand, no plasticity, medium gray, wet, occasional shell fragments, white grains and red grains, and sliver size wood pieces throughout, rapid dilatancy, wet							
66	SM-SAND, with silt, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet - 1-1/2" lens silt, trace sand, trace clay at 66.8ft BGS - 3/8" lens silt at 67.1ft BGS	-53.49						0.0
68	- larger shell fragments at 67.5ft BGS - 1/2" lens silt at 67.8ft BGS - 1/8" thick x 1"x2" piece of wood at 68.0ft BGS - 1/2" lens silt at 68.5ft BGS - 1/2" lens silt at 69.3ft BGS		SAND PACK PORT 3 SCREEN 1					
70			PORT 3 SCREEN 2	4RS		20.0		
			PORT 3 SCREEN 3					
72			TRANSDUCER #3 PORT 3 SCREEN 4					
	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-60.19	PORT 3 SCREEN 5					0.0
74	- 3/8" lens silt at 74.0ft BGS - 1/4" lens silt at 74.5ft BGS		PORT 3 SCREEN 6					
	ML-CLAYEY SILT, firm, slight plasticity, medium gray, moist, several thin wet sand lenses up to 0.04" thick	-62.69						
76		-64.49						
	SP-SAND, compact, medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-64.89						0.0
78	ML-SILT, trace sand, trace clay, compact, no plasticity, medium gray, occasional small shell fragments throughout, moist - sandy silt at 78.0ft BGS - occasional lenses silty sand at 78.5ft BGS	-67.19						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-67.69						
	SM/ML-SANDY SILT, compact, fine grained sand, no plasticity, medium gray, wet, rapid dilatancy, scattered small shell fragments throughout	-69.49						
82	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, wet							0.0
84	- 1/2" lens silt at 82.5ft BGS		COATED BENTONITE PELLETS					
86	- several larger shell fragments throughout at 85.5ft BGS							
88	- slight increase in grain size, fine to medium grained at 87.0ft BGS - occasional thin silty sand lenses up to 1/4" thick at 88.0ft BGS - trace coarse grained sand, bluish gray, and increased shell fragment size at 88.5ft BGS							0.0
90				5RS		20.0		
	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, shell fragments throughout, wet	-79.09						
92			SAND PACK					0.0
94			PORT 4 SCREEN 1					
			PORT 4 SCREEN 2					
96			PORT 4 SCREEN 3					
			TRANSDUCER #4					
			PORT 4 SCREEN 4					0.0
98			PORT 4 SCREEN 5					
			PORT 4 SCREEN 6					

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CL-SILTY CLAY, firm, low plasticity, medium gray, moist	-87.69						
	CL-SANDY CLAY, soft, low plasticity, gray, wet	-88.69						
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, small shell fragments throughout	-89.19						
102								0.0
	- 1" lens with numerous sliver size wood pieces at 103.2ft BGS							
104								
106								
	- sand, with silt at 107.0ft BGS							0.0
108								
110				6RS		20.0		
			COATED BENTONITE PELLETS					
112	SC-CLAYEY SILTY SAND, very loose, fine grained, slight plasticity, light gray, wet	-99.69						
		-100.19						0.0
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet, occasional thin 1/8" silt lenses							
114								
	- occasional pieces of wood up to 1"x1/2", flat and piece of wood 1"x1/2"x1/2" diameter at 115.5ft BGS							
116		-103.69						
	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet							0.0
118								
	- 1" lens sandy silt at 119.8ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1" lens sandy silt at 120.0ft BGS							
122	- 1" lens sandy silt at 122.5ft BGS							0.0
			SAND PACK					
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-110.99						
124	- 1" lens sandy silt at 124.3ft BGS		PORT 5 SCREEN 1					
	- occasional lenses, sandy silt less than 1/4" thick at 125.0ft BGS		PORT 5 SCREEN 2					
126			PORT 5 SCREEN 3					
			TRANSDUCER #5					
			PORT 5 SCREEN 4					0.0
128			PORT 5 SCREEN 5					
			PORT 5 SCREEN 6					
130	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, with red grains and white grains, shell fragments throughout, wet	-117.69		7RS		20.0		
	SM-SILTY SAND, compact, fine grained sand, dark gray, with red grains and white grains, shell fragments throughout, wet	-118.69						
132	ML-SANDY SILT, compact, fine grained sand, no plasticity, gray, very moist	-119.69 -120.19						0.0
	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, wet							
134	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-121.69 -122.19						
	SM-SILTY SAND, compact, fine grained, medium gray, with white grains and red grains, wet							
136								
	SM/ML-SILTS AND SANDS, layered, compact, fine sand, no plasticity, medium gray, moist	-124.69						0.0
138	SM-SILTY SAND, compact, fine grained, well sorted, occasional thin silt lenses, gray, with white grains and red grains, scattered shell fragments throughout, wet	-125.69						

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
142	- 1" lens sandy silt at 141.4ft BGS - 1-1/2" lens sandy silt at 142.5ft BGS							0.0
144		-132.19						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, minor amount of small shell fragments throughout, wet	-132.69						
146	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, wet, occasional thin fine sand lenses less than 1/8" thick - fine grained at 146.0ft BGS		COATED BENTONITE PELLETS					0.0
148	- occasional silt lenses less than 1/4" thick at 147.0ft BGS							
		-137.19						
150	SP-SAND, trace to with silt, compact, fine grained, well sorted, gray, with red grains and white grains, wet			8RS		20.0		
	- 1-1/2" lens sandy silt at 150.4ft BGS	-138.19						
	SM-SILTY SAND, compact, fine grained, medium gray, with red grains and white grains, moist							
152	- sand with silt at 151.7ft BGS	-139.69						0.0
	SP-SAND, trace to with silt, compact, fine grained, well sorted, gray, with red grains and white grains, small shell fragments throughout, wet							
154	- sand, trace silt at 153.5ft BGS - 1-1/2" sandy silt at 154.4ft BGS - 1" sandy silt at 154.9ft BGS							
156	- 1-1/2" silty fine grained sand at 155.8ft BGS							
158								0.0

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1/2" lens silty sand at 160.4ft BGS							
162								0.0
			SAND PACK					
164			PORT 6 SCREEN 1					
			PORT 6 SCREEN 2					
166			PORT 6 SCREEN 3					
	- 1-1/2" lens silty clay at 166.8ft BGS		TRANSDUCER #6					
			PORT 6 SCREEN 4					0.0
168	SM/ML-SAND AND SILT, compact, fine grained sand, no plasticity, medium gray, with red grains and white grains, wet, rapid dilatancy	-155.69	PORT 6 SCREEN 5					
	- 3/4" lens silt at 169.6ft BGS		PORT 6 SCREEN 6					
170	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-157.69		9RS		20.0		
172	- sand, trace silt, small shell fragments throughout at 172.0ft BGS							0.0
174								
	- 1/2" lens sandy silt at 175.0ft BGS		COATED BENTONITE PELLETS					
	- very fine grained sand, with silt at 175.3ft BGS		CMT ANCHOR					
176								
	- 3/4" lens silt at 177.5ft BGS							0.0
178								
	- fine sand, trace silt at 179.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	END OF BOREHOLE @ 180.0ft BGS	-167.69						
	NOTE:							
182	PORT 1 SAND PACK 17.6-25.0FT BGS (-5.29 TO -12.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.19, 20.19, 21.19, 22.19, 23.19 AND 24.19FT BGS (-6.88, -7.88, -8.88, -9.88, -10.88 AND -11.88FT NGVD)							
184	TRANSDUCER (# 1142330) 21.69FT BGS (-9.38FT NGVD)							
186	COATED BENTONITE PELLETS 25.0 TO 43.0FT BGS (-12.69 TO -30.69FT NGVD)							
188	PORT 2 SAND PACK 43.0 TO 50.0FT BGS (-30.69 TO -37.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.19, 45.19, 46.19, 47.19, 48.19 AND 49.19FT BGS (-31.88, -32.88, -33.88, -34.88, -35.88 AND -36.88FT NGVD)							
190	TRANSDUCER (# 1141756) 46.69FT BGS (-34.38FT NGVD)							
192	COATED BENTONITE PELLETS 50.0 TO 67.7FT BGS (-37.69 TO -55.39FT NGVD)							
194	PORT 3 SAND PACK 67.7 TO 75.0FT BGS (-55.39 TO -62.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 69.17, 70.17, 71.17, 72.17, 73.17 AND 74.17FT BGS (-56.86, -57.86, -58.86, -59.86, -60.86 AND -61.86FT NGVD)							
196	TRANSDUCER (# 1141742) 71.67FT BGS (-59.36FT NGVD)							
198	COATED BENTONITE PELLETS 75.0 TO 92.7FT BGS (-62.69 TO -80.39FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 87C
DATE COMPLETED: March 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	PORT 4 SAND PACK 92.7 TO 100.2FT BGS (-80.39 TO -87.89FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
202	94.16, 95.16, 96.16, 97.16, 98.16 AND 99.16FT BGS (-81.85, -82.85, -83.85, -84.85, -85.85, -86.85FT NGVD) TRANSDUCER (# 1141687) 96.66FT BGS (-84.35FT NGVD)							
204	COATED BENTONITE PELLETS 100.2 TO 122.5FT BGS (-87.89 TO -110.19FT NGVD)							
206	PORT 5 SAND PACK 122.5 TO 130.0FT BGS (-110.19 TO -117.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
208	124.22, 125.22, 126.22, 127.22, 128.22 AND 129.22FT BGS (-111.91, -112.91, -113.91, -114.91, -115.91 AND -116.91FT NGVD) TRANSDUCER (# 1140303) 126.72FT BGS (--114.41FT NGVD)							
210	COATED BENTONITE PELLETS 130.0 TO 163.0FT BGS (-117.69 TO -150.69FT NGVD)							
212	PORT 6 SAND PACK 163.0 TO 170.5FT BGS (-150.69 TO -158.19FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
214	164.22, 165.22, 166.22, 167.22, 168.22 AND 169.22FT BGS (-151.91, -152.91, -153.91, -154.91, -155.91 AND -156.91FT NGVD) TRANSDUCER (# 1140292) 166.72FT BGS (-154.41FT NGVD)							
216	COATED BENTONITE PELLETS 170.5 TO 176.0FT BGS (-158.19 TO -163.69FT NGVD)							
218								

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 88C
DATE COMPLETED: April 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.44						
	ASPHALT	10.04						
2	SP-SAND (FILL), trace silt, trace gravel, loose, fine grained sand, fine grained angular and subrounded gravel, silt lenses, moist							0.0
4			6" BOREHOLE	1RS		8.0		
6								0.0
8	NO RECOVERY (8-10' BGS)	2.44	BENTONITE GRAVEL	2RS		0.0		--
10	SM/ML-SAND AND SILT (FILL), trace fine grained angular gravel, fine grained, very loose, dark gray, occasional brown lenses, red grains and white grains, wet - 1-1/2" silty clay at 10.6ft BGS - trace wood pieces at 11.6ft BGS - 3/4" silty clay at 12.0ft BGS	0.44						
12	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, wet	-2.06 -3.06						0.0
14	SM/ML-SAND AND SILT, very loose, fine grained, no plasticity, very rapid dilatancy, medium gray, with red grains and white grains, shell fragments throughout, wet, several twig size to sliver size wood pieces - laminated silt at 13.7ft BGS	-3.56 -4.06		3RS		10.0		
16	SM-SILTY SAND, loose, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-4.86 -6.56	SAND PACK					
18	CI-SILTY CLAY, firm, medium plasticity, light gray, very moist to wet, small wood pieces scattered throughout - with laminated sand and layered sand lenses up to 1/2" thick, fiber to sliver size wood pieces in clay and sand, shell fragments in sand, dark gray sand, with red grains and white grains at 14.8ft BGS	-7.86 -9.26	PORT 1 SCREEN 1 PORT 1 SCREEN 2					0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 88C
DATE COMPLETED: April 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - sand, trace silt at 15.6ft BGS - 2-1/2" silty clay, with laminated sand, roots and small wood pieces (1/2x3/4") in clay, larger shell fragments at top contact at 16.3ft BGS	-10.66	PORT 1 SCREEN 3 TRANSDUCER #1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					
22								0.0
	CI-SILTY CLAY, firm, medium plasticity, gray, very moist to wet, pieces of wood and roots throughout, laminated sand throughout, shell fragments throughout - wood pieces up to 2-1/2x1" at 17.9ft BGS	-13.56						
24								
	SM-SILTY SAND, compact, fine to medium grained, poorly sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, shell fragments up to 1-1/4x1/2" - 1-1/2" silt with laminated sand, several small intact shells at 19.5ft BGS	-14.96						
26								
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - increased size of shell fragments at 20.0ft BGS							0.0
28								
	ML-SANDY CLAYEY SILT, loose, fine sand, low plasticity, light gray, wet, rapid dilatancy, shell fragments (various sizes) throughout - laminated sand and laminated silty clay at 22.3ft BGS - 2-1/2" silty clay at 23.2ft BGS - 2-1/2" silty sandy clay at 23.5ft BGS	-19.76		4RS		20.0		
30								
	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout - two intact shells 1x2" at 24.8ft BGS							0.0
32								
	ML-SANDY SILT, trace clay, compact, fine grained sand, low plasticity, light gray, wet, rapid dilatancy, large shell fragments throughout, occasional sand laminations - layers of silty clay up to 1/2" throughout at 26.0ft BGS - 2" section trace peat fibers at 26.5ft BGS - scattered wood pieces 1/2x3/4" diameter at 27.5ft BGS - 1" section with sliver size wood pieces at 28.5ft BGS		COATED BENTONITE PELLETS					
34								
36								
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, occasional very fine sand laminations							0.0
38								
	- increase in silt content, slight increase in sand grain size at 39.2ft BGS							

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 88C
DATE COMPLETED: April 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine to medium grained sand, well sorted, dark gray, with red grains and white grains, shell fragments up to 1" throughout, wet, silt laminations throughout	-29.56						
	SM-SILTY SAND, layered with silty clay and sandy silt, laminated up to layers 1/2" thick, fine grained sand, dark gray, red grains and white grains, various size shell fragments, several intact, wet	-30.76						
42	ML-SANDY SILT, trace clay, loose, fine grained sand, slight plasticity, dark gray, with red grains and white grains, small shell fragments throughout, sand laminations throughout	-32.06	SAND PACK					0.0
	- 7" very loose, with increased quantity and size of shell fragments, two shells intact at 43.0ft BGS	-33.16	PORT 2 SCREEN 1					
44	ML-SANDY SILT, compact, fine grained sand, low plasticity, gray, with red grains and white grains throughout, wet	-34.56	PORT 2 SCREEN 2					
	SM-SILTY SAND, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-36.06	PORT 2 SCREEN 3					
46	- 1" section with multiple wood pieces up to 1/2x3/4" at 45.2ft BGS		TRANSDUCER #2					
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet		PORT 2 SCREEN 4					
48	- increase in silt content (trace to with silt) at 48.5ft BGS		PORT 2 SCREEN 5					0.0
	- loose at 49.5ft BGS	-39.46	PORT 2 SCREEN 6	5RS		20.0		
50	SM/ML-SAND AND SILT, very loose, very fine grained sand, no plasticity, wet, very rapid dilatancy							
	- 6" section with scattered twig size pieces of wood, up to 4" long 1/8" diameter at 50ft BGS	-42.06						0.0
52	- scattered rootlet size wood pieces at 51.0ft BGS							
	SM-SILTY SAND, loose, very fine grained, well sorted, uniform grain size, dark gray, with red grains and white grains, few small shell fragments, wet							
54	- 1/4" silty clay at 54.5ft BGS							
	- increase in sand grain size at 55.0ft BGS							
56	- 1" from laminated silt and clay at 55.2ft BGS							
	- increase in sand grain size at 55.4ft BGS							
	- 1" firm, laminated sand and silt at 55.8ft BGS							
	- sand with silt at 56.0ft BGS							
58	- 1" slightly cemented sand at 57.4ft BGS	-47.06						0.0
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet		COATED BENTONITE PELLETS					
	- silt lamina at 58.2ft BGS							

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 88C
DATE COMPLETED: April 15, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
62	- single piece of grayish green gravel with white minerals 1/4" diameter x1/2" long, subangular to subrounded at 63.1ft BGS							0.0
64	- silt lamina, single piece of gravel, rounded, 1/8" diameterx1/4" long at 63.8ft BGS							
66								
68			SAND PACK PORT 3 SCREEN 1					0.0
			PORT 3 SCREEN 2					
70	- silt lamina at 69.5ft BGS		PORT 3 SCREEN 3	6RS		20.0		
			TRANSDUCER #3 PORT 3 SCREEN 4					
72			PORT 3 SCREEN 5					
	ML-SANDY SILT, trace clay, compact, fine grained sand, slight plasticity, medium gray, wet, rapid dilatancy, sand lamina and silty clay lamina throughout, brown peat and peat/wood fibers throughout layering	-61.96						0.0
74	- peat and wood fibers not present at 72.6ft BGS		PORT 3 SCREEN 6					
	- silt lamina, light tan at 73.7ft BGS	-64.06						
	- several sliver size wood pieces and peat fibers at 73.8ft BGS							
76	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments throughout (sand size)							
	- 1/2" sandy silt at 74.9ft BGS							0.0
78	- 0.3" laminated and and silt at 75.3ft BGS							
	- 1/4" fine sand, slightly cemented at 77.5ft BGS							
	- silt lamina at 77.6ft BGS							
	- fine sand lamina at 79.3ft BGS							

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FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML/CL-CLAYEY SILT/SILTY CLAY, firm, low plasticity, light gray, very moist, moderate dilatancy, several light gray lamina, several wood pieces up to 1/2x1/8" at base contact	-69.56						
		-70.06						
	ML-SANDY SILT, trace clay, loose, fine sand, low plasticity, gray, with red grains and white grains, wet, rapid dilatancy	-70.76						
82	SP-SAND, trace silt, compact, very fine grained, well sorted, uniform grain size, dark gray, with grains and white grains, et							0.0
	- occasional silt laminations at 83.0ft BGS		COATED BENTONITE PELLETS					
84	- occasional silty sand/sandy silt laminations at 84.5ft BGS							
86								
		-77.06						0.0
88	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, occasional silt lamina, wet							
	- occasional sandy silt lenses up to 1/4" thick at 89.0ft BGS							
90	- reduced quantity of silt lamination and lenses at 90.3ft BGS			7RS		20.0		
92								0.0
			SAND PACK PORT 4 SCREEN 1					
94			PORT 4 SCREEN 2					
		-83.96						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet		PORT 4 SCREEN 3					
	- occasional silt lamination and very fine sand lamina at 95.2ft BGS		TRANSDUCER #4 PORT 4 SCREEN 4					
96			PORT 4 SCREEN 5					
	- 3" section with irregular hardened silt and/or clayey silt coated granulars 1/4"x1" up to 2"x3/4" subangular to subrounded at 97.3ft BGS							0.0
98	- lenses of grayish brown silt up to 3/4" thick, laminated appearance throughout, shell fragments throughout at 97.5ft BGS		PORT 4 SCREEN 6					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1/4" silty clay at 100.2ft BGS	-89.86						
	SM-SAND, with silt/silty sand, compact, very fine grained sand, dark gray, with red grains and white grains, laminated silty clay and silt throughout, wet							
102	- silty clay lenses up to 1/2" thick at 101.5ft BGS	-91.66						0.0
	- 1" silty clay at 102.0ft BGS							
	ML-SANDY SILT, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy							
104	- 1/4" silty clay at 102.3ft BGS - sandy clayey silt, moderate dilatancy at 102.8ft BGS - 4" silty sand at 103.7ft BGS - sandy silt, trace clay, very loose, occasional silty clay lenses up to 1/4" at 104.2ft BGS							
106	SM-SILTY SAND/SAND AND SILT, loose, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-95.56						
	- silty sand, occasional silt lamination, loose at 107.0ft BGS							0.0
108	- compact at 107.5ft BGS							
110	- increase in silt content at 110.0ft BGS			8RS		20.0		
	ML-SANDY SILT, compact, fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-99.86	← COATED BENTONITE PELLETS					
112	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-101.56						0.0
114	ML-CLAYEY SANDY SILT, compact, fine grained sand, low plasticity, gray, wet, moderate dilatancy	-103.56						
116	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments, wet	-106.06						0.0
118	ML-SANDY SILT, loose, fine grained sand, slight plasticity, dark gray, wet, rapid dilatancy,	-108.86						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	several silty/clay laminations	-109.56						
	ML-SANDY CLAYEY SILT, compact, low plasticity, light gray, wet, moderate dilatancy							
	ML-SANDY SILT, compact, fine grained sand, dark gray, with red grains and white grains, sand size shell fragments, wet, rapid dilatancy	-111.06	SAND PACK					
122	- 1/4" silty clay at 122.3ft BGS	-112.06	PORT 5 SCREEN 1					0.0
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-113.06						
124	ML-SANDY SILT, loose, fine grained sand, gray, with red grains and white grains, shell fragments throughout, wet, rapid dilatancy		PORT 5 SCREEN 2					
	- occasional silty clay lenses less than 1/4" thick at 125.0ft BGS		PORT 5 SCREEN 3					
126			TRANSDUCER #5 PORT 5 SCREEN 4					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-116.56	PORT 5 SCREEN 5					0.0
128	- 2-1/2" sandy silt at 127.5ft BGS		PORT 5 SCREEN 6					
	ML-SANDY CLAYEY SILT, compact, lwo plasticity, gray, very moist, moderate dilatancy	-118.86						
130		-119.56		9RS		20.0		
	ML-SANDY SILT, compact, fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-120.06						
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-121.06						
132	ML-SANDY SILT, compact, fine grained, low plasticity, light gray, wet, rapid dilatancy							0.0
	- trace clay at 133.0ft BGS							
134	- silt, trace sand, trace clay at 134.5ft BGS							
	- sandy silt at 135.0ft BGS							
136	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-125.56						
	- increase in silt content, silt lamination throughout at 137.5ft BGS							0.0
138	- finer grain size at 139.5ft BGS							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
		-131.06						
142	ML-SANDY SILT, compact, very fine grained sand, dark gray, with red grains and white grains, wet, rapid dilatancy, sand laminations throughout - silt, trace sand at 142.5ft BGS - silt, trace sand, trace clay at 142.8ft BGS							0.0
144	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - scattered small pieces of wood 1/4x1/2" at 144.5ft BGS	-133.56						
146			COATED BENTONITE PELLETS					
	SM/ML-SAND AND SILT, compact, fine grained sand, slight plasticity, dark gray, with red grains and white grains, wet, rapid dilatancy	-136.06						0.0
148	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains throughout, wet, shell fragments throughout	-137.36						
150	- occasional silt laminations at 150.0ft BGS - 3/4" silt lens at 150.4ft BGS			10RS		20.0		
152								0.0
	ML/CL-SILTY CLAY/CLAYEY SILT, firm, low plasticity, light gray, very moist, moderate dilatancy	-143.06 -143.36						
154	ML-SANDY SILT, trace clay, compact, fine grained sand, slight plasticity, gray, very moist, rapid dilatancy	-144.56						
156	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet, laminated silt throughout	-145.56 -145.86						
	CL-SILTY CLAY, firm, low plasticity, gray, moist							0.0
158	SM-SAND, with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet							
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-148.56						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- light tan lamination at 159.6ft BGS - slight increase in silt content at 160.0ft BGS							
162			SAND PACK					0.0
			PORT 6 SCREEN 1					
164	SM-SILTY SAND, layered with sandy silt, compact, fine grained sand, silt lamination and lenses up to 1/4" thick, wet	-153.56	PORT 6 SCREEN 2					
	SM-SILTY SAND/SAND, with silt, compact, very fine grained sand, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-154.76	PORT 6 SCREEN 3					
166			TRANSDUCER #6 PORT 6 SCREEN 4					
			PORT 6 SCREEN 5					
	- very fine grained sand, with silt at 167.5ft BGS							0.0
168			PORT 6 SCREEN 6					
170				11RS		20.0		
172								0.0
174								
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-164.56	COATED BENTONITE PELLETS CMT ANCHOR					
176	- 1" lens sandy silt at 176.5ft BGS							
	- 1" lens laminated silt and sand at 177.5ft BGS							0.0
178								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	END OF BOREHOLE @ 180.0ft BGS	-169.56						
	NOTE:							
	PORT 1							
182	SAND PACK 16.5 TO 24.3FT BGS (-5.69 TO -13.49FT NGVD)							
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 18.31, 19.31, 20.31, 21.31, 22.31 AND 23.31FT BGS (-7.50, -8.50, -9.50, -10.50, -11.50 AND -12.50FT NGVD)							
184	TRANSDUCER (# 1142326) 20.81FT BGS (-10.00FT NGVD)							
	COATED BENTONITE PELLETS 24.3 TO 42.0FT BGS (-13.49 TO -31.19FT NGVD)							
186								
	PORT 2							
188	SAND PACK 42.0 TO 49.5FT BGS (-31.19 TO -38.69FT NGVD)							
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 43.31, 44.31, 45.31, 46.31, 47.31 AND 48.31FT BGS (-32.50, -33.50, -34.50, -35.50, -36.50 AND -37.50FT NGVD)							
190	TRANSDUCER (# 1141760) 45.81FT BGS (-35.00FT NGVD)							
	COATED BENTONITE PELLETS 49.5 TO 67.5FT BGS (-38.69 TO -56.69FT NGVD)							
192								
	PORT 3							
194	SAND PACK 67.5 TO 74.5FT BGS (-56.69 TO -63.69FT NGVD)							
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 68.31, 69.31, 70.31, 71.31, 72.31 AND 73.31FT BGS (-57.50, -58.50, -59.50, -60.50, -61.50 AND -62.50FT NGVD)							
196	TRANSDUCER (# 1142136) 70.81FT BGS (-60.00FT NGVD)							
	COATED BENTONITE PELLETS 74.5 TO 92.0FT BGS (-63.69 TO -81.19FT NGVD)							
198								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
202	PORT 4 SAND PACK 92.0 TO 99.6FT BGS (-81.19 TO -88.79FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 93.30, 94.30, 95.30, 96.30, 97.30 AND 98.30FT BGS (-82.49, -83.49, -84.49, -85.49, -86.49 AND -87.49FT NGVD) TRANSDUCER (# 1142130) 95.80FT BGS (-84.99FT NGVD)							
204	COATED BENTONITE PELLETS 99.6 TO 121.8FT BGS (-88.79 TO -110.99FT NGVD)							
206	PORT 5 SAND PACK 121.8 TO 129.5FT BGS (-110.99 TO -118.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 123.29, 124.29, 125.29, 126.29, 127.29 AND 128.29FT BGS (-112.48, -113.48, -114.48, -115.48, -116.48 AND -117.48FT NGVD) TRANSDUCER (# 1137314) 125.79FT BGS (-114.98FT NGVD)							
208	COATED BENTONITE PELLETS 129.5 TO 162.0FT BGS (-118.69 TO -151.19FT NGVD)							
210	PORT 6 SAND PACK 162.0 TO 169.5FT BGS (-151.19 TO -158.69FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 163.33, 164.33, 165.33, 166.33, 167.33 AND 168.33FT BGS (-152.52, -153.52, -154.52, -155.52, -156.52, -157.52FT NGVD) TRANSDUCER (# 1140291) 165.83FT BGS (-155.02FT NGVD)							
212	COATED BENTONITE PELLETS 169.5 TO 180.0FT BGS (-158.69 TO -169.99FT NGVD)							
214								
216								
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-25
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	12.81 12.31					
	SEE 89C FOR STRATIGRAPHIC INFORMATION (0 TO 20ft BGS)		CONCRETE 2" STAINLESS STEEL WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE BENTONITE CHIPS				

2
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

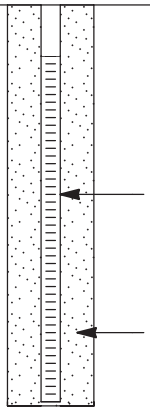
OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 9/21/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-25
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	SM-SILTY SAND, very fine to fine sand, compact, well sorted, dark gray, white grains and red grains throughout, wet, sand size shell fragments throughout	-7.19					
22	- intact shells at 22.0ft BGS						
	- grading to fine sand, with silt at 23.3ft BGS						
24	- partially intact shell fragments at 24.0ft BGS						
	END OF BOREHOLE @ 25.0ft BGS	-12.19					
26							
28							
30							
32							
34							
36							
38							



WELL DETAILS
Screened interval:
-7.93 to -12.93ft
20.74 to 25.74ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: STAINELSS STEEL
Seal:
-0.09 to -3.19ft
12.90 to 16.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-3.19 to -12.99ft
16.00 to 25.80ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-50
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	12.73 12.26					
	SEE 89C FOR STRATIGRAPHIC INFORMATION (0 TO 45ft BGS)		CONCRETE 2" STAINLESS STEEL WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

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18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-50
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38			BENTONITE CHIPS				

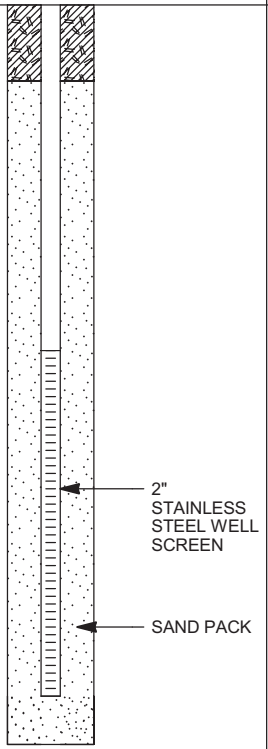
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-50
DATE COMPLETED: July 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
	SM-SILTY SAND, very fine to fine sand, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments	-32.27					
46							
48							
	- increase in clay content, grading to silty sand, with clay at 49.4ft BGS						
50	END OF BOREHOLE @ 50.0ft BGS	-37.27					
52							
54							
56							
58							



WELL DETAILS
Screened interval:
-32.27 to -37.27ft
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-24.97 to -28.37ft
37.70 to 41.10ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-28.37 to -37.97ft
41.10 to 50.70ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-75R
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	TOP OF RISER GROUND SURFACE	14.92 12.60					
	SEE 89C FOR STRATIGRAPHIC INFORMATION (0 TO 70ft BGS)		CONCRETE 2" STAINLESS STEEL WELL CASING CEMENT/ BENTONITE GROUT 6" BOREHOLE				

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4
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12
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18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-75R
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-75R
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
42							
44							
46							
48							
50							
52							
54							
56							
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-75R
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
62							
64			BENTONITE CHIPS				
66							
68							
70	SM-SILTY SAND, very fine to fine sand, compact, well sorted, dark gray, white grains and red grains throughout, wet, trace sand size shell fragments - 3" clay seam, medium plasticity, medium gray, wet at 70.4ft BGS - grading to very fine to fine sand, with silt at 72.3ft BGS	-57.40					
72			2" STAINLESS STEEL WELL SCREEN				
74			SAND PACK				
76	END OF BOREHOLE @ 77.0ft BGS	-64.40					
78							

WELL DETAILS
Screened interval:
-57.52 to -62.52ft
70.12 to 75.12ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: STAINLESS STEEL
Seal:
-50.70 to -53.40ft
63.30 to 66.00ft BGS
Material: BENTONITE CHIPS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89-75R
DATE COMPLETED: July 11, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
82			Sand Pack: -53.40 to -63.20ft 66.00 to 75.80ft BGS Material: SAND				
84							
86							
88							
90							
92							
94							
96							
98							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	15.33 12.67						
2	NOT SAMPLED (0-7ft BGS)			1RS		0.0		
4								
6								
8	NO RECOVERY (7-12ft BGS)	5.67		2RS		0.0		
10			← 6" BOREHOLE					
12	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	0.67		3RS		3.0		3.5
14								2.5
16	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-2.33		-001				45.0
18	CH-SILTY CLAY, trace sand, soft, high plasticity, dark gray, wet	-3.93 -4.43		4RS		5.0		
	ML-SANDY SILT, with clay, soft, low plasticity, dark gray, wet - woody debris at 17.5ft BGS							
	CH-SILTY CLAY, soft, high plasticity, dark gray, wet	-5.73 -6.33						3.0
	SP-SAND, with silt, loose, fine grained, well sorted, dark gray, with red grains and white							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	grains, wet, trace shell fragments - wood fragments at 20.6ft BGS - 2" subrounded piece of gravel at 21.2ft BGS - increase in grain size at 21.6ft BGS							172
22	ML-SANDY SILT, trace clay, soft, low plasticity, fine grained sand, dark gray, wet, shell fragments throughout - intact shell at 23.0ft BGS	-9.53		5RS		5.0		41.2
24	- several intact shells at 24.5ft BGS							
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, strong odor	-12.33		-002				387
26	- intact shell, neutral pH (8.54) at 27.0ft BGS							
28	- large accumulation of mostly intact shell fragments at 27.7ft BGS - 0.1' silt lens at 27.9ft BGS - 0.1' silt lens at 29.0ft BGS - several intact shells at 29.5ft BGS			6RS		5.0		600
30	- negative DNAPL dye test at 30.0ft BGS							124
32	- 0.2' silt lens at 32.3ft BGS			7RS		5.0		
	ML-CLAYEY SILT, soft, low plasticity, dark gray, wet, shell fragments throughout	-20.03						82.0
34	- 0.2' ML-SANDY SILT lens at 34.0ft BGS - 0.2' CL-SILTY CLAY lens at 34.2ft BGS							
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, trace shell fragments throughout	-22.43		-003				480
36	- 0.1' CL-CLAY lens at 37.2ft BGS - negative DNAPL dye test, neutral pH (7.72) at 37.5ft BGS			8RS		5.0		
38	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, odor	-25.13						1060

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 40.0ft BGS	-27.63		-005				
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							843
42	- woody debris at 42.1ft BGS - negative DNAPL dye test at 42.5ft BGS			9RS		5.0		
44	- 0.1' silt lens at 44.3ft BGS							480
	- negative DNAPL dye test, trace silt at 45.0ft BGS			-004				
46			BENTONITE GRAVEL					520
				-007				
	- negative DNAPL dye test at 47.5ft BGS			10RS		5.0		
48								591
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-36.63						
50	- negative DNAPL dye test at 50.0ft BGS	-37.83		-006				
	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							68.02
52	- 0.1' silt lens at 52.8ft BGS			11RS		5.0		
54								96.84
	SM-SILTY SAND, dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-42.13						
				-008				
56	- 0.1' SW-SAND, loose, fine to coarse grained, poorly sorted, dark gray, with red grains and white grains, wet, shell fragments throughout at 55.0ft BGS	-43.43						39.69
	SM-SILTY SAND, trace to with clay, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout			12RS		5.0		
58								21.91

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	FID (ppm)
	SP-SAND, trace silt, dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 0.1' silt lens at 60.4ft BGS	-47.33						13.1
62				13RS		5.0		
	CL-CLAY, trace to with silt, soft, moderate plasticity, dark gray, wet, shell fragments and woody debris throughout	-51.03						18.9
64		-52.33		-009				
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, odor							170
66				14RS		5.0		
68				-010				498
70	- negative DNAPL dye test at 70.0ft BGS							405
72		-59.63		15RS		5.0		
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							1588
74	- negative DNAPL dye test at 75.0ft BGS			-003 -011				
76								4100
	- 0.2' SM-SILTY SAND layer at 77.1ft BGS - negative DNAPL dye test at 77.5ft BGS			16RS		5.0		
78	ML-SANDY SILT, stiff, no plasticity, very fine grained sand, dark gray, wet	-65.43						1450
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and	-66.43						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	white grains, wet, shell fragments throughout - negative DNAPL dye test at 80.0ft BGS							420
82	- trace fine subangular gravel, increase in shell fragment concentration at 82.4ft BGS - negative DNAPL dye test, neutral pH (7) at 82.5ft BGS			17RS -012		5.0		610
84	- 0.1' silt lens at 84.6ft BGS - negative DNAPL dye test at 85.0ft BGS							
86								141
88				18RS		5.0		
	SM-SILTY SAND, dense, fine grained, well sorted, dark gray, wet, trace shell fragments, wood fragments	-76.03						71.1
90	SP-SAND, trace silt, dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-77.33						137
92				19RS		5.0		
	SM-SILTY SAND, dense, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-80.33		-013				175
94			SAND PACK					
96			PORT 4 SCREEN 1 PORT 4 SCREEN 2					347
	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, sand size shell fragments throughout	-83.83	PORT 4 SCREEN 3	20RS		5.0		
98	- 0.1' silt lens at 99.0ft BGS		TRANSDUCER # 4 PORT 4 SCREEN 4 PORT 4 SCREEN 5					1.38
	ML-SANDY SILT, firm, non plastic, fine grained	-86.83	PORT 4					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	sand, dark gray, with red grains and white grains		SCREEN 6					
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments and woody debris throughout	-88.33		-014				0.0
102	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet	-89.83						
104	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet	-91.23						0.4
106								0.0
108	ML-SILT, trace to few clay, non plastic, soft, dark gray, wet, trace shell fragments	-94.83						0.0
110	- 0.3' ML-SANDY SILT lens at 110.2ft BGS			21RS		20.0		
	- 0.2' SP-SAND lens at 111.2ft BGS							0.0
112	- 0.2' SP-SAND lens at 112.7ft BGS		COATED BENTONITE PELLETS					
114	CL-SILTY CLAY, soft, low plasticity, dark gray, wet, trace shell fragments	-101.13						0.0
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-102.33						
116	- ML-CLAYEY SILT seam, woody debris at 117.3ft BGS							0.0
118								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- 0.2' silt lens at 120.2ft BGS - 0.2' silt lens at 120.8ft BGS							4.35
122	- 0.1' silty clay lens at 122.0ft BGS							
	SP-SAND, trace to with silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, trace shell fragments	-109.73	SAND PACK PORT 5 SCREEN 1					246
124			PORT 5 SCREEN 2					
126			PORT 5 SCREEN 3 TRANSDUCER #5 PORT 5 SCREEN 4					161
128			PORT 5 SCREEN 5					190
	ML-SILT, firm, non plastic, dark gray, wet	-116.93	PORT 5 SCREEN 6	22RS-015		20.0		
130	SM-SILTY SAND, loose, well sorted, dark gray, with red grains and white grains, wet, woody debris at base of contact	-118.53						1161
132	- negative DNAPL dye test at 132.5ft BGS							
	ML-CLAYEY SILT, soft, moderate plasticity, dark gray, wet, shell fragments throughout	-120.33						221
134								
136								90.5
138								
	SM/ML-SILT AND SAND, loose, fine grained sand, dark gray, with red grains and white grains, wet, shell fragments throughout	-126.33 -127.13		-018				31.22

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 139.0ft BGS							
	CL-CLAY, with silt, soft, moderate plasticity, dark gray, wet, shell fragments throughout, porous structure							818
142								
								1677
144								
146								7504
	- negative DNAPL dye test at 147.5ft BGS		COATED BENTONITE PELLETS	-016				
148								645
150				23RS		20.0		
								2819
152								
154								3365
156								6435
	- negative DNAPL dye test at 157.5ft BGS			-017				
158								813

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CH-CLAY, trace silt, moderate to high plasticity, dark gray, wet, shell fragments throughout, porous structure	-147.33						2244
162								
164			PORT 6 SCREEN 1 SAND PACK PORT 6 SCREEN 2					6102
	- negative DNAPL dye test at 165.0ft BGS			-019				
166			PORT 6 SCREEN 3					242
			TRANSDUCER #6 PORT 6 SCREEN 4					
168			PORT 6 SCREEN 5					
			PORT 6 SCREEN 6					6513
170				24RS		20.0		
								2040
172				-020				
174								5806
			COATED BENTONITE PELLETS					
176								108
178			COATED BENTONITE PELLETS					
								10260

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
182	- negative DNAPL dye test at 180.0ft BGS							2260
184								1460
186			TRANSDUCER #7 SAND PACK					1412
188								287
190	- negative DNAPL dye test at 190.0ft BGS			-021 25RS -022		20.0		1602
192								
194								1400
196								250
198			CMT ANCHOR					1240

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 200.0ft BGS	-187.33		-023				
	END OF BOREHOLE @ 200.0ft BGS							
	NOTE:							
202	PORT 4 SAND PACK 93.5 TO 101.0FT BGS (-80.83 TO -88.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
204	95.05, 96.05, 97.05, 98.05, 99.05 AND 100.05FT BGS (-82.38, -83.38, -84.38, -85.38, -86.38 AND -87.38FT NGVD) TRANSDUCER (# 1206519) 97.55FT BGS (-84.88FT NGVD)							
206	COATED BENTONITE PELLETS 101.0 TO 123.5FT BGS (-88.33 TO -110.83FT NGVD)							
208	PORT 5 SAND PACK 123.5 TO 131.0FT BGS (-110.83 TO -118.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
210	125.03, 126.03, 127.03, 128.03, 129.03 AND 130.03FT BGS (-112.36, -113.36, -114.36, -115.36, -116.36 AND -117.36FT NGVD) TRANSDUCER (# 1204322) 127.53FT BGS (-114.86FT NGVD)							
212	COATED BENTONITE PELLETS 131.0 TO 163.5FT BGS (-118.33 TO -150.83FT NGVD)							
214	PORT 6 SAND PACK 163.5 TO 171.0FT BGS (-118.33 TO -158.33FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
216	163.92, 164.92, 165.92, 166.92, 167.92 AND 168.92FT BGS (-151.25, -152.25, -153.25, -154.25, -155.25 AND -156.25FT NGVD) TRANSDUCER (# 1204316) 166.42FT BGS (-153.75FT NGVD)							
218	COATED BENTONITE PELLETS 171.0 TO 184.2FT BGS (-158.33 TO							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/24/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 89C
DATE COMPLETED: June 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS/ N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
	-171.53FT NGVD) TRANSDUCER (#1202123) 185.0FT BGS (-172.33FT NGVD)							
222	SAND PACK 184.2 TO 186.2FT BGS (-171.53 TO -173.53FT NGVD) COATED BENTONITE PELLETS 186.2 TO 200.5FT BGS (-173.53 TO -187.83FT NGVD)							
224	CMT ANCHOR 198.06FT BGS (-185.39NGVD)							
226								
228								
230								
232								
234								
236								
238								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TOP OF RISER GROUND SURFACE	14.60 11.65						
0	SP-SAND, trace silt, loose, fine grained, well sorted, dark grown, trace red grains and white grains, moist, trace shell fragments							
	ML-SANDY SILT, with fine gravel, stiff, fine grained sand, well sorted, dark brown, moist	10.55						0.0
2	SP-SAND, trace silt, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments - trace coarse sand at 3.5ft BGS - 1/4" clay seam at 3.6ft BGS	9.55		1RS		5.0		
4								0.0
6	NO RECOVERY (5.7 to 10ft BGS)	5.95		-001				0.0
8			BENTONITE GRAVEL	2RS		2.7		
								0.0
10	- dark gray at 10.0ft BGS	1.65	6" BOREHOLE					
	SP-SAND, trace silt, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments							4.0
12	NO RECOVERY 12.7 to 15ft BGS)	-1.05		3RS		2.7		
14								--
	SP-SAND, trace silt, compact, fine grained, well sorted, dark brown, trace red grains and white grains, moist, trace shell fragments	-3.35						
16	- negative DNAPL dye test at 16.5ft BGS	-4.85		-002				10.3
	CL-SILTY CLAY, with fine grained sand, firm, low plasticity, dark gray, wet, trace shell fragments		SAND PACK	4RS		5.0		
18	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments - negative DNAPL dye test at 18.5ft BGS	-6.15	PORT 1 SCREEN 1 PORT 1 SCREEN 2	-003				396.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22	- trace coarse sand and fine gravel at 21.6ft BGS		PORT 1 SCREEN 3; TRANSDUCER #1; PORT 1 SCREEN 4; PORT 1 SCREEN 5; PORT 1 SCREEN 6	5RS		5.0		165.9
24	- no gravel at 24.5ft BGS - negative DNAPL dye test at 25.0ft BGS			-004				956.5
26	CL-SILTY CLAY, with fine grained sand, soft, low plasticity, dark gray, wet, trace shell fragments	-14.35						112.9
28				6RS		5.0		241.2
30	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-18.85						457.9
32	- negative DNAPL dye test at 32.5ft BGS			7RS		4.5		
	ML-CLAYEY SILT, soft, low plasticity, dark gray, wet, trace shell fragments	-20.95						165.7
34	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-22.25	COATED BENTONITE PELLETS					
36								2176.0
38				8RS		4.5		
				-005				
	ML-SANDY SILT, trace clay, firm, fine grained, dark gra, wet	-26.95						296.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-28.35		-006				970.0
42	- negative DNAPL dye test at 42.5ft BGS		SAND PACK	9RS		5.0		
			PORT 2 SCREEN 1					480.2
44			PORT 2 SCREEN 2					
		-33.15						
	ML-SANDY SILT, trace clay, firm, fine grained sand, dark gray, wet	-33.45	PORT 2 SCREEN 3					
46	- negative DNAPL dye test at 45.0ft BGS		TRANSDUCER #2					499.4
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-34.75	PORT 2 SCREEN 4					
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-35.85	PORT 2 SCREEN 5	10RS		5.0		
48								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-36.55	PORT 2 SCREEN 6					342.8
	- negative DNAPL dye test at 47.5ft BGS							
50	ML-SANDY SILT, firm, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-38.35						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments and wood							496.3
52	- negative DNAPL dye test at 52.5ft BGS			11RS		5.0		
				-007				
	ML-SANDY SILT, firm, fine grained, well sorted, dark gray, wet, trace shell fragments, trace wood	-42.15						1435
54	- negative DNAPL dye test at 55.0ft BGS		COATED BENTONITE PELLETS					
56	- elevated pH (10) at 57.0ft BGS							850.5
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragment, trace wood	-45.65		12RS		5.0		
58	- negative DNAPL dye test at 57.5ft BGS							3906
				-008				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 60.0ft BGS		SAND PACK	-008/ 009				
	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, dark gray, wet	-49.55	PORT 3 SCREEN 1	-010				2074
62	- negative DNAPL dye test at 62.5ft BGS	-50.75	PORT 3 SCREEN 2	13RS		5.0		
	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet		PORT 3 SCREEN 3					
64	- negative DNAPL dye test at 62.5ft BGS - elevated pH (10) at 63.0ft BGS		PORT 3 SCREEN 4					891.4
	- negative DNAPL dye test at 65.0ft BGS - elevated pH (10) at 65.5ft BGS		PORT 3 SCREEN 5					
66			TRANSDUCER #3 PORT 3 SCREEN 6					250.6
				14RS		5.0		
68		-56.75						
	ML-SANDY SILT, trace clay, firm, fine grained, dark gray, trace red grains and white grains, wet			-011				1286
70	- negative DNAPL dye test at 70.0ft BGS							
								541.2
72	CL-SILTY CLAY, trace fine grained sand, soft, low plasticity, dark gray, wet - negative DNAPL dye test at 72.5ft BGS	-60.15		15RS		5.0		
								766.7
74	ML-SANDY SILT, trace clay, soft, fine grained sand, dark gray, wet	-62.55						
	- negative DNAPL dye test at 75.0ft BGS	-63.45						
76	CL-SILTY CLAY, soft, low plasticity, dark gray, wet							
	ML-SANDY SILT, trace clay, soft, fine grained sand, dark gray, wet	-64.55						441.9
78				16RS		5.0		
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-67.05		-012				2372

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 80.0ft BGS		COATED BENTONITE PELLETS					
				-013				1605
82	CL-SILTY CLAY, with fine grained sand, soft, low plasticity, dark gray, wet	-70.05						
	- negative DNAPL dye test at 82.5ft BGS			17RS		5.0		
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, wet	-71.15						
84	SM-SILTY SAND, trace clay, loose, fine grained, well sorted, dark gray, wet	-72.15						1286
	- negative DNAPL dye test at 85.0ft BGS							
86	ML-SANDY SILT, trace clay, firm, fine grained sand, dark gray, wet	-74.25						1389
	- negative DNAPL dye test at 87.5ft BGS			18RS		5.0		
88	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, wet	-76.35						2236
	ML-SANDY SILT, firm, fine grained, dark gray, wet	-77.75						
90	- negative DNAPL dye test at 90.0ft BGS			-014				
								1160
92	- negative DNAPL dye test at 92.5ft BGS		SAND PACK	19RS		5.0		
			PORT 4 SCREEN 1					
94			PORT 4 SCREEN 2	-015				2079
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-83.05						
		-83.45	PORT 4 SCREEN 3					
96	- negative DNAPL dye test at 95.0ft BGS		TRANSDUCER #4 PORT 4 SCREEN 4					1029
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet			-016				
	- negative DNAPL dye test at 97.5ft BGS		PORT 4 SCREEN 5	20RS		5.0		
98			PORT 4 SCREEN 6					605.1
		-88.25						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 100.0ft BGS							
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet							237.2
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-89.85						
102				21RS		5.0		
	ML-SANDY SILT, firm, fine grained sand, dark gray, trace red grains and white grains, wet	-91.15						435.7
104								
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-92.45						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-93.35						
106	- negative DNAPL dye test at 105.0ft BGS							57.8
				22RS		4.0		
108								218.7
				-017/ 001				
110			COATED BENTONITE PELLETS					117.4
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red and white grains, wet, trace shell fragments	-100.05						
112				23RS		5.0		
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-101.95						99.9
114								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet	-103.15						
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-103.65						
116		-104.55						110.1
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments, trace wood	-105.35						
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments			24RS		5.0		
118								167.0
				-018				
	ML-SANDY SILT, firm, fine grained sand, dark	-107.85						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	gray, wet, trace shell fragments	-108.35						
	SP-SAND, trace silt, compact, fine to medium grained, dark gray, trace red grains and white grains		SAND PACK					132.0
122				25RS		5.0		
	ML-SANDY SILT, firm, fine grained sand, dark gray, wet	-110.95						
	SP-SAND, compact, fine grained, well sorted, dark gray, wet, trace shell fragments	-111.65	PORT 5 SCREEN 1					165.2
124			PORT 5 SCREEN 2					
	CL-SILTY CLAY, soft, low plasticity, trace fine sand, trace shell fragments	-113.15						
	SP-SAND, compact, fine rained, trace medium grained, well sorted, dark gray, wet, trace shell fragments	-113.45	PORT 5 SCREEN 3					
126			TRANSDUCER #5					103.5
	GM-SILTY GRAVEL, fine to coarse grained, with fine grained sand, dark gray, wet, trace shell fragments	-115.25	PORT 5 SCREEN 4					
			PORT 5 SCREEN 5	26RS		4.5		
128	SP-SAND, with silt, compact, fine grained, trace medium grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-116.15	PORT 5 SCREEN 6	-019				389.7
130								
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-119.15						234.9
132								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-120.65		27RS		5.0		
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, red grains and white grains, wet, trace shell fragments	-121.85						349.7
134								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-123.35						
136								207.8
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, wet	-125.55		28RS		5.0		
138								338.7
	ML-SILT, trace fine grained sand, dark gray, wet, trace shell fragments	-127.65						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
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HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, dark gray, trace shell fragments, trace wood	-128.35		-021				6321
142	- negative DNAPL dye test at 142.5ft BGS			29RS		5.0		
144								2482
	- negative DNAPL dye test at 145.0ft BGS - no wood at 145.1ft BGS							
146								1355
	- negative DNAPL dye test at 147.5ft BGS			30RS		5.0		
148			COATED BENTONITE PELLETS	-025				482
150	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-138.35						
	- negative DNAPL dye test at 150.0ft BGS	-139.35						211.8
	NO RECOVERY (151.0 to 155.0ft BGS							
152				31RS		1.0		
154								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-143.35						
156				-026				95.8
	CL-SILTY CLAY, firm, low plasticity, dark gray, wet, trace shell fragments	-145.05						
				32RS		5.0		
158								6.5

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CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft
	ML-SANDY SILT, trace clay, firm, fine grained sand, dark gray, trace shell fragments	-148.65
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments	-153.35
		-154.05
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, wet	-154.55
	ML-SANDY SILT, trace clay, firm, fine grained sand, dark gray, trace shell fragments - trace fine gravel and vertical coarse sand seam at 167.2ft BGS	
	SP-SAND, compact, fine grained, well sorted, dark gray, trace red grains and white grains, wet, trace shell fragments - coarse grained at 170.8ft BGS	-158.35
	SM-SILTY SAND, with fine to coarse gravel, loose, fine grained, well sorted, dark gray, wet	-159.75
	NO RECOVERY (172.5 to 175.0ft BGS)	-160.85
	END OF BOREHOLE @ 175.0ft BGS	-163.35
	NOTE: GLACIAL CONTACT ASSUMED AT 171.4FT BGS PORT 1 SAND PACK 16.8 TO 26.0FT BGS (-5.15 TO -14.35NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 18.37, 19.37, 20.37, 21.37, 22.37 AND	

MONITORING WELL: PORT 6 SCREEN 1; PORT 6 SCREEN 2; PORT 6 SCREEN 3; SAND PACK; TRANSDUCER #6; PORT 6 SCREEN 4; PORT 6 SCREEN 5; PORT 6 SCREEN 6; CMT ANCHOR COATED BENTONITE CHIPS

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
33RS		5.0		7.8
				2.6
				11.7
-027				
34RS		5.0		4.7
-028				10.6
35RS		2.5		

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CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 1/23/13

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HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	23.37FT BGS (-6.72, -7.72, -8.72, -9.72, -10.72 AND -11.72FT NGVD) TRANSDUCER (# 1200809) 20.87FT BGS (-9.22FT NGVD)							
182	COATED BENTONITE PELLETS 26.0 TO 42.0FT BGS (-14.35 TO -30.35FT NGVD)							
184	PORT 2 SAND PACK 42.0 TO 50.8FT BGS (-30.35 TO -39.15FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 43.41, 44.41, 45.41, 46.41, 47.41 AND							
186	48.41FT BGS (-31.76, -32.76, -33.76, -34.76, -35.76 AND -36.76FT NGVD) TRANSDUCER (# 1200813) 45.91FT BGS (-34.26FT NGVD)							
188	COATED BENTONITE PELLETS 50.8 TO 60.0FT BGS (-39.15 TO -48.35FT NGVD)							
190	PORT 3 SAND PACK 60.0 TO 68.5FT BGS (-48.35 TO -56.85FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
192	61.4, 62.4, 63.4, 64.4, 65.4 AND 66.4FT BGS (-49.75, -50.75, -51.75, -52.75, -53.75 AND -54.75FT NGVD) TRANSDUCER (# 1141747) 65.9FT BGS (-54.25FT NGVD)							
194	COATED BENTONITE PELLETS 68.5 TO 92.5FT BGS (-56.85 TO -80.85FT NGVD)							
196	PORT 4 SAND PACK 92.5 TO 100.7FT BGS (-80.85 TO -89.05FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
198	93.4, 94.4, 95.4, 96.4, 97.4 AND 98.4FT BGS (-81.75, -82.75, -83.75, -84.75, -85.75 AND -86.75FT NGVD)							

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WMUG-08/90C
DATE COMPLETED: July 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: J. COVEY

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	TRANSDUCER (# 1203038) 95.90FT BGS (-84.25FT NGVD)							
	COATED BENTONITE PELLETS 100.7 TO 121.8FT BGS (-89.05 TO -110.15FT NGVD)							
202								
	PORT 5 SAND PACK 121.8 TO 130.5FT BGS (-110.15 TO -118.85FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 123.4, 124.4, 125.4, 126.4, 127.4 AND 128.4FT BGS (-111.75, -112.75, -113.75, -114.75, -115.75 AND -116.75FT NGVD)							
204								
	TRANSDUCER (# 1204323) 125.90FT BGS (-114.25FT NGVD)							
206								
	COATED BENTONITE PELLETS 130.5 TO 165.2FT BGS (-118.85 TO -153.55FT NGVD)							
208								
	PORT 6 SAND PACK 165.2 TO 174.0FT BGS (-153.55 TO -162.35FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 163.37, 164.37, 165.37, 166.37, 167.37 AND 168.37FT BGS (-151.72, -152.72, -153.72, -154.72, -155.72 AND -156.72FT NGVD)							
210								
	TRANSDUCER (# 1140285) 165.87FT BGS (-154.22FT NGVD)							
212								
	COATED BENTONITE PELLETS 174.0 TO 175.0FT BGS (-162.35 TO -163.35FT NGVD)							
214								
	CMT ANCHOR 174.0FT BGS (-162.35NGVD)							
216								
218								

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CHEMICAL ANALYSIS (◯)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE 11.15 TOP OF RISER 10.46							
0	ASPHALT	10.75						
	SP-SAND (FILL), trace silt, loose, fine grained, brown, with red grains and white grains, moist, several silt and clay layers							
2								0.0
4			6" BOREHOLE	1RS		8.0		
6								0.0
8	NO RECOVERY (8-10ft BGS)	3.15	BENTONITE GRAVEL	2RS		0.0		--
10	SP-SAND (FILL), trace silt, trace fine to coarse grained angular to subangular gravel, very loose, fine grained, poorly graded, dark gray, with red grains and white grains, sand size shell fragments, wet	1.15						
12								0.0
14								
	- loose at 15.0ft BGS - increase in gravel content, trace fine grained subrounded gravel at 15.4ft BGS			3RS		10.0		
16	- trace coarse grained subrounded gravel at 15.8ft BGS	-5.05						
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-5.85 -6.35	SAND PACK					0.0
18	ML-SANDY SILT, loose, very fine grained sand, slight plasticity, light gray, wet, rapid dilatancy, sand laminations throughout	-7.25 -7.55						
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white	-8.35	PORT 1 SCREEN 1					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, sand size shell fragments throughout, wet - sand, with silt at 17.8ft BGS		PORT 1 SCREEN 2					
22	CL-SILTY CLAY, firm, low plasticity, light gray, very moist to wet, numerous wood pieces at base contact up to 2-1/4" long, ranging from 1/16" to 1/4" wide (flat)		PORT 1 SCREEN 3					
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet		TRANSDUCER #1 PORT 1 SCREEN 4					0.0
24	SM/ML-SAND AND SILT, very loose, fine grained sand, gray, with red grains and white grains, sand size shell fragments throughout, scattered sliver size wood pieces throughout, wet, rapid dilatancy	-12.35	PORT 1 SCREEN 5 PORT 1 SCREEN 6					
26	- increase in shell fragment size at 20.0ft BGS - trace fine angular gravel (less than 1%) scattered throughout up to 1/4x1/2", increase in sand grain size at 22.5ft BGS							
28	SP-SAND, trace silt, trace gravel, compact, fine to medium grained sand, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet, subangular to subrounded gravel, pebble size up to 1/4x1/2", scattered large shell fragments up to 1/4x0.3"							0.0
30	- laminated silt at 23.7ft BGS - laminated silt at 29.9ft BGS - wood pieces up to 1/4x0.4" scattered throughout at 30.2ft BGS			4RS		20.0		
32								0.0
	- piece of wood, flat, 1-1/4x3/4" at 33.5ft BGS		COATED BENTONITE PELLETS					
34	- piece of wood, flat, 1-1/4x3/4" at 34.9ft BGS - fine grained at 35.0ft BGS							
36								
38								0.0
	SM-SILTY SAND, loose, fine to medium grained, dark gray, with red grains and white grains, shell fragments up to 1x1/2" throughout, wood pieces from sliver size, twig size up to	-27.35 -28.65						

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	2x1/4" throughout, wet							
42	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, scattered shell fragments up to 1/4x1/8", pieces of wood up to 1/4x1/4" scattered throughout - increase in silt content at 41.5ft BGS	-31.35	SAND PACK					0.0
	SM-SAND, with silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet	-32.35						
44	SM/ML-SAND AND SILT, trace clay, very loose, fine grained sand, no plasticity, gray, with red grains and white grains, wet, numerous pieces of wood at top contact up to 1x2" size, scattered pieces of wood throughout, shell fragments throughout, several silt and clay laminations throughout	-33.85	PORT 2 SCREEN 1 PORT 2 SCREEN 2					
46	ML-SILT, trace sand, trace clay, very loose, no plasticity, light gray, wet, sand grains, black, red grains and white grains, small wood twig to sliver size wood pieces throughout, faint rotting vegetation type odor, clay lamination and silt lamination throughout, several lenses of laminated and layered silt and clay up to 1-1/2" thick, several containing rootlets and sliver size wood pieces throughout - increase in sand content at 46.2ft BGS	-36.05	PORT 2 SCREEN 3					
48		-37.05	TRANSDUCER #2 PORT 2 SCREEN 4 PORT 2 SCREEN 5					0.0
		-38.05						
50	SM/ML-SAND AND SILT, trace clay, very loose, fine grained sand, gray, with red grains and white grains, sand size shell fragments throughout, wet, slight increase in density from previous interval - 3/4" clayey silt, with rootlets at 47.6ft BGS - lenses up to 1/4" thick of silt and clay with wood pieces up to 1-1/2x1/2" at 47.9ft BGS	-39.55	PORT 2 SCREEN 6	5RS		20.0		
52	SC-SILTY CLAYEY SAND, loose, fine grained sand, dark gray, with red grains and white grains, sand size shell fragments throughout, wet, scattered twig size wood pieces throughout	-41.45						0.0
54	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet, occasional silt laminations throughout - 1/4" silty clay at 49.4ft BGS	-43.35 -43.75 -44.45						
56	SM-SAND, with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet - 1" silty clay at 52.0ft BGS	-45.85						
58	SC-SILTY CLAYEY SAND, with silty clay layers, compact, fine grained sand, low plasticity, dark gray, with red grains and white grains, gray, wet, silty clay layers throughout - 3" lens silty clay, trace sand, trace sliver size		COATED BENTONITE PELLETS					0.0

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FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	wood pieces - 2" lens silty clay, trace sand at 53.4ft BGS	-49.05 -49.35						
62	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet							
	CL-SANDY SILTY CLAY, firm, low plasticity, light gray, very moist, scattered shell fragments throughout, scattered wood pieces throughout							0.0
64	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, numerous pieces of wood up to 1-1/4"x1/4" and flat pieces up to 1x1-1/4" at top of contact, decrease in quantity with depth, silt laminations throughout, sand lenses up to 3/4" throughout	-52.15 -53.85						
66	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet, silt laminations and lenses up to 1/4" throughout - 1/2" silty clay at 60.0ft BGS							0.0
68	SC-SANDY SILTY CLAY, soft, low plasticity, gray, with red grains and white grains, shell fragments throughout, wet	-56.85	PORT 3 SCREEN 1					
	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, gray, moist, shell fragments throughout, sand and silty sand lenses and laminations, dark gray, with red grains and white grains and shell fragments throughout - laminated sand at 60.9ft BGS - laminated sand at 61.3ft BGS - 2" silty sand at 61.6ft BGS - sandy silty clay at 61.9ft BGS - laminated sand at 62.3ft BGS - 3" sandy clay, with sand laminations at 62.6ft BGS - 3" sand and silt, trace clay, larger shell fragments at 63.0ft BGS	-58.05	SAND PACK PORT 3 SCREEN 2 PORT 3 SCREEN 3 TRANSDUCER #3 PORT 3 SCREEN 4 PORT 3 SCREEN 5 PORT 3 SCREEN 6	6RS		20.0		
70								
72								0.0
74	ML-SANDY CLAYEY SILT, loose, fine grained sand, slight plasticity, moderate dilatancy, gray, wet, scattered sliver size wood pieces throughout - 1" lens silty clay at 64.9ft BGS	-63.05 -63.55 -64.05						
76	ML-SILT, trace sand, trace clay, loose, slight plasticity, light gray, wet, laminated sand and lenses and laminated silty clay to 1/4" lenses throughout, shell fragments and sliver size wood pieces inside lenses and laminations - 1/2" silty clay at 67.7ft BGS	-64.85 -65.35 -66.35						0.0
78	SM-SILTY SAND, compact, fine to medium grained, dark gray, with red grains and white grains, shell fragments throughout, wet - reduced silt content at 68.5ft BGS - laminated silt at 68.6ft BGS	-67.05						
	MH-CLAYEY SILT, firm, medium plasticity,	-68.35						

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DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	gray, very moist, moderate dilatancy, sand size shell fragments throughout - trace very fine grained sand at 71.5ft BGS - silt, with clay, trace fine grained sand, gray, and dark gray, rotting vegetation type odor at 73.5ft BGS	-69.05						
82	CL-SILTY CLAY, firm, low plasticity, varved gray and light gray, very moist							0.0
	SC-CLAYEY SILTY SAND, compact, dark gray, with red grains and white grains - 1/4" lens silty clay at 74.8ft BGS	-72.15	COATED BENTONITE PELLETS					
84	SM-SILTY SAND, compact, very fine grained, well sorted,d ark gray, with red grains and white grains, sand size shell fragments throughout, laminated silt throughout							
86	ML-SANDY SILT, compact, fine grained, slight plasticity, gray, with red grains and white grains, wet, rapid dilatancy							
	ML-SILT, trace clay, trace sand, compact, very fine sand, low plasticity, gray, wet, rapid dilatancy							0.0
88	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-76.55						
	ML-SANDY SILT, compact, very fine grained sand, dark gray, with red grains and white grains, wet, rapid dilatancy	-78.45						
90	ML-SILT, trace clay, trace fine grained sand, compact, very fine grained, low plasticity, light gray, wet, rapid dilatancy, shell fragments up to coarse grained sand size throughout - silty clay 1/4" at 80.1ft BGS			7RS		20.0		
92	ML-SANDY SILT, compact, very fine grained sand, light gray, wet, rapid dilatancy, occasional silty clay lenses up to 1/4" throughout - sand and silt at 82.5ft BGS	-80.85 -81.35	SAND PACK					0.0
94	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout - increase in sand content at 85.0ft BGS - decrease in sand content at 86.0ft BGS - laminated sand, several shell fragments at 87.0ft BGS - increase in clay content at 87.3ft BGS - decrease in clay content, sand laminations at 87.5ft BGS		PORT 4 SCREEN 1 PORT 4 SCREEN 2 PORT 4 SCREEN 3					
96								
98	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, shell fragments and scattered sliver size wood pieces throughout, wet - 1-1/2" lens clayey silt at 88.8ft BGS - 1" lens silt at 89.3ft BGS		TRANSDUCER #4 PORT 4 SCREEN 4 PORT 4 SCREEN 5					0.0
	ML-SILT, trace to with clay, very loose, slight							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	plasticity, gray, wet, rapid dilatancy - laminated sand at 91.9ft BGS	-88.85	PORT 4 SCREEN 6					
	ML/CL-CLAYEY SILT/SILTY CLAY, soft, low plasticity, gray, wet, moderate dilatancy, sand size shell fragments throughout							
102	ML-SANDY CLAYEY SILT, compact, low plasticity, gray, wet, moderate to rapid dilatancy - 1/2" lens silty clay at 93.3ft BGS - laminated sand at 94.0ft BGS - sandy silt, trace clay at 96.5ft BGS - silt, trace clay, trace sand at 97.5ft BGS	-91.35						0.0
104	SP-SAND, trace silt, compact, very fine grained, well sorted, gray, with red grains and white grains, sand size shell fragments throughout, wet - laminated silt at 100.5ft BGS - 1/2" lens thin silt laminations at 102.0ft BGS	-92.65						
106	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet	-94.65 -95.45						
108	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, very moist, rapid dilatancy, occasional laminated wet sand throughout	-96.85						0.0
	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, sand size shell fragments throughout, wet	-97.85						
110	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, very moist, rapid dilatancy - 1/8" lamination sand with small wood pieces at 106.8ft BGS - sand and silt at 107.0ft BGS		COATED BENTONITE PELLETS	8RS		20.0		
112	ML-SANDY SILT, loose, fine grained sand, slight plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout							0.0
114	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, sand size shell fragments throughout, wet - 1/2" lens silt at 110.0ft BGS - occasional silt laminations throughout at 111.0ft BGS	-103.35						
116	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, sand size shell fragments throughout	-105.15 -105.45						
	CL-SILTY CLAY, soft, low plasticity, gray, wet							
118	ML-SILT, with clay, trace fine grained sand, compact, slight plasticity, gray, very moist, rapid dilatancy							0.0
	CL-SILTY CLAY, firm, low plasticity, gray, wet	-107.55						
	SM/ML-SAND AND SILT, very loose, fine grained sand, gray, with red grains and white	-108.15						

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grains, wet, shell fragments and sliver size wood pieces throughout - 1/2" silty clay at 119.7ft BGS	-108.85						
122	ML/CL-CLAYEY SILT/SILTY CLAY, soft, low plasticity, gray, wet, moderate dilatancy, sand laminations and clay laminations throughout, angular shell fragments throughout	-110.85						
	- 1/2" sandy silty clay, red grains and white grains, shell fragments at 121.8ft BGS	-111.35	PORT 5 SCREEN 1 SAND PACK					0.0
124	ML-SANDY CLAYEY SILT, soft, low plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout	-112.35	PORT 5 SCREEN 2					
	CL-SANDY SILTY CLAY, soft, low plasticity, gray, with red grains and white grains, shell fragments throughout, several small shells intact, with moderate dilatancy		PORT 5 SCREEN 3					
126	SC-SILTY CLAYEY SAND, loose, fine grained sand, low plasticity, gray, with red grains and white grains, wet, shell fragments throughout	-114.65	TRANSDUCER #5 PORT 5 SCREEN 4 PORT 5 SCREEN 5					
	SP-SAND, with silt, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet		PORT 5 SCREEN 6					0.0
128	- 1/2" silty clay at 126.4ft BGS - laminated silt at 127.2ft BGS - sand, trace silt at 127.5ft BGS - 1" sandy silt at 128.0ft BGS							
	- increase in silt content at 128.5ft BGS	-118.35		9RS		20.0		
130	SM-SILTY SAND, loose, fine grained to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 2" silty clay							
132	- laminated silt and laminated clay throughout at 130.0ft BGS - 1/2" clayey silt at 130.6ft BGS - 1/2" silty clay at 130.8ft BGS - 1/2" silty clay at 131.0ft BGS							0.0
134	- 1-1/2" silty clay at 131.4ft BGS - 1/2" clayey silt at 132.2ft BGS - 5" layered sand and silt layers up to 1-1/2" at 132.5ft BGS							
136	- very fine grained silty sand, scattered sliver size to twig size wood pieces throughout at 133.0ft BGS - 1/2" sandy silt at 133.6ft BGS - scattered wood pieces twig size up to 3/4x3/4" at 134.5ft BGS							
	- 1/2" sandy silt at 135.5ft BGS	-125.85						0.0
138	ML/CL-CLAYEY SILT/SILTY CLAY, trace fine grained sand, firm, low plasticity gray, very moist to wet, moderate dilatancy, shell fragments throughout							
	CL-SILTY CLAY, firm, low plasticity, gray,	-128.35						

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	moist, shell fragments throughout - trace fine grained subrounded and subangular gravel, pebble size up to 0.6x1" shell fragments throughout at 140.2ft BGS							0.0
142								
	CL-GRAVELLY SILTY CLAY, firm, low plasticity, gray, moist, gravel subangular to subrounded pebble size up to 1-3/4x2-1/2", trace shell fragments (<1%)	-132.35						
144								
146	- increase in gravel content, trace sand, brown and gray at 146.5ft BGS		COATED BENTONITE PELLETS					
	GC-CLAYEY SILTY GRAVEL, trace sand, compact, fine to coarse grained, subrounded subangular gravel pebble size to 1-1/2x2", fine grained, yellowish brown sand, gray, low plasticity, silty clay, yellowish brown, dark gray and greenish gray	-135.85						0.0
148								
150				10RS		20.0		
	- increase in quantity of fine grained gravel (pebble size) at 151.0ft BGS							
152	- 5" with increase in coarse grained gravel up to 2-1/4x2-1/2" at 152.5ft BGS							0.0
154								
	- cobble 3-1/4" at 154.9ft BGS	-143.85						
	LEXAN LINER (155-160ft BGS)							
156								
158								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 7/6/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SC-CLAYEY SAND, trace fine grained subrounded to subangular gravel (pebble size), compact, fine to medium grained, low plasticity, yellowish brown, with brown grains and dark gray grains, very moist to wet - 1/2" silty clay at 161.0ft BGS - 1/2" sandy clay at 161.8ft BGS - occasional slightly cemented lenses up to 1" thick at 162.0ft BGS - 1/4" gray at 162.5ft BGS	-148.85	SAND PACK					0.0
162								
164	- 2" sand, with silt, trace fine grained gravel at 165.0ft BGS		PORT 6 SCREEN 1 PORT 6 SCREEN 2					
166	- trace coarse grained sand, decrease in clay content at 166.0ft BGS - 1/4" light gray silty sand and clay at 166.5ft BGS - gravel up to 1/2x3/4" at 167.0ft BGS		PORT 6 SCREEN 3 TRANSDUCER #6 PORT 6 SCREEN 4	11RS		15.0		0.0
168	- 8" section slightly cemented/consolidated, increase in gravel content and clay content in section, white, gray, green, and dark gray sand size grains at 168.5ft BGS		PORT 6 SCREEN 5 PORT 6 SCREEN 6					
170	- single coarse grained gravel 1-1/4x1-1/2" at 169.9ft BGS - occasional lenses up to 3/4" sandy clay, irregular at 170.0ft BGS							
172								0.0
174	- 10" section with increase content in sandy clay/clayey sand at 173.5ft BGS - decrease in clay content at 174.5ft BGS		COATED BENTONITE PELLETS					
	NO RECOVERY (175-177ft BGS)	-163.85						
176			CMT ANCHOR	12RS		0.0		
	END OF BOREHOLE @ 177.0ft BGS	-165.85						
178	NOTE: GLACIAL CONTENT ASSUMED AT 147FT BGS PORT 1							0.0

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	SAND PACK 17.4 TO 24.4FT BGS (-6.25 TO -13.25FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 19.80, 20.80, 21.80, 22.80, 23.80 AND 24.80FT BGS (-8.65, -9.65, -10.65, -11.65, -12.65 AND -13.65FT NGVD) TRANSDUCER (# 1142332) 22.30FT BGS (-11.15FT NGVD)							
182								
	COATED BENTONITE PELLETS 24.4 TO 42.5FT BGS (-6.25 TO -31.25FT NGVD)							
184								
	PORT 2 SAND PACK 42.5 TO 50.0FT BGS (-31.35 TO -38.85FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 44.81, 45.81, 46.81, 47.81, 48.81 AND 49.81FT BGS (-33.66, -34.66, -35.66, -36.66, -37.66 AND -38.66FT NGVD)							
186								
188								
	TRANSDUCER (# 1141758) 47.31FT BGS (-36.16FT NGVD)							
	COATED BENTONITE PELLETS 50.0 TO 68.5FT BGS (-38.85 TO -57.35FT NGVD)							
190								
	PORT 3 SAND PACK 68.5 TO 75.5FT BGS (-57.35 TO -64.35FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 68.10, 69.10, 70.10, 71.10, 72.10 AND 73.10FT BGS (-56.95, -57.95, -58.95, -59.95, -60.95 AND -61.95FT NGVD) TRANSDUCER (# 1141743) 70.60FT BGS (-59.45FT NGVD)							
192								
194								
	COATED BENTONITE PELLETS 75.5 TO 92.0FT BGS (-64.35 TO -80.85FT NGVD)							
196								
	PORT 4 SAND PACK 92.0 TO 100.0FT BGS (-80.85 TO -88.85FT NGVD)							
198								

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 91C
DATE COMPLETED: April 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 95.31, 96.31, 97.31, 98.31, 99.31 AND 100.31FT BGS (-84.16, -85.16, -86.16, -87.16, -88.16 AND -89.16FT NGVD) TRANSDUCER (# 1141737) 97.81FT BGS (-86.66FT NGVD)							
202								
	COATED BENTONITE PELLETS 100.0 TO 122.5FT BGS (-88.85 TO -111.35FT NGVD)							
204								
	PORT 5 SAND PACK 122.5 TO 129.7FT BGS (-111.35 TO -118.55FT NGVD)							
206	INDIVIDUAL 3-INCH SCREEN BOTTOMS 122.83, 123.83, 124.83, 125.83, 126.83 AND 127.83FT BGS (-111.68, -112.68, -1113.68, -114.68, -115.68 AND -116.68FT NGVD) TRANSDUCER (# 1140300) 125.33FT BGS (-114.18FT NGVD)							
208								
	COATED BENTONITE PELLETS 129.7 TO 162.7FT BGS (-118.55 TO -151.55FT NGVD)							
210								
	PORT 6 SAND PACK 162.7 TO 170.2FT BGS (-151.55 TO -159.05FT NGVD)							
212	INDIVIDUAL 3-INCH SCREEN BOTTOMS 164.24, 165.24, 166.24, 167.24, 168.24 AND 169.24FT BGS (-153.09, -154.09, -155.09, -156.09, -157.09 AND -158.09FT NGVD) TRANSDUCER (# 1140286) 166.74FT BGS (-155.59FT NGVD)							
214								
	COATED BENTONITE PELLETS 170.2 TO 177.0FT BGS (-159.05 TO -165.85FT NGVD)							
216								
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 92C
DATE COMPLETED: April 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.68 10.39						
	ASPHALT	10.18						
	SP/GP-SAND AND GRAVEL (FILL), trace silt, compact, fine to medium grained sand, fine to coarse grained subangular to subrounded gravel, brown, moist	9.68						
2	SP-SAND (FILL), trace gravel, trace silt, compact, fine to medium grained sand, fine grained subrounded gravel, poorly graded, brown and dark gray, moist							--
4				1RS		0.0		
6								
8	NO RECOVERY (8-10' BGS)	2.68	BENTONITE GRAVEL					--
10	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with shell fragments throughout, wet, red grains and white grains throughout - 1-1/2" silty clay and layer of shell fragments at bottom at 10.2ft BGS	0.68 0.18 -0.32 -1.12						
12	CL-SILTY CLAY, soft, low plasticity, gray, moist	-1.62						0.0
	ML-SANDY SILT, very loose, very fine grained sand, no plasticity, medium gray, wet, shell fragments throughout	-2.12 -2.62						
14	SM-SILTY SAND, compact, very fine grained, dark gray, shell fragments throughout, wet	-3.22 -3.62 -3.82	6" BOREHOLE					
	CL-SILTY CLAY, soft, low plasticity, light gray, very moist, sliver size wood pieces throughout - sand lamina 0.04-0.08" thick throughout at 12.ft BGS	-4.02		2RS		10.0		
16	ML-SANDY SILT, with sand lamina, compact, no plasticity, gray, moist		SAND PACK					
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains throughout, wet		PORT 1 SCREEN 1					0.0
18	CL-SILTY CLAY, firm, low plasticity, light gray, very moist		PORT 1 SCREEN 2					
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet		PORT 1					
	CL-SILTY CLAY, firm, low plasticity, light gray,							

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	moist, several sliver size wood pieces throughout	-9.32	SCREEN 3 TRANSDUCER #1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					
22	SM-SILTY SAND, compact, fine to medium grained, dark gray, with red grains and white grains throughout, wet - 1/4" lens silty clay at 14.8ft BGS - sand, with silt, shell fragments throughout at 15.0ft BGS							0.0
24	- increase in size of shell fragments at 16.0ft BGS - intact shell 1x1-3/4" at 16.7ft BGS - 2" section with numerous wood pieces sliver size up to 1/2x2" at 16.8ft BGS - 1/2" silty clay, shell fragments throughout at 18.5ft BGS			3RS		10.0		
26	- layers of silty clay, sandy silt, clayey sand to 1/2" throughout, small intact shells in silty clay at 19.0ft BGS							
28	SP-SAND, compact, medium grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet - fine to medium grained at 20.5ft BGS - larger shell fragments up to 1/2x1" at 21.1ft BGS - fine grained sand, reduction in shell fragment size at 21.7ft BGS - increase in shell fragment size and quantity, scattered twig size wood pieces at 23.5ft BGS							0.0
30	- 1/4" silty clay at 23.7ft BGS - single gravel, 3/4", subangular, brown at 24.7ft BGS	-19.32						
32	- scattered large shell fragments up to 1-1/2x1" at 25.5ft BGS - 1/2" silty clay, moist, sliver size wood fragments inclusive at 27.2ft BGS - 1-1/2" with multiple shell fragments up to 1x3/4" at 28.3ft BGS	-20.82 -21.32	COATED BENTONITE PELLETS					0.0
34	ML-SILT, trace fine grained sand, compact, no plasticity, gray, wet, minor shell fragments SM-SILTY SAND, fine grained, compact, brown, well sorted, red grains and white grains, wet, minor shell fragments	-24.32						
36	ML-SILT, trace sand, trace clay, compact, moderate plasticity, gray, wet, shell fragments throughout, rapid dilatancy	-25.32						
38	SM-SILTY SAND, compact, fine grained, well sorted, brown, wet, red grains and white grains, shell fragments throughout SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 3" silty sand lens at 37.0ft BGS	-26.82						0.0
	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout							

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CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 92C
DATE COMPLETED: April 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- large intact shell fragments at 39.0ft BGS		SAND PACK	4RS		20.0		
42	- large intact shell fragments at 42.0ft BGS		PORT 2 SCREEN 1					
	SP-SAND, loose, fine grained, well sorted, dark gray, with white grains and red grains, wet, shell fragments throughout	-32.82	PORT 2 SCREEN 2					
44	- increase in shell fragments, rounded at 45.0ft BGS		PORT 2 SCREEN 3					
			TRANSDUCER #2					
46	- increase in grain size at 46.0ft BGS		PORT 2 SCREEN 4					
			PORT 2 SCREEN 5					
48	- a few pieces of fine grained subangular gravel at 47.5ft BGS		PORT 2 SCREEN 6					
50	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-39.32						
52	- very fine grained at 52.5ft BGS							0.0
54								
	- 6" SM-SILTY SAND lens, small peat fibers throughout at 55.0ft BGS							
56								
	- 6" SM-SILTY SAND lens, small peat fibers throughout at 57.0ft BGS							0.0
58			COATED BENTONITE PELLETS					

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CHEMICAL ANALYSIS

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DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 6" SM-SILTY SAND lens at 60.0ft BGS			5RS		20.0		
	SP-SILTY SAND, loose, fine grained, well sorted, red grains and white grains, wet, shell fragments throughout	-50.32						0.0
62								
64								
66								
	- thin silt laminations at 67.0ft BGS		SAND PACK					0.0
68			PORT 3 SCREEN 1					
			PORT 3 SCREEN 2					
			PORT 3 SCREEN 3					
70	SC-SILTY CLAYEY SAND, fine grained, loose, dark gray, with red grains and white grains, wet, shell fragments throughout	-59.32	TRANSDUCER #3	70'				
	- 2" SM-SILTY SAND lens at 71.0ft BGS		PORT 3 SCREEN 4					
	- 1" silt lens at 71.5ft BGS		PORT 3 SCREEN 5					
72								0.0
			PORT 3 SCREEN 6					
	SM-SILTY SAND, fine grained, well sorted, loose, dark gray, with red grains and white grains, wet, shell fragments throughout	-62.32						
74								
76								
	- 1" silt lens at 77.0ft BGS							0.0
78								
	ML-SANDY SILT, compact, no plasticity, dark gray, wet, shell fragments throughout	-68.32						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 2/12/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 92C
DATE COMPLETED: April 12, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER/ M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
				6RS 80'		20.0		
	ML-SILT, trace sand, trace clay, low plasticity, dark gray, wet, shell fragments throughout, slow dilatancy	-70.32						
82	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-71.32 / -71.82	COATED BENTONITE PELLETS					0.0
	ML-SANDY SILT, compact, no plasticity, gray, wet, shell fragments throughout	-72.82						
84	SM-SILTY SAND, compact, fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout							
86	- 4" ML-SILT layer at 86.0ft BGS							
88	- decreased silt content at 88.0ft BGS							0.0
90	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-79.32		90'				
92			SAND PACK PORT 4 SCREEN 1					0.0
94	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-82.82	PORT 4 SCREEN 2 PORT 4 SCREEN 3					
96	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-84.32	TRANSDUCER #4 PORT 4 SCREEN 4 PORT 4 SCREEN 5					
98	- 4" silty clay lens at 97.5ft BGS SP-SAND, trace silt, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-87.32	PORT 4 SCREEN 6					0.0

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				7RS 100'				
		-90.32						
	SP-SAND, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout							0.0
102								
104								
106								0.0
108								
110	SM/ML-SILTY SAND/SANDY SILT, compact, fine grained sand, gray, wet, shell fragments throughout	-99.32	COATED BENTONITE PELLETS	110'				
112		-101.82						0.0
	SM-SILTY SAND, compact, fine grained, well sorted, gray, wet, red grains and white grains, shell fragments throughout	-102.32						
114	SP-SAND, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout							
	SM/ML-SILTY SAND/SANDY SILT, compact, fine grained sand, gray, wet, minor shell fragments throughout	-104.32						
116								
118								0.0
	CL-SILTY CLAY, trace sand, soft, moderate plasticity, gray, wet, low dilatancy	-107.32						
	ML-SANDY SILT, trace clay, compact, no plasticity, gray, wet, minor shell fragments throughout	-108.32						

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122	- 3" silty clay lens at 122.5ft BGS		SAND PACK; PORT 5 SCREEN 1	8RS 120'		20.0		0.0
	SP-SAND, trace silt, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-112.32	PORT 5 SCREEN 2; PORT 5 SCREEN 3					
124								
126	SM-SILTY SAND, loose, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-115.32	TRANSDUCER #5; PORT 5 SCREEN 4; PORT 5 SCREEN 5					0.0
128			PORT 5 SCREEN 6					
130	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-119.32		130'				
132								0.0
134								
136								
138	ML-CLAYEY SILT, trace sand, stiff, moderate plasticity, gray, wet, shell fragments, slow dilatancy	-126.32						0.0

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142	SM-SILTY SAND, trace clay, compact, fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout	-131.32		140'				0.0
144				9RS				
146			COATED BENTONITE PELLETS					
148	SP-SAND, trace silt, loose, fine grained, well sorted, gray, red grains and white grains, wet, shell fragments throughout	-137.32						0.0
150								
152								0.0
154								
156								
158	SC-SILTY CLAYEY SAND, very loose, fine grained, gray, with red grains and white grains, shell fragments throughout, silty clay laminations throughout	-146.52						0.0
	SP-SAND, trace silt, compact, fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout, wet, scattered silt laminations	-146.82						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- silt laminations not present at 158.2ft BGS							
162	- several twig size wood pieces at 162.0ft BGS		SAND PACK PORT 6 SCREEN 1					0.0
			PORT 6 SCREEN 2					
164			PORT 6 SCREEN 3					
			TRANSDUCER #6 PORT 6 SCREEN 4	10RS		20.0		
166	- laminated silt at 166.5ft BGS		PORT 6 SCREEN 5					
	- laminated silt at 167.0ft BGS							
			PORT 6 SCREEN 6					0.0
168								
170	- very fine grained, occasional silt laminations at 170.0ft BGS							
172	- 1/4" lens silt, scattered peat fibers at 172.0ft BGS							
	- 1/4" lens silt at 172.3ft BGS	-161.72						0.0
	ML-SANDY SILT, compact, slight plasticity, light gray, moist, several peat fibers	-162.42						
	- loose, dark gray, wet at 172.6ft BGS	-162.82						
174	ML-SANDY SILT, trace clay, loose, fine grained sand, slight plasticity, medium gray, wet, rapid dilatancy		CMT ANCHOR					
	ML-SANDY CLAYEY SILT, loose, slight plasticity, fine grained sand, light gray, wet, medium to rapid dilatancy, scattered silt clay lenses up to 1/4" thick	-164.32						
176	CL-SANDY SILTY CLAY, soft, low plasticity, light gray, wet	-165.32						
	ML-SANDY SILT, loose, very fine grained sand, no plasticity, medium gray, wet, with thin layers sandy silt and silty clay less than 1/4" thick	-167.02						0.0
178	CL-SILTY CLAY, trace fine grained sand, soft, low plasticity, light gray, very moist to wet	-167.72						
	SM-SILTY SAND, compact, fine grained, with							

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	white grains and red grains, wet, scattered small shell fragments throughout, scattered silt laminations			11RS		20.0		
182								
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, wet	-171.62						0.0
184	ML-SANDY SILT, trace clay, compact, no plasticity, light gray, moist, sand laminations to lenses up to 1/4" thick	-173.12						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet	-174.32 -174.72						
186	CL-SILTY CLAY, trace sand, soft, low plasticity, light gray, very moist, scattered wet sand laminations - 1-1/2" silty sand, with medium grained sand size shell fragments at 186.6ft BGS	-176.82						0.0
188	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet, scattered small shell fragments and fiber to twig size wood pieces throughout - increase in size of wood pieces up to 1-1/2x1/2" at 188.0ft BGS	-178.32 -179.02						
190	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, scattered small shell fragments throughout, wet	-179.42						
	CL-SILTY CLAY, with sand laminations, soft, low plasticity, light gray, moist	-180.52 -181.12						
192	ML-SANDY SILT, trace clay, very loose, very fine grained sand, no plasticity, gray, wet, rapid dilatancy, scattered silty clay lenses up to 1/2" thick and sand laminations							0.0
	CL-SILTY SANDY CLAY, soft, low plasticity, light gray, wet	-182.82 -183.32						
194	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet - 1/4" lens silty clay at 192.0ft BGS	-184.82						
196	- 1" silty clay at 192.5ft BGS - 1-1/2" silty clay at 192.7ft BGS - silty clay, with silty clay lenses up to 1-1/2" thick at 193.0ft BGS							
	SC-CLAYEY SILTY SAND, loose, very fine grained sand, light gray, wet							0.0
198	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, occasional silt laminations - 3/4" silty clay at 195.3ft BGS							
	SM-SILTY SAND, fine grained, well sorted,							

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	dark gray, with red grains and white grains, small shell fragments throughout, wet - piece of wood 3/4x0.2" at 196.3ft BGS - occasional silt lamination at 197.0ft BGS			12RS		20.0		
202								0.0
	- sand, with silt, scattered silt laminations at 203.0ft BGS							
204								
206								
		-196.82						0.0
208	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains rounded and large angular shell fragments throughout							
		-198.32						
	ML-SILT, with sand, trace clay, loose, low plasticity, light gray, wet, rapid dilatancy							
210		-199.32						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments throughout, scattered silt laminations - 1/4" silty clay at 210.6ft BGS							
	- 1/4" silty clay at 211.4ft BGS	-201.12						
212	ML-SANDY CLAYEY SILT, loose, fine grained sand, slight plasticity, light gray, wet, rapid dilatancy - 1/4" silty clay at 212.1ft BGS							0.0
	- very loose, numerous pieces of wood, peat fiber size up to 1-1/4x1/8" at 212.2ft BGS							
214		-203.52						
	- sandy silt at 213.0ft BGS - thinly layered sand, silt, silty clay at 213.5ft BGS	-204.32						
	SC-SILTY CLAYEY SAND, very loose, fine grained sand, light gray, wet, rapid dilatancy							
216	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, wet							
								0.0
218								

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				13RS		20.0		
222	- 1/2" silt at 221.2ft BGS - laminated silt at 222.0ft BGS							0.0
224								
226	- piece of wood 1-1/4x1/2" at 225.5ft BGS - 1/4" silt at 225.7ft BGS							
228	- 1/4" sandy silt at 227.4ft BGS - increase in rounded shell fragment size and quantity at 227.5ft BGS							0.0
230	ML-SILT, with fine grained sand, trace clay, compact, slight plasticity, light gray, moist, small angular shell fragments scattered throughout	-218.82 -219.32	← COATED BENTONITE PELLETS					
232	MH/CL-CLAYEY SILT/SILTY CLAY, soft, medium plasticity, moderate dilatancy, light gray, moist to very moist, small angular shell fragments throughout							0.0
234								
236								
238								0.0

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242				14RS		20.0		0.0
244								
246								
248								0.0
250	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-239.32						
252				15RS		5.0		0.0
254	- very fine grained at 253.7ft BGS							
256	CL-SILTY CLAY, soft, low plasticity, medium gray, moist, small angular shell fragments throughout - laminated fine grained sand with small rounded shell fragments at 256.8ft BGS	-244.32						
258	ML-SANDY SILT, trace clay, loose, slight plasticity, fine grained sand, very moist, angular shell fragments scattered throughout, fine grained sand laminations throughout, dark gray, with red grains and white grains, subrounded small shell fragments, several silty clay laminations	-246.82 -248.72 -249.22						0.0

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	SM-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments throughout, wet	-250.32						
262	MH-CLAYEY SILT, compact, medium plasticity, medium gray, very moist to wet, slow dilatancy - sand lamination at 260.8ft BGS	-252.22		16RS		15.0		0.0
264	ML-SILT, trace fine grained sand, trace clay, loose, slight plasticity, light gray, wet, rapid dilatancy, shell fragments scattered throughout - 1/2" fine grained sand, wet at 262.8ft BGS							
	ML-SANDY SILT, trace clay, loose, slight plasticity, light gray, very moist to wet, rapid dilatancy, scattered shell fragments throughout	-254.82						
266	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet							
	- silt laminations at 267.5ft BGS							0.0
268								
270								
272								
	ML-SILT, trace fine grained sand, trace clay, loose, slight plasticity, light gray, wet, rapid dilatancy, small shell fragments throughout, laminated sand throughout	-261.62						0.0
274								
	ML-CLAYEY SILT, compact, low plasticity, light gray, moist, slow dilatancy, scattered shell fragments throughout	-263.82						
276	- wet sand laminations at 277.0ft BGS							
	ML-SILT, trace fine grained sand, trace clay, compact, slight plasticity, light gray, wet, rapid dilatancy, shell fragments throughout, scattered sliver size wood pieces throughout	-266.82						0.0
278	- increase in clay content at 279.0ft BGS							

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		-269.82		17RS		20.0		
282	ML-CLAYEY SILT, compact, slight plasticity, light gray, moist, slow dilatancy, shell fragments throughout - with peat fibers and small wood pieces in soil at 281.8ft BGS - 1/2" silty sand, wet at 282.4ft BGS	-271.82						0.0
284	ML-SANDY CLAYEY SILT, with wet sand laminations and silty clay laminations, slight plasticity, light gray, wet, rapid dilatancy - sandy silt, trace clay at 285.0ft BGS							
286	- clayey silt, trace sand at 287.0ft BGS							0.0
288	CL-CLAYEY SILT, soft, low plasticity, light gray, moist, shell fragments throughout	-277.82						
290	END OF BOREHOLE @ 290.0ft BGS	-279.32						
	NOTE:							
292	PORT 1 SAND PACK 16.8 TO 24.0FT BGS (-6.12 TO -13.32FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 17.84, 18.84, 19.84, 20.84, 21.84 AND 22.84FT BGS (-7.16, -8.16, -9.16, -10.16, -11.16 AND -12.16FT NGVD) TRANSDUCER (# 1142331) 20.34FT BGS (-9.66FT NGVD)							
294								
296	COATED BENTONITE PELLETS 24.0 TO 41.3FT BGS (-13.32 TO -30.62FT NGVD)							
298	PORT 2 SAND PACK 41.3 TO 48.7FT BGS (-30.62 TO -38.02FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							

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	42.79, 43.79, 44.79, 45.79, 46.79 AND 47.79FT BGS (-32.11, -33.11, -34.11, -35.11, -36.11 AND -37.11FT NGVD) TRANSDUCER (# 1141759) 45.29FT BGS (-34.61FT NGVD) COATED BENTONITE PELLETS 48.7 TO 66.8FT BGS (-38.02 TO -56.12FT NGVD) PORT 3 SAND PACK 66.8 TO 74.0FT BGS (-56.12 TO -63.32FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 67.79, 68.79, 69.79, 70.79, 71.79 AND 72.79FT BGS (-57.11, -58.11, -59.11, -60.11, -61.11 AND -62.11FT NGVD) TRANSDUCER (# 1141744) 70.29FT BGS (-59.61FT NGVD) COATED BENTONITE PELLETS 74.0 TO 92.0FT BGS (-63.32 TO -81.32FT NGVD) PORT 4 SAND PACK 92.0 TO 98.9FT BGS (-81.32 TO -88.22FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 92.91, 93.91, 94.91, 95.91, 96.91 AND 97.91FT BGS (-82.23, -83.23, -84.23, -85.23, -86.23 AND -87.23FT NGVD) TRANSDUCER (# 1141740) 95.41FT BGS (-84.73FT NGVD) COATED BENTONITE PELLETS 98.9 TO 121.8FT BGS (-88.22 TO -111.12FT NGVD) PORT 5 SAND PACK 121.8 TO 128.9FT BGS (-111.12 TO -118.22FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 122.83, 123.83, 124.83, 125.83, 126.83 AND 127.83FT BGS (-112.15, -113.15, -114.15, -115.15, -116.15 AND -117.15FT NGVD)							
302								
304								
306								
308								
310								
312								
314								
316								
318								

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	TRANSDUCER (# 1140299) 125.33FT BGS (-114.65FT NGVD)							
	COATED BENTONITE PELLETS 128.9 TO 162.0FT BGS (-118.22 TO -151.32FT NGVD)							
322								
	PORT 6 SAND PACK 162.0 TO 170.0FT BGS (-151.32 TO -159.32FT NGVD)							
324								
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 162.47, 163.47, 164.47, 165.47, 166.47 AND 167.47FT BGS (-151.79, -152.79, -153.79, -154.79, -155.79 AND -156.79FT NGVD)							
326	TRANSDUCER (# 1140290) 164.97FT BGS (-154.29FT NGVD)							
	CMT ANCHOR 174.7FT BGS (-164.02FT NGVD)							
328	COATED BENTONITE PELLETS 170.0 TO 290.0FT BGS (-159.32 TO -279.31FT NGVD)							
330								
332								
334								
336								
338								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 93C
DATE COMPLETED: February 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	11.12 10.69						
	ASPHALT	10.87						
	SW/GW-SAND AND GRAVEL (FILL), trace silt, compact, fine to medium grained sand, fine to coarse grained rounded gravel (pebble size to 3"), well graded, brown with yellow grains, damp - gravel up to 4" at 1.0ft BGS	9.92						
2	SP-SAND (FILL), trace silt, loose, fine grained, poorly graded, grayish brown with yellow grains and red grains, moist			1RS		5.0		7.7
4								
6			BENTONITE GRAVEL					
		3.62						1.0
8	SP-SAND, trace silt, trace shell fragments, loose, fine grained, well sorted, dark gray with red grains, very moist to wet - wet at 8.0ft BGS							
10		1.12	6" BOREHOLE	2RS		10.0		
	SM-SILTY SAND, trace shell fragments, loose, fine grained, dark gray, wet - trace wood fragments, sliver size at 10.5ft BGS							
12		-0.88						0.0
	SP-SAND, trace silt, trace shell fragments, loose, fine grained, well sorted, dark gray with few red grains, few wood pieces (sliver size), wet							
14	- trace to with silt at 14.0ft BGS		SAND PACK					
	SM-SAND, with silt, trace shell fragments, loose, fine sand, dark gray with red grains and white grains, wet	-3.88						
16	ML/SM-SANDY SILT, layered with 0.04" thick sand lamina, rootlets and shell fragments throughout, loose, no plasticity, light and dark gray, very moist	-4.88						
	- sand with silt, trace clay, loose, no plasticity, trace shell fragments throughout, wet at 16.3ft BGS	-5.88						0.0
18		-7.38						
	SM-SILTY SAND, trace clay, trace shell fragments throughout, loose, fine sand, no plasticity, medium gray, wet, occasional thin (0.04-0.08" thick) sand lamina		PORT 1					

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FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- 1-1/2" silt with clay, trace sand at 18.2ft BGS		SCREEN 1	3RS		10.0		
	SP-SAND, trace silt, compact, fine to medium grained, well sorted, dark gray with red and white grains, wet		PORT 1 SCREEN 2					
22	- 1-1/2" sandy silt at 20.4ft BGS		PORT 1 SCREEN 3					
	- slight increase in grain size at 22.5ft BGS		TRANSDUCER 1					0.0
	- large shell fragments up to 1-1/2", faint odor at 23.0ft BGS		PORT 1 SCREEN 4					
24			PORT 1 SCREEN 5					
			PORT 1 SCREEN 6					
	NO RECOVERY (25-27.5ft BGS)	-13.88						
26				4RS		0.0		0.0
	SM/ML-SANDY SILT, trace clay, loose, scattered small shell fragments, slight plasticity, gray, wet, trace sliver size wood pieces	-16.38						
28	- occasional thin sand layers less than 0.4" thick, increase in shells (quantity and size) within sand layers at 28.0ft BGS							
30	- sandy silt at 29.0ft BGS							0.0
	SM-SILTY SAND, loose, fine sand, shell fragments throughout, loose, gray with red grains, wet	-20.38						
32				5RS		10.0		
			COATED BENTONITE PELLETS					
34								
	- sand, with silt at 35.5ft BGS							0.0
36	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, scattered red grains and white grains, shell fragments throughout, wet	-24.88						
38	SM-SILTY SAND, scattered shell fragments, compact, fine grained, medium gray, wet	-26.88						
	SM-SAND, with silt, loose, fine grained, poorly graded, medium gray with red grains, shell fragments throughout, wet	-27.68 -28.38						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, wet, shell fragments throughout		SAND PACK	6RS		10.0		0.0
42			PORT 2 SCREEN 1					0.0
44			PORT 2 SCREEN 2					
46			PORT 2 SCREEN 3					
			TRANSDUCER 2					
48			PORT 2 SCREEN 4					
			PORT 2 SCREEN 5					
50			PORT 2 SCREEN 6					0.0
52	- occasional wood pieces twig size to 1"x3/4" at 52.0ft BGS - finer grain size at 52.5ft BGS			7RS		10.0		
54								0.0
56	- 2" lens sandy silt, medium gray at 56.3ft BGS							
	SM-SAND, with silt, compact, fine grained, well sorted, dark gray with red grains, wet	-46.08						
58	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, wet, scattered small shell fragments, occasional silty sand, fine sand layers up to 3/4" thick - 3/4" thinly layered sand and silty sand at	-46.88	COATED BENTONITE PELLETS					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	59.8ft BGS							0.0
62				8RS		10.0		
64								0.0
66	- 1/2" layered silty sand and fine sand at 65.5ft BGS							
	- 1/2" layered silty sand and fine sand at 67.0ft BGS		SAND PACK					
68	- large pieces wood up to 1"x2"x1/4" thick in 2" layer at 67.4ft BGS - 1/4" lens clayey silt at 68.0ft BGS							
70	- slight increase in size of shell fragments at 70.0ft BGS		PORT 3 SCREEN 1 PORT 3 SCREEN 2					
72	- 3/4" lens silty sand at 72.3ft BGS		PORT 3 SCREEN 3 TRANSDUCER 3 PORT 3 SCREEN 4	9RS		10.0		
74	- 1-1/2" layered sand and silty sand, rootlet sized wood pieces in lens at 74.5ft BGS		PORT 3 SCREEN 5					
	SM-SAND, with silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shell fragments and wood pieces (sliver size to 2"x1/2"), wet	-63.88	PORT 3 SCREEN 6					
76	- silty sand, scattered shell fragments and sliver size wood piece, medium gray sand at 76.5ft BGS							
78	- sand, trace to with silt, with occasional silty sand layers at 78.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 2/12/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
82	- silty sand, with thin sand layers at 82.0ft BGS		COATED BENTONITE PELLETS	10RS		10.0		0.0
84								0.0
86								
88	ML-SILT, with sand, trace clay, compact, slight plasticity, medium gray, wet, rapid dilatancy, scattered of shell fragments	-75.88						
90								0.0
92			SAND PACK	11RS		10.0		
94			PORT 4 SCREEN 1					0.0
96			PORT 4 SCREEN 2 PORT 4 SCREEN 3					
98	- 1/2" diameter wood piece at 97.1ft BGS		TRANSDUCER 4 PORT 4 SCREEN 4 PORT 4 SCREEN 5 PORT 4 SCREEN 6					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
	SM-SAND, with silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments, wet	-89.88						
102	- silty sand, occasional thin sand layers, less than 0.08" thick at 102.0ft BGS	-91.38		12RS		7.5		
	- scattered wood pieces, sliver to twig size at 102.5ft BGS							
104	NO RECOVERY (102.5-105ft BGS), very loose drilling							
		-93.88						0.0
106	ML-SILT, with sand, trace clay, compact, slight plasticity, medium gray, scattered small shell fragments							
108								
110								0.0
			COATED BENTONITE PELLETS					
112	- 1 to 2" lens with sliver size wood pieces at 112.0ft BGS			13RS		7.5		
114								
	- several thin sand lenses up to 2" thick at 115.0ft BGS							0.0
116								
	- 1/8" lens dark gray, with several sliver size wood pieces at 116.8ft BGS							
118								
	- slight increase in size of shell fragments at 119.0ft BGS							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- silt, trace fine grained sand, trace clay at 120.0ft BGS		SAND PACK	14RS		10.0		0.0
122								
124			PORT 5 SCREEN 1					0.0
			PORT 5 SCREEN 2					
126			PORT 5 SCREEN 3					
			PORT 5 SCREEN 4					
128			PORT 5 SCREEN 5					
			PORT 5 SCREEN 6					0.0
130								
132	- sandy silt at 133.0ft BGS		NATURAL COLLAPSE	15RS		10.0		
134								0.0
	SM-SILTY SAND, compact, fine grained, well sorted, brownish gray with red grains and white grains, shell fragments throughout	-124.38						
136								
138	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shell fragments throughout, wet	-127.38						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
142	- 2" lens light gray sandy silt at 140.5ft BGS		TRANSDUCER 5	16RS		10.0		
144	- 3/4" lens silty sand at 144.0ft BGS							0.0
146	- 3/4" lens silty sand at 147.0ft BGS							
148	- 1" section with several wood pieces up to 1"x3/4" at 148.4ft BGS		COATED BENTONITE PELLETS					
150								0.0
152	- increase in shell fragments with depth at 152.0ft BGS			17RS		10.0		
154	- 3-1/2" section with increase in shell fragments (approx. medium sand grain size) 25% content at 153.7ft BGS							
	- wood pieces up to 1/4"x2" at 154.9ft BGS	-143.88						0.0
156	SM-SILTY SAND, with sandy silt lenses, compact, fine grained, no plasticity, dark gray, with red grains and white grains, shell fragments up to 1/2" throughout							
		-146.18						
158	SP-SAND, trace to with silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shell fragments and sliver size wood pieces	-146.38						
	ML-SILT, with sand, compact, no plasticity, medium gray, very moist to wet, scattered rootlets	-147.88						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains, shell fragments throughout, wet							0.0
162				18RS		10.0		
	ML-SILT, with sand, compact, no plasticity, gray, moist to very moist	-151.88 -152.28	SAND PACK					
164	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shell fragments, wet		PORT 6 SCREEN 1					0.0
166			PORT 6 SCREEN 2					
	- finer grained at 167.0ft BGS		PORT 6 SCREEN 3					
168			TRANSDUCER 6 PORT 6 SCREEN 4					
	SM-SAND, with silt, compact, fine grained, well sorted, gray with white grains, shell fragments throughout, very moist	-156.88	PORT 6 SCREEN 5					
170			PORT 6 SCREEN 6					0.0
	ML-SILT, with sand, trace clay, compact, slight plasticity, gray, very moist, rapid dilatancy	-159.38						
172	SM-SILTY SAND, compact, fine grained, medium gray with red grains and white grains, shell fragments, wet	-160.88		19RS		10.0		
	- 4" sandy silt at 173.0ft BGS							
174	- 1" silt layer at 174.0ft BGS							
	- moist to very moist at 175.0ft BGS							0.0
176								
	- 1" silt layer at 176.5ft BGS							
	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray with red grains and white grains and brown grains, shell fragments	-165.88						
178								
	- 7" zone with increased shell fragments (15%) at 178.5ft BGS							

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
182	ML-SILT, trace clay, soft, slight plasticity, light gray, occasional sand lenses less than 0.04" thick	-170.88 -171.28		20RS				
184	SP-SAND, trace silt, compact, fine grained, well sorted, gray with red grains and white grains, shell fragments, very moist to wet							
	ML-SILT, trace sand, trace clay, loose, slight plasticity, light gray, very moist, rapid dilatancy - 1-1/2"x3/4" diameter, piece of wood (black, flat), several small sand lenses less than 0.04" thick throughout at 185ft BGS	-173.78						0.0
186	- numerous small (medium sand grain size) shells at interface of silts/sand below at 186.5ft BGS	-175.48						
188	SM-SAND, with silt, loose, fine grained, well sorted sand, at least 15% shell fragments, sliver size wood pieces throughout, dark gray with red and white grains, very moist to moist -large wood pieces in 1" section at 186.7ft BGS	-176.88						
190	-silty sand at 187ft BGS							0.0
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shell fragments, wet - scattered wood pieces up to 1"x1/2" at 188.8ft BGS							
192				21RS		10.0		
	- 1" lens silt at 193.5ft BGS							
194			COATED BENTONITE PELLETS					0.0
196	- 1" lens silt at 196.0ft BGS - 1" lens silt at 196.8ft BGS							
198	ML-SILT, with fine grained sand, trace clay, loose, no plasticity, medium dilatancy, medium gray, very moist, scattered fine sand size rounded shell fragments throughout	-186.38						

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
202	- silt with clay, trace fine grained sand, slower dilatancy, slight plasticity at 201.5ft BGS							
	- silt, with clay, trace fine grained sand, several thin sand lenses less than 0.04" thick, very loose, wet at 203.0ft BGS			22RS		10.0		
204	- silt, with fine grained sand, trace clay, loose, moist to very moist at 204.5ft BGS							0.0
206	- 2" lens fine grained sand, with silt, dark gray with red grains and white grains, shell fragments throughout, very moist, wet at 206.5ft BGS							
208	- silt, trace sand, trace clay, light and dark gray mottled, scattered shell fragments throughout, occasional fine sand lenses, several lenses with increase in clay content, moist at 207.0ft BGS							
	- 2" lens silty sand, numerous small shell fragments (sand size) at 209.5ft BGS							
210	- 1/2" silty sand at 210.2ft BGS							0.0
	- 1/2" silty sand at 210.4ft BGS							
212				23RS		10.0		
214	- 1/2" fine grained sand, trace to with silt, dark gray, red grains at 214.5ft BGS							0.0
216	- 1/2" fine grained sand, dark gray, red grains at 215.9ft BGS							
	- 1/2" fine grained sand, dark gray, red grains at 216.3ft BGS	-205.88						
	SP-SAND, with silt, compact, fine grained, well sorted, dark gray with red grains and white grains, shells, wet	-206.38						
218	ML-SILT, trace sand, trace clay, soft, slight plasticity, light gray, wet	-206.88						
	SM-SILTY SAND, with shell fragments (approx. fine grain sand size), loose, fine grained, dark gray with red grains, very moist	-207.68	SAND PACK					

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, with silt, loose, fine grained, well sorted, dark gray with red grains, very moist to moist	-208.88	TRANSDUCER 7					0.0
	NO RECOVERY (220-227.5ft BGS)							
222				24RS		2.5		
224								0.0
226								
228	ML-SILT, trace fine grained sand, trace to with clay (10%+), scattered small shell fragments, compact, slight plasticity, medium gray, moist - 4" section increase in sand content, wet at 228.0ft BGS	-216.38						
230								0.0
232				25RS		7.5		
234	- increased size of shell fragments up to 1/4"x3/4" at 234.0ft BGS							0.0
236								
238								

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DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- increase in clay content (to 15%+) at 240.0ft BGS							0.0
242				26RS		10.0		
244			COATED BENTONITE PELLETS					0.0
246	- several rounded shell fragments with mottled/iridescent appearance at 245.7ft BGS							
248								
250	- increasing clay content with depth (20%+) at 250.0ft BGS							0.0
252				27RS		10.0		
254								0.0
256								
258	- dark gray and medium gray at 258.0ft BGS							
	CI-SILTY CLAY, firm, medium plasticity, dark gray and medium gray, small shell fragments throughout, moist	-247.88						

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DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
262				28RS		10.0		0.0
264								0.0
266								
268								
270	SC-CLAYEY SILTY SAND, fine grained, minor shell fragments throughout, dark gray, wet	-258.88						0.0
272				29RS		10.0		
274	- olive gray at 274.9ft BGS	-263.88						0.0
276	CL-SILTY CLAY, firm, medium plasticity, dark gray and medium gray, moist, small shell fragments throughout - medium gray at 277.0ft BGS		SAND PACK AND NATIVE HEAVE					
278								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 93C
DATE COMPLETED: February 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
								0.0
	ML-SILT, with clay, firm, slight plasticity, medium gray, moist, small shell fragments throughout	-269.38						
282				30RS		10.0		
284	SM-SILTY SAND, compact, fine grained, dark gray with red grains and white grains, scattered shell fragments throughout, several silt lenses up to 0.20" thick	-272.88						0.0
286			TRANSDUCER 8					
	END OF BOREHOLE @ 287.5ft BGS	-276.38						
288	NOTE:							
	PORT 1 SAND PACK 14.0 TO 24.1FT BGS (-2.88 TO -12.98FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 20.02, 21.02, 22.02, 23.02, 24.02 TO 25.02FT BGS (-8.90, -9.90, -10.90, -11.90, -12.90 AND -13.90FT NGVD) TRANSDUCER (# 1142142) 22.52FT BGS (-11.40FT NGVD)							
290								
292								
	COATED BENTONITE PELLETS 24.1 TO 42.3FT BGS (-12.98 TO -31.18FT NGVD)							
294								
	PORT 2 SAND PACK 42.3 TO 49.8FT BGS (-31.18 TO -38.68FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 45.07, 46.07, 47.07, 48.07, 49.07 AND 50.07FT BGS (-33.95, -34.95, -35.95, -36.95, -37.95 AND -38.95FT NGVD) TRANSDUCER (#1142139) 47.57FT BGS (-36.45FT NGVD)							
296								
298								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 93C
DATE COMPLETED: February 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	COATED BENTONITE PELLETS 49.8 TO 67.0FT BGS (-38.68 TO -55.88FT NGVD)							
302	PORT 3 SAND PACK 67.0 TO 75.1FT BGS (-55.88 TO -63.98FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 70.07, 71.07, 72.07, 73.07, 74.07 AND 75.07FT BGS (-58.95, -59.95, -60.95, -61.95, -62.95 AND -63.95FT NGVD) TRANSDUCER (#1141752) 72.57FT BGS (-61.45FT NGVD)							
304								
306	COATED BENTONITE PELLETS 75.1 TO 91.5FT BGS (-63.98 TO -80.38FT NGVD)							
308	PORT 4 SAND PACK 91.5 TO 100.5FT BGS (-80.38 TO -89.38FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 94.24, 95.24, 96.24, 97.24, 98.24 AND 99.24FT BGS (-83.12, -84.12, -85.12, -86.12, -87.12 AND -88.12FT NGVD) TRANSDUCER (#1142038) 96.74FT BGS (-85.62FT NGVD)							
310								
312	COATED BENTONITE PELLETS 100.5 TO 121.5FT BGS (-89.38 TO -110.38FT NGVD)							
314	PORT 5 SAND PACK 121.5 TO 130.5FT BGS (-110.38 TO -119.38FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 125.01, 126.01, 127.01, 128.01, 129.01 AND 130.01FT BGS (-113.89, -114.89, -115.89, -116.89, -117.89 AND -118.89FT NGVD) TRANSDUCER (# 1137315) 127.51FT BGS (-116.39FT NGVD)							
316								
318	COATED BENTONITE PELLETS 130.5 TO 162.0FT BGS (-119.38 TO 150.88FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 93C
DATE COMPLETED: February 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
322	PORT 6 SAND PACK 162.0 TO 170.4FT BGS (-150.88 TO -159.28FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 165.07, 166.07, 167.07, 168.07, 169.07 AND 170.07FT BGS (-153.95, -154.95, -155.95, -156.95, -157.95 AND -158.95FT NGVD) TRANSDUCER (# 1137311) 167.57FT BGS (-156.45FT NGVD)							
324	COATED BENTONITE PELLETS 170.4 TO TO 218.7FT BGS (-159.28 TO -207.48FT NGVD)							
326	TRANSDUCER (# 1140328) 220.0FT BGS (-208.88FT NGVD)							
328	SAND PACK 218.7 TO 221.4FT BGS (-207.58 TO -210.28FT NGVD)							
330	COATED BENTONITE PELLETS 221.4 TO 267.0FT BGS (-210.28 TO -255.88FT NGVD)							
332	TRANSDUCER (# 1142796) 286.0FT BGS (-274.88FT NGVD)							
334	SAND PACK AND NATIVE HEAVE 267.0 TO 287.5FT BGS (-255.88 TO -276.38FT NGVD)							
336								
338								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.29 10.58						
0	ASPHALT	10.79						
	SP-SAND (FILL), trace silt, loose, fine grained, well sorted, light brown, moist, several sandy silt lenses up to 1/2" thick							
1								
2								
3								
4				-001				
5				1RS		10.0		0
6								
7								
8	- moist to very moist at 8.5ft BGS		BENTONITE GRAVEL					
9	- 2-1/2" silty sand at 9.4ft BGS - wet at 9.6ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND (FILL), trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	1.29	6" BOREHOLE					
11	- 1-1/2" sandy silt at 10.8ft BGS							
	- 1-1/2" section laminated sand and laminated silt at 11.7ft BGS							
12								
13								
				-002				
14	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, numerous sliver size to twig size wood pieces	-2.51 -2.91						
	ML-SANDY SILT, loose, no plasticity, dark gray, wet, rapid dilatancy, clay laminations and lenses up to 0.3' thick, scattered sliver size to twig size wood pieces, shell fragments throughout			2RS		10.0		0
15		-4.01						
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-4.51						
16	SP-SAND, trace silt, very loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
17		-5.81						
	SM-SILTY SAND, very loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-6.01	SAND PACK					
	CL-SILTY CLAY, firm, low plasticity, gray, moist, slow dilatancy	-6.51						
18	SM-SILTY SAND, trace clay, very loose, fine to medium grained sand, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, very faint, petroleum-type odor		PORT 1 SCREEN 1					
19			PORT 1 SCREEN 2					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-8.91						
	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		PORT 1 SCREEN 3					
21			TRANSDUCER #1	-003				
			PORT 1 SCREEN 4					
22		-11.21						
	ML-SILT, few sand, few clay, very loose, very fine sand, slight plasticity, light gray, wet, shell fragments throughout, several sand laminations, several wood pieces up to 1/4x1/2"		PORT 1 SCREEN 5					
23		-12.21						
	ML-SANDY CLAYEY SILT, very loose, very fine grained sand, low plasticity, gray, wet, numerous shell fragments throughout, several clay laminations and lenses up to 1/4" thick		PORT 1 SCREEN 6					
24		-13.21						
	CL-SILTY CLAY, firm, low plasticity, gray, moist to very moist, slow dilatancy, numerous shell fragments throughout							
25								
26	- increase in density, reduced quantity of shell fragments at 26.2ft BGS							
		-15.71						
27	SC-SILTY CLAYEY SAND, very loose, fine grained, no plasticity, gray, wet, shell fragments throughout							
		-16.61						
28	CL-SILTY CLAY, trace fine grained sand, firm, low plasticity, gray, wet, shell fragments throughout, sand and silty sand laminations throughout							
	- 3/4" silty sand at 28.1ft BGS							
	- 1/2" silty sand at 28.4ft BGS							
29								
	- 1/2" silty sand at 29.7ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
				3RS		20.0		0
	CL-SANDY SILTY CLAY, soft, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-18.91						
31	ML-SANDY SILT, few clay, very loose, fine grained sand, slight plasticity, gray, wet, rapid dilatancy, several shell fragments up to 1-1/2x2" scattered throughout	-19.51		-004				
32								
33	SP-SAND, trace silt, loose, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-21.71						
34			COATED BENTONITE PELLETS					
35								
36								
37	- 1/2" sandy silt, several twig size wood pieces at 36.9ft BGS							
38								
39	SM/ML-SILTY SAND/SANDY SILT, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-27.71						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-29.01						
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
41								
42				4RS		4.5		2.16
43	- 2-1/2" very fine grained sandy silt, several sand laminations and sliver size wood pieces at 43.2ft BGS		SAND PACK PORT 2 SCREEN 1					
44			PORT 2 SCREEN 2	-005				2.74
45			PORT 2 SCREEN 3					
46			TRANSDUCER #2 PORT 2 SCREEN 4					
47	- 1/2" laminated sand and laminated silt at 47.0ft BGS - laminated silt with wood slivers at 47.5ft BGS		PORT 2 SCREEN 5	5RS		5.0		1.1
48	- 1/8" lens silt overlying 1" piece of wood at 48.1ft BGS		PORT 2 SCREEN 6					
49	- 1/4" laminated sand and laminated silt at 49.4ft BGS							2.36

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
51	- 1/8" silty clay, sliver size wood pieces at base contact at 50.3ft BGS - 1" section with numerous wood pieces at 50.5ft BGS - 1/2" section with numerous wood pieces at 50.9ft BGS - 2-1/2" silty sand, trace sliver size to twig size wood pieces at 51.0ft BGS	-40.01						
52	ML-SILT, few sand, few clay, loose, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, scattered sliver size wood pieces, shell fragments throughout, several silty clay laminations - sandy silt, very loose at 51.8ft BGS - 0.3" silty clay at 52.3ft BGS - 2" silty sand at 52.5ft BGS	-41.41		6RS		5.0		1.0
53	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - scattered wood pieces up to 2" at 53.6ft BGS							
54	- 1" laminated sand and laminated silt at 54.1ft BGS							
55	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, scattered sliver size to twig size wood pieces	-43.71		-006				0.4
56								
57	- 1-1/2" lens with numerous wood pieces up to 1x2-1/2" at 57.3ft BGS			7RS		5.0		1.5
58	- 1" silty clay at 58.0ft BGS	-46.81						
59	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - 2.3" silt, with sand laminations/lenses up to 0.3" thick at 59.5ft BGS		COATED BENTONITE PELLETS					0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
61	- fine to medium grained at 60.0ft BGS							
62	- fine grained at 62.5ft BGS			8RS		4.0		0.0
63	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-51.51						
	- 3" section with numerous wood pieces up to 1-1/2x1/2" at 63.0ft BGS	-52.01						
64	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-53.01						
	- 1/4" silty clay at 64.0ft BGS	-53.21						
	- occasional laminated silt and scattered sliver size wood pieces at 64.1ft BGS	-53.61		-007				0.0
65	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet							0.0
	CL-SILTY CLAY, firm, low plasticity, gray, very moist, slow dilatancy, several sand laminations and lenses up to 1/4" thick							0.0
66	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet, scattered sliver size wood pieces							0.0
	- loose, very fine grained at 65.0ft BGS							0.0
67	- fine grained at 66.0ft BGS							0.0
	- laminated silt at 67.1ft BGS	-55.91						0.0
	ML-SANDY SILT, trace clay, compact, slight plasticity, gray, moist to very moist, rapid dilatancy, several sand laminations, shell fragments throughout			9RS		5.0		0.0
68	- 1/2" clay	-56.81	SAND PACK					0.0
	ML-SILT, few clay, trace sand, compact, slight plasticity, gray, very moist, moderate dilatancy		PORT 3 SCREEN 1					0.0
69	SM/ML-SANDY SILT/SILTY SAND, compact, very fine grained, gray, wet, rapid dilatancy, increasing silt content with depth	-57.61	PORT 3 SCREEN 2					0.0
	ML-SILT, few clay, trace sand, compact, slight	-58.51						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	plasticity, gray, very moist, moderate dilatancy	-58.81	PORT 3 SCREEN 3					
71	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout		TRANSDUCER #3 PORT 3 SCREEN 4					
72								2.3
73			PORT 3 SCREEN 5	10RS		4.0		
74	- several silt laminations throughout 4" section at 74.1ft BGS		PORT 3 SCREEN 6					
75				-008				1.7
76	- 0.4" lens sandy silt at 76.1ft BGS - several sandy silt laminations at 76.4ft BGS							
77	ML-SANDY SILT, compact, very fine grained, no plasticity, gray, wet, rapid dilatancy	-65.81						3.5
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-66.21		11RS		5.0		
78	- laminated silt at 77.8ft BGS	-66.71						
	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, shell fragments throughout, wet	-67.01						
79	- laminated silt, with sliver size wood pieces at 78.2ft BGS							
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							12.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
81	- 1" sandy silt, with sand laminations at 80.2ft BGS							
82								18.2
	ML-SANDY SILT, loose, very fine grained sand, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy, shell fragments throughout, scattered sliver size wood pieces	-71.11		12RS		5.0		
83	- 2-1/2" fine grained sand, with silt laminations							
			COATED BENTONITE PELLETS					
84	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout, scattered sliver size wood pieces	-72.61 -72.91						
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet			-009				20.9
85	- several silt laminations in 1-1/2" section at 85.3ft BGS							
86								
	ML-SILT, few sand, trace clay, compact, slight plasticity, gray, with red grains, wet, rapid to moderate dilatancy, shell fragments throughout	-74.81						53.9
87	- sand laminations at 87.0ft BGS							
	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-76.21		13RS		5.0		
88								62.6
89	- laminated sand at 89.1ft BGS - 1/4x1/4" scattered pieces of wood at 89.3ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
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LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained, well grained, dark gray, with red grains and white grains, wet, shell fragments throughout, faint decay type odor - laminated silt at 90.7ft BGS	-78.71						
91	CL-SILTY CLAY, firm, low plasticity, gray, very moist, moderate to slow dilatancy, shell fragments throughout	-79.71 -80.11						
92	ML-CLAYEY SILT, few sand, compact, low plasticity, gray, very moist, rapid to moderate dilatancy, faint decay type odor - laminated sand at 92.6ft BGS			14RS		4.0		215
93	ML-SANDY SILT, few clay, compact, slight plasticity, gray, wet, rapid dilatancy, several shell fragments, faint decay type odor	-81.71	SAND PACK PORT 4 SCREEN 1					
94	SM-SILTY SAND, trace clay, compact, very fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet, faint decay odor - several silt laminations at 94.0ft BGS - 1-1/2" very fine grained sand at 94.5ft BGS	-82.41	PORT 4 SCREEN 2	-010				240
95	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, faint decay type odor - scattered sliver size wood pieces at 95.7ft BGS	-83.71	PORT 4 SCREEN 3					212
96	ML-SANDY SILT, compact, very fine grained sand, no plasticity, gray, with red grains and white grains, set, rapid dilatancy, faint decay type odor - laminated sand at 96.7ft BGS - 0.3" fine grained sand at 96.8ft BGS - 0.3" fine grained sand at 96.9ft BGS	-84.91	TRANSDUCER #4 PORT 4 SCREEN 4					
97	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, faint decay type odor - laminated silt at 98.0ft BGS - 1-1/2" laminated silt and laminated sand at 98.2ft BGS	-86.21	PORT 4 SCREEN 5 PORT 4 SCREEN 6	15RS		5.0		353
98								
99	NO RECOVERY (99 to 100ft BGS)	-87.71						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-88.71						
101								986
	- negative DNAPL dye test at 101.5ft BGS							
	- 0.3" silt at 101.9ft BGS							
102	- laminated silt at 102.1ft BGS							
	- laminated silt at 102.4ft BGS			16RS		5.0		
103	ML-SILT, trace very fine grained sand, trace clay, compact, slight plasticity, gray, wet	-91.71		-011				1486
	- laminated sand at 103.3ft BGS	-92.21						
	- 1/4x1/4" pieces of wood at 103.4ft BGS							127
	- negative DNAPL dye test at 103.5ft BGS	-92.61						
104	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
	ML-SILT, few clay, trace sand, compact, slight plasticity, gray, wet, moderate to rapid dilatancy							
105	- 0.3" sand at 104.0ft BGS	-93.71						
	- 0.3" sand at 104.3ft BGS	-94.01						80
	- 3/4" sand at 104.6ft BGS							
	- sand lamination, several sliver size wood pieces at 104.9ft BGS							
106	ML-CLAYEY SILT, trace sand, compact, low plasticity, gray, wet, moderate dilatancy							
	ML-SANDY SILT, trace clay, compact, very fine grained sand, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout							
107	- laminated silty sand, several sliver size wood pieces at 105.6ft BGS							
	- 3/4x1" piece of wood at 105.7ft BGS							127
	- laminated sand, with several sliver size wood pieces at 106.2ft BGS			17RS		5.0		
	- sand laminations throughout at 106.4ft BGS							
108	- 3/4" sand at 107.0ft BGS							
	- 1/4" sand at 107.2ft BGS							
	- several sand laminations in 2" section at 107.4ft BGS							
	- 1/2x1-3/4" piece of wood at 107.7ft BGS							
109	- 1-1/2" silty clay at 109.1ft BGS							
		-98.61						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-011)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
111	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - laminated silt at 110.8ft BGS - laminated silt at 111.0ft BGS - laminated silt at 111.1ft BGS		COATED BENTONITE PELLETS					
112	- 1-1/2' laminated sand and laminated silt at 111.7ft BGS - 3/4" sandy silt at 112.1ft BGS - 3/4" sandy silt at 112.3ft BGS							
		-101.31		18RS -012		5.0		488
113	ML-SILT, trace very fine grained sand, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout - laminated sand at 112.8ft BGS - laminated sand at 113.2ft BGS - laminated sand at 113.3ft BGS - laminated sand at 113.4ft BGS	-102.51						
114	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-102.81						773
115	ML-SILT, trace very fine grained sand, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, several silty clay laminations, several shell fragments - negative DNAPL dye test at 114.5ft BGS	-103.61						
116	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							350
	ML-CLAYEY SILT, compact, low plasticity, gray, very moist, rapid to moderate dilatancy - laminated sand at 116.3ft BGS - laminated sand at 116.4ft BGS	-104.81 -105.21						
117	ML-SILT, trace very fine grained sand, trace clay, compact, no plasticity, gray, wet, rapid dilatancy, scattered sliver size wood pieces, shell fragments throughout - laminated sand at 116.6ft BGS - laminated sand at 116.7ft BGS	-106.11		19RS		4.0		
118	SP-SAND, compact, fine to medium grained, well sorted, dark gray, with red grains and white grains, wet, sliver size wood pieces at top contact, shell fragments throughout - laminated silt at 118.0ft BGS							
119	CL-SILTY CLAY, soft, low plasticity, gray, wet	-107.71						
	ML-SILT, few sand, trace clay, compact, slight plasticity, gray, wet, rapid dilatancy, shell fragments throughout	-108.11						505

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- laminated sand at 119.8ft BGS - 1/8" sand at 119.9ft BGS - negative DNAPL dye test at 120.0ft BGS	-108.71						
121	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - laminated silt at 120.7ft BGS - laminated silt at 121.4ft BGS			-013				378
122	- laminated silt at 121.8ft BGS							
	CL-SILTY CLAY, soft, low plasticity, gray, very moist, slow dilatancy	-110.91		20RS		5.0		
123	- laminated sand at 123.0ft BGS - laminated sand at 123.1ft BGS		SAND PACK PORT 5 SCREEN 1					
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-112.01						77.3
124	NO RECOVERY (124 to 125ft BGS)	-112.71	PORT 5 SCREEN 2					
125	ML/CL-CLAYEY SILT/SILTY CLAY, hard, low plasticity, gray, moist, shell fragments throughout, several discontinuous dark gray nodules up to 0.08x1" long - 1-1/4" fine sand, brown liquid at 125.8ft BGS	-113.71	PORT 5 SCREEN 3					
126	- negative DNAPL dye test at 126.5ft BGS		TRANSDUCER #5 PORT 5 SCREEN 4					132
127	- laminated sand at 127.0ft BGS - 2-1/4" fine sand, brown liquid at 127.1ft BGS - 3-1/2"x0.35" wide subvertical lens sand at 127.4ft BGS - negative DNAPL dye test at 127.5ft BGS		PORT 5 SCREEN 5	-015 21RS -014		4.5		182 180
128	- 3-1/4" silty sand, brown liquid at 127.6ft BGS - negative DNAPL dye test at 128.0ft BGS	-116.81	PORT 5 SCREEN 6					
	SM-SILTY SAND, compact, very fine grained, well sorted, gray, with red grains and white grains, wet, shell fragments throughout							
129	- dark gray lamination, several peat fibers at 129.0ft BGS - silt lamination at 129.1ft BGS - 1-1/2" light and dark gray, numerous sliver size wood pieces at 129.2ft BGS - dark gray lamination, several sliver size wood							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	pieces at 129.6ft BGS	-118.71						
	SM/ML-SAND AND SILT, very loose, very fine grained, no plasticity, dark gray, wet							
131								
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-120.41						
132	- increase in density, very fine grained at 132.4ft BGS			22RS		5.0		111.2
133	- 3" silty, with clay, moist, crumbly at 133.0ft BGS - laminated sand, with rootlet size wood pieces at 133.1ft BGS - laminated silt at 133.8ft BGS							
134	ML-SANDY SILT, compact, no plasticity, light gray, moist, crumbles easily	-122.81						
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-123.21						44.0
135	ML/CL-SILTY CLAY/CLAYEY SILT, hard, low plasticity, gray, moist - laminated sand, negative DNAPL dye test at 135.5ft BGS	-123.71						
136	- laminated sand, wet at 135.8ft BGS	-124.71						
	SM-SILTY SAND, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, faint chemical type odor			-017				288
	ML/CL-SILTY CLAY/CLAYEY SILT, hard, low plasticity, gray, moist, crumbles easily	-125.51						
137	- 3-1/2" silty sand, slightly cohesive, strong chemical type odor, oily appearance, positive DNAPL shake test, high FID (2300 ppm direct, 6614+ headspace) at 137.1ft BGS			23RS -016		5.0		6614.0
	- negative DNAPL dye test at 137.0ft BGS	-126.41						
138	- positive DNAPL dye test at 137.5ft BGS							
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, shell fragments throughout, wet	-127.31		-018				
139	- negative DNAPL dye test at 138.5ft BGS							
	ML/CL-SILTY CLAY/CLAYEY SILT, hard, low plasticity, gray, moist, crumbles, shell fragments throughout	-128.11						
	- laminated sand at 139ft BGS	-128.41						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace to with silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-128.71						
141	ML/CL-SILTY CLAY/CLAYEY SILT, silt, hard, low plasticity, gray, moist, several shell fragments							
	ML-SANDY SILT, trace clay, dense, no plasticity, gray, with scattered dark gray laminations, moist, crumbles easily, chemical type odor, several small intact shells scattered throughout							
142	- 0.2" cemented sand at 140.9ft BGS			-019				1293
	- 1/4" irregular discontinuous dark gray laminations at 141.1ft BGS			24RS		5.0		
	- several dark gray laminations at 141.7ft BGS							
143	- negative DNAPL dye test at 142.5ft BGS							
144								
	SP-SAND, trace silt, compact to very dense, fine grained, well sorted, dark gray, with red grains and white grains, wet	-133.21						472
145	- negative DNAPL dye test at 145.0ft BGS							
	- several dark gray laminations at 145.7ft BGS		COATED BENTONITE PELLETS					
146	- 0.2" very fine sand at 145.8ft BGS							619
	SM-SILTY SAND, dense, fine grained, well sorted, dark gray, with red grains and white grains, wet	-135.11						
147	- dark gray laminations from 146.6ft to 147.4ft BGS							
	- 2" dense, moist silty clay/clayey silt at 146.7ft BGS	-136.11		25RS		5.0		1010
	- negative DNAPL dye test at 146.5ft BGS							
148	ML/CL-CLAYEY SILT/SILTY CLAY, trace fine grained sand, hard/very dense, low plasticity, gray, moist, few scattered shell fragments							
	- negative DNAPL dye test at 148.0ft BGS							
149								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- 1/2" silty sand at 150.2ft BGS - 1/2" silty sand at 150.3ft BGS							
				-021				648
151	- 0.3" silty sand at 150.9ft BGS - negative DNAPL dye test at 151.0ft BGS	-139.81						
	SM-SILTY SAND, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, faint chemical type odor	-140.21						
152	ML-CLAYEY SILT, trace fine sand, soft, low plasticity, light gray, with dark gray laminations, very moist, moderate to low dilatancy, shell fragments throughout							
	- scattered sliver size wood pieces at 151.7ft BGS	-141.11		26RS				
	- 1/4" wet silty sand at 152.3ft BGS							
153	ML-SILT, few clay, trace sand, loose, low plasticity, light gray, with dark gray laminations, wet, shell fragments throughout							
	- sand laminations throughout at 152.7ft BGS							
	- several dark gray sliver size wood pieces at 153.6ft BGS							
154	- clay lamination at 154.4ft BGS							
								228
155	CL-SILTY CLAY, firm, low plasticity, gray, very moist to wet, shell fragments throughout, slow dilatancy	-143.71						
	CL-SANDY CLAYEY SILT, soft, low plasticity, gray, wet, moderate dilatancy, shell fragments throughout	-144.11						
156	SC-CLAYEY SILTY SAND, loose, fine grained sand, slight plasticity, gray, with red grains and white grains, wet	-144.91 -145.11						
	- clay lamination at 156.3ft BGS							11
157	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout							
	- silt lamination at 156.8ft BGS			27RS		5.0		
158	- lamination with numerous medium grained rounded sand size shell fragments at 157.2ft BGS							
	- several light reddish brown sand laminations at 157.7ft BGS							
	- reddish brown sand laminations at 157.8ft BGS							
159								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-021)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 9/25/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, very loose, very fine grained, well sorted, gray, with red grains and white grains, wet, very poor recovery	-148.71						
	- loose at 160.1ft BGS							
161								
	- brown lamination, several wood pieces sliver size up to 0.08x0.12" at 161.5ft BGS							
162	- several bands with numerous rounded sand size shell fragments at 162.1ft BGS		SAND PACK					
	- brown lamination, numerous wood pieces up to 1.1x0.12" at 162.3ft BGS			28RS		2.7		15
	- very fine grained, very loose at 162.7ft BGS	-151.41						
163	NO RECOVERY (162.7 to 165ft BGS)		PORT 6 SCREEN 1					
164			PORT 6 SCREEN 2	-022				0.0
165	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-153.71	PORT 6 SCREEN 3					
	- loose at 165.5ft BGS							
166	- fine grained at 166.0ft BGS		TRANSDUCER #6					
	- compact, increased size of shell fragments at 166.5ft BGS		PORT 6 SCREEN 4					
167								0.0
			PORT 6 SCREEN 5	29RS		4.5		
168								
			PORT 6 SCREEN 6					
169	- 1/4" silt at 169.0ft BGS							
	SM/GM-SILTY SANDY GRAVEL, trace clay,	-158.51						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	compact, fine to medium grained sand, fine and coarse grained subangular to subrounded gravel, pebble size up to 2-1/4x1-1/4", gray, with red grains, shell fragments and small intact shells throughout	-159.11						
171	SM/GM-SILTY SAND AND GRAVEL, trace clay, compact to loose, fine to medium grained sand, fine and coarse grained subangular to subrounded gravel, pebble size up to 2x1-1/4", poorly sorted, yellowish brown, with yellow grains and dark gray grains and green grains and orange grains, wet, minor greenish mottling appearance top 3" of contact			-023				
172	- 2-1/2" section with increased gravel and sand content at 171.3ft BGS - 1-1/2" section with increased gravel and sand content at 172.1ft BGS			30RS		5.0		0.0
173	- 1-1/2" irregular sandy silty clay nodule at 172.5ft BGS - increase in gravel size (larger diameter) and quantity at 173.6ft BGS		COATED BENTONITE PELLETS					
174								
175	END OF BOREHOLE @ 175.0ft BGS	-163.71	CMT ANCHOR					0.0
	NOTE:							
176	GLACIAL CONTACT ASSUMED AT 170.4FT BGS							
	PORT 1 SAND PACK 17 TO 24.6FT BGS (-5.71 TO -13.31FT NGVD)							
177	INDIVIDUAL 3-INCH SCREEN BOTTOMS 18.75, 19.75, 20.75, 21.75, 22.75 AND 23.75FT BGS (-7.46, -8.46, -9.46, -10.46, -11.46 AND -12.46FT NGVD)							
	TRANSDUCER (# 1142143)							
178	21.25FT BGS (-9.96FT NGVD)							
	COATED BENTONITE PELLETS 24.6 TO 42.9FT BGS (-13.31 TO -31.61FT NGVD)							
179	PORT 2 SAND PACK							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	42.9 TO 49.7FT BGS (-31.61 TO -38.41FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 43.73, 44.73, 45.73, 46.73, 47.73 AND 48.73FT BGS (-32,44, -33.44, -34,44, -35.44, -36.44 AND -37.44FT NGVD)							
181	TRANSDUCER (# 1203027) 46.23FT BGS (-34.94FT NGVD)							
182	COATED BENTONITE PELLETS 49.7 TO 67.8FT BGS (-38.41 TO -56.51FT NGVD)							
183	PORT 3 SAND PACK 67.8 TO 74.8FT BGS (-56.51 TO -63.51FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 68.61, 69.61, 70.61, 71.61, 72.61 AND 73.61FT BGS (-57.32, -58.32, -59.32, -60.32, -61.32 AND -62.32FT NGVD)							
184	TRANSDUCER (# 1203031) 71.11FT BGS (-59.82FT NGVD)							
185	COATED BENTONITE PELLETS 74.8 TO 92.7FT BGS (-63.51 TO -81.41FT NGVD)							
186	PORT 4 SAND PACK 92.7 TO 99.5FT BGS (-81.41 TO -88.21FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 93.66, 94.66, 95.66, 96.66, 97.66 AND 98.66FT BGS (-82.37, -83.37, -84.47, -85.37, -86.37 AND -87.37FT NGVD)							
187	TRANSDUCER (# 1141684) 96.16FT BGS (-84.87FT NGVD)							
188	COATED BENTONITE PELLETS 99.5 TO 122.5FT BGS (-88.21 TO -111.21FT NGVD)							
189	PORT 5 SAND PACK 122.5 TO 129.5FT BGS (-111.21 TO -118.21FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 94C
DATE COMPLETED: May 24, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	INDIVIDUAL 3-INCH SCREEN BOTTOMS 123.30, 124.30, 125.30, 126.30, 127.30 AND 128.30FT BGS (-112.01, -113.01, -114.01, -115.01, -116.01 AND -117.01FT NGVD) TRANSDUCER (# 1140298) 125.80FT BGS (-114.51FT NGVD) COATED BENTONITE PELLETS 129.5 TO 162.0FT BGS (-118.21 TO -150.71FT NGVD) PORT 6 SAND PACK 162.0 TO 171.0FT BGS (-150.71 TO -159.71FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 163.62, 164.62, 165.62, 166.62, 167.62 AND 168.62FT BGS (-152.33, -153.33, -154.33, -155.33, -156.33 AND -157.33FT NGVD) TRANSDUCER (# 1137312) 166.12FT BGS (-154.83FT NGVD) COATED BENTONITE PELLETS 171.0 TO 175FT BGS (-159.71 TO -163.71FT NGVD)							
191								
192								
193								
194								
195								
196								
197								
198								
199								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95-15
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
	GROUND SURFACE TOP OF RISER	10.90 10.57					
0	NOT SAMPLED (0-5ft BGS)		CONCRETE BENTONITE CHIPS 2" STAINLESS STEEL CASING				
5	SM-SAND, with silt, trace clay and gravel, loose, fine to coarse grained sand, fine to medium grained angular to rounded gravel, gray, with red grains and white grains, wet, trace shell fragments, petroleum odor	5.90	6" BOREHOLE 2" STAINLESS STEEL WELL SCREEN				
8	SM-SILTY SAND, trace clay, loose to compact, fine grained sand, slight plasticity, gray, with red grains and white grains, wet, petroleum odor	2.90	SAND PACK				
10	SM-SAND, with silt and clay, loose, fine to medium grained sand, low plasticity to non plastic, gray, with white grains and red grains, wet, petroleum odor, shell fragments	1.40					
11	NO RECOVERY (11-15ft BGS)	-0.10					
15	SM-SAND, with silt and clay, loose, fine to medium grained sand, low plasticity to non plastic, gray, with white grains and red grains, wet, petroleum odor, shell fragments	-4.10	SUMP				
16	END OF BOREHOLE @ 16.0ft BGS	-5.10					

WELL DETAILS
Screened interval:
6.50 to -3.50ft
4.40 to 14.40ft BGS
Length: 10ft
Diameter: 2in
Slot Size: 0.010
Material: STAINLESS STEEL
Seal:
10.40 to 8.50ft
0.50 to 2.40ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 8/20/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95-15
DATE COMPLETED: July 16, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: T. HABBERFIELD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE
22			Material: BENTONITE PELLETS Sand Pack: 8.50 to -5.10ft 2.40 to 16.00ft BGS Material: SAND				
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE TOP OF RISER	10.90 10.45						
	ASPHALT	10.70						
2	SP-SAND (FILL), trace silt, compact, fine to medium grained, poorly graded, light brown, moist, strong petroleum-type odor (resembles diesel fuel or heating oil) - 1" lens silt at 0.7ft BGS - 1/2" lens silt at 1.1ft BGS							8.8
4								
	- 1/4" lens silt at 4.6ft BGS - dark gray, stronger odor at 4.8ft BGS - fine to medium grained, dark gray, with red and white grains, shell fragments throughout, increasing moisture content with depth at 5.0ft BGS					10.0		
6								
	- slight reduced grain size at 7.5ft BGS - 0.3" lens silt at 7.7ft BGS - wet at 8.0ft BGS		BENTONITE GRAVEL					17.6
8								
	- 1/2" piece of wood at 9.3ft BGS							
10								
	SM-SILTY SAND (FILL), loose, fine grained, dark gray, with red and white grains, shell fragments throughout, wet	0.60 0.00						
12	CL-SILTY CLAY (FILL), soft, medium plasticity, medium grained, very moist, faint odor - 3" clay with sand lenses up to 1/2" thick, wet at 12.0ft BGS							18.4
	SC-SILTY CLAYEY SAND, very loose, dark gray, very moist to wet	-1.90						
14	- 5" piece of wood debris in sandy clay at 13.0ft BGS - 1-1/2" piece of wood debris at 13.5ft BGS		6" BOREHOLE					
	- 4" piece of wood debris at 14.0ft BGS	-3.90				10.0		
16	SM-SILTY SAND (FILL), very loose, fine to medium grained, dark gray, with red and white grains, shell fragments throughout, wood debris of various sizes, wet, odor		SAND PACK					
	- 3"x1-1/2" wood debris at 17.0ft BGS							
18	SP-SAND (FILL), trace silt, loose, fine grained, well sorted, dark gray, with red and white grains, scattered shell fragments throughout, wet, faint petroleum-type odor - 1/8" lens silt at 17.8ft BGS - several sliver sized roots at 18.3ft BGS	-6.60	PORT 1 SCREEN 1 PORT 1 SCREEN 2					15.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, well sorted, brownish gray, with red and white grains, shell fragments throughout, wet	-9.10	PORT 1 SCREEN 3 TRANSDUCER 1 PORT 1 SCREEN 4 PORT 1 SCREEN 5 PORT 1 SCREEN 6					0.0
22								
24								
	ML-SAND AND SILT, compact, fine grained, no plasticity, light gray, very moist	-13.70 -14.10						
	SM-SILTY SAND, compact, very fine grained sand, dark gray, with red and white grains, wet							
26								
	- 2" very fine grained sand at 27.3ft BGS							0.0
28								
	ML-SANDY SILT, compact, very fine grained sand, no plasticity, light gray, wet, shell fragments throughout, rapid dilatancy	-18.10						
30	- sand and silt, scattered peat fiber size wood fragments throughout at 30.0ft BGS					20.0		
32								0.0
	- sandy silt, with laminated sand at 33.0ft BGS		COATED BENTONITE PELLETS					
34	- 1" sandy clayey silt at 34.0ft BGS							
	- 1" clayey silt at 34.8ft BGS							
	- trace clay, several layers silty clay 1/2 to 1" thick at 35.0ft BGS							
36								
	SP-SAND, trace silt, compact, very fine grained, well sorted, brownish gray, with red and white grains throughout, wet	-26.10 -26.80						0.0
38	SM-SILTY SAND, compact, fine grained, grayish brown, wet							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, scattered shell fragments throughout	-29.10	SAND PACK PORT 2 SCREEN 1					0.0
44	- slightly reduced grain size at 44.0ft BGS		PORT 2 SCREEN 2 PORT 2 SCREEN 3					
46			TRANSDUCER 2 PORT 2 SCREEN 4					
48	- 1-1/2" sandy silt at 48.5ft BGS		PORT 2 SCREEN 5 PORT 2 SCREEN 6					0.0
50	ML-SANDY SILT, compact, slight plasticity, light gray, very moist, rapid dilatancy	-38.60				20.0		
52	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-40.10						0.0
54	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet - 1-1/2" sandy silt at 53.6ft BGS	-42.10						
56	ML-SANDY SILT, compact, fine grained sand, slight plasticity, medium gray, very moist, rapid dilatancy	-44.10						0.0
58	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, scattered small shell fragments throughout, wet - 1/2" lens sandy silt at 59.2ft BGS	-47.10	COATED BENTONITE PELLETS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY SILT, compact, fine sand, slight plasticity, gray, very moist, rapid dilatancy	-49.30						
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-50.10						
62	- 1" sandy silt at 63.0ft BGS - 1" sandy silt at 63.4ft BGS							0.0
64	ML-CLAYEY SANDY SILT, compact, slight plasticity, light gray, medium dilatancy, very moist - sandy silt, trace clay, rapid dilatancy at 65.0ft BGS	-53.10						
	CL-SILTY CLAY, trace fine grained sand, soft, low plasticity, light gray, wet, several sand lamina	-54.70						
66	ML-SANDY SILT, trace clay, several sand lamina, loose, slight plasticity, light gray, wet, rapid dilatancy	-55.40						
	CL-SILTY SANDY CLAY, soft, slight plasticity, light gray, very moist	-56.60	SAND PACK					0.0
68	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-57.00						
	ML-SANDY SILT, compact, fine grained sand, slight plasticity, gray, very moist to wet, rapid dilatancy	-57.50	PORT 3 SCREEN 1					
70	SP-SAND, trace silt, compact, fine grained, well sorted, gray, with red grains and white grains, shell fragments scattered throughout, wet	-58.70	PORT 3 SCREEN 2 PORT 3 SCREEN 3 TRANSDUCER 3 PORT 3 SCREEN 4			20.0		
72	CL-SILTY CLAY, soft, medium plasticity, gray, very moist	-61.40	PORT 3 SCREEN 5 PORT 3 SCREEN 6					0.0
74								
76	ML-SANDY SILT, trace clay, compact, fine sand, slight plasticity, gray, very moist, rapid dilatancy	-64.60						
78	ML-CLAYEY SILT, firm, slight plasticity, gray, very moist	-66.60						0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CL-SILTY CLAY, soft, medium plasticity, gray, moist	-69.10						
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet	-70.30						
82	- 1" clayey silt at 81.4ft BGS	-71.10						
	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, very moist, wet, rapid dilatancy, sand lamina throughout		COATED BENTONITE PELLETS					0.0
84								
	CL-SILTY CLAY, firm, low plasticity, light gray, very moist	-74.10						
		-74.50						
86	ML-SANDY SILT, compact, fine grained, medium gray, wet	-74.90						
	ML-SANDY SILT, with sand laminations, compact, fine grained sand, gray, very moist to wet	-76.60						0.0
88	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, small shell fragments scattered throughout, wet	-77.60						
	ML-SILT, trace sand, trace clay, compact, slight plasticity, gray, moist, slow dilatancy							
	- 1-1/2" lens silty sand, wet at 89.7ft BGS							
90	- trace clay, sandy silt at 89.9ft BGS					20.0		
	- 1/2" lens with numerous rootlet size wood pieces at 90.5ft BGS	-80.10						
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet							
92	- 1/2" lens fine sand at 92.5ft BGS		SAND PACK					0.0
	ML-SANDY SILT, compact, fine grained sand, no plasticity, gray, with red grains and white grains, wet, rapid dilatancy	-82.40	PORT 4 SCREEN 1					
94			PORT 4 SCREEN 2					
	- silt, trace sand, trace clay, slow dilatancy, very moist at 95.0ft BGS							
	- 2" silty sand at 95.6ft BGS		PORT 4 SCREEN 3					
96	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, numerous pieces of wood up to 1/4x3/4" size at top 1" interval	-85.00	TRANSDUCER 4					
			PORT 4 SCREEN 4					
	- 3/4" lens silt at 97.0ft BGS	-86.30	PORT 4 SCREEN 5					0.0
98	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet	-86.80						
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet		PORT 4 SCREEN 6					
	SM/ML-SAND AND SILT, compact, very fine	-88.60						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	grained sand, well sorted, dark gray, with red grains and white grains, wet	-89.10						
	CL-SILTY CLAY, with silt lamina and sand lamina, soft, low plasticity, gray, moist, scattered small shell fragments throughout, scattered wood pieces up to 1"x1-1/2" throughout	-89.70						
102	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, small shell fragments scattered throughout, wood pieces from sliver size up to 2x1" scattered throughout	-91.10						0.0
104	SP-SAND, trace silt, compact, fine grained, well sorted, dark gray, with red grains and white grains, wet, small shell fragments scattered throughout - 0.3" sandy silt at 103.0ft BGS - 1/4" very fine grained sand at 103.5ft BGS - 1/2" very fine grained sand at 105.0ft BGS							
106								0.0
108								
110	- 1/2" very fine grained sand at 109.6ft BGS		COATED BENTONITE PELLETS			20.0		
112	- 0.2" very fine grained sand at 111.8ft BGS - 1/2" very fine grained sand at 112.0ft BGS							0.0
114	- fine grained sand, with silt lamina, numerous small wood pieces up to 0.08x0.08" size at 113.0ft BGS - wood pieces not present at 113.5ft BGS - 2" laminated silt and sand at 114.4ft BGS							
116	- increase in white grains at 116.0ft BGS							
118	- several wood pieces up to 0.08x0.08" at 117.2ft BGS - reduced white grains at 117.6ft BGS							0.0
	- 1/2" laminated sand and silt at 119.5ft BGS							

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	ML-SANDY SILT, trace clay, compact, fine grained sand, slight plasticity, gray, wet, rapid dilatancy	-109.10	SAND PACK					
122	- occasional silty clay lenses, 1/2" thick to 3/4" thick at 121.5ft BGS - layered sand, clay, silt at 122.0ft BGS - sandy silt at 122.5ft BGS		PORT 5 SCREEN 1					0.0
124			PORT 5 SCREEN 2					
			PORT 5 SCREEN 3					
126	CL-SANDY SILTY CLAY, soft, medium plasticity, gray, wet	-115.10	TRANSDUCER 5					
	ML-SANDY SILT, compact, fine grained sand, slight plasticity, gray, wet, rapid dilatancy, several small white grains scattered throughout	-115.90	PORT 5 SCREEN 4					
128	- occasional wet sand laminations at 127.5ft BGS - 1" silty sand, wet at 128.5ft BGS - 1-1/2" lens fine grained sand at 129.0ft BGS		PORT 5 SCREEN 5					0.0
			PORT 5 SCREEN 6					
130						20.0		
132								0.0
	CL-SILTY CLAY, soft, medium plasticity, light gray, very moist	-121.90						
		-122.30						
134	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains throughout, wet	-123.90						
	ML-SANDY SILT, trace clay, compact, slight plasticity, light gray, wet, rapid dilatancy, small red grains and white grains	-124.40						
136	CL-SILTY CLAY, soft, medium plasticity, light gray, moist	-124.80						
	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet							0.0
138	- several 1" lenses of thinly layered silt and sand at 138.3ft BGS							
	ML-SANDY SILT, with thin wet sand lenses up to 0.2" thick, compact, slight plasticity, fine grained sand, moist, with wet lenses	-128.10						

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STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- layered sand and silt, wet at 140.0ft BGS		COATED BENTONITE PELLETS					
142	- sandy silt, trace clay, wet, rapid dilatancy at 142.3ft BGS							0.0
	CL-SANDY SILT CLAY, firm, low plasticity, light gray, wet	-132.10						
144								
	ML-SANDY SILT, compact, fine sand, slight plasticity, gray, wet, rapid dilatancy	-134.60						
146								
	ML-SANDY CLAYEY SILT, firm, slight plasticity, gray, wet, medium dilatancy	-136.10						0.0
148	- 1/2" lens silty clay at 147.2ft BGS	-137.10						
	SM-SILTY SAND, compact, very fine grained sand, dark gray, with red grains and white grains, wet, occasional silt lenses up to 1/2" thick	-138.70						
150	ML-SANDY CLAYEY SILT, compact, no plasticity, light gray, moist	-139.40				20.0		
	CL-SILTY SANDY CLAY, firm, low plasticity, g;ray, moist	-140.40						
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, occasional silty sand and and cemented sand lamina throughout							0.0
152			SAND PACK					
154			PORT 6 SCREEN 1					
			PORT 6 SCREEN 2					
156			PORT 6 SCREEN 3					
	ML-SANDY SILT, trace clay, compact, no plasticity, gray, moist, scattered shell fragments throughout	-145.70	PORT 6 SCREEN 4					0.0
158	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, shell fragments throughout, wet	-147.10	PORT 6 SCREEN 5					
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, small shell fragments	-148.10	TRANSDUCER 6 PORT 6					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	throughout, wet, occasional sliver size wood pieces	-149.10	SCREEN 6					
	ML-CLAYEY SILT, compact, slight plasticity, gray, very moist, slow dilatancy, shell fragments scattered throughout							
162	- 1-1/4" silty clay at 161.4ft BGS							0.0
	- sandy clayey silt at 162.9ft BGS							
164	- clayey silt, occasional silty clay lenses throughout at 164.0ft BGS							
166								
168								0.0
170						20.0		
	- clayey silt at 171.0ft BGS							
172								0.0
174								
176	SM-SILTY SAND, compact, fine grained, dark gray, with red grains and white grains, wet, occasional silt lenses 0.08" thick	-165.10	COATED BENTONITE PELLETS					
	ML-SANDY CLAYEY SILT, loose, low plasticity, gray, very moist, slow dilatancy, scattered shell fragments throughout, several small shells intact	-166.60						0.0
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CL-SANDY SILTY CLAY, soft, low plasticity, gray, moist	-169.10						
182	- small rounded fine grained sand size shell fragments scattered throughout (less than 1% total) at 182.0ft BGS							0.0
184	- slight increase in shell fragment size at 185.0ft BGS							
186	- silty clay at 186.0ft BGS							0.0
188								
190	- trace fine grained sand at 190.0ft BGS					17.5		
	- sandy silty clay at 191.0ft BGS							
192								0.0
	SM-SILTY SAND, compact, fine grained, gray, with red grains and white grains, wet, contains minimum of 25% rounded shell fragments up to medium grained sand size	-182.60						
194								
196			SAND					
	- 1-1/2" sandy silty clay at 197.3ft BGS							0.0
198			TRANSDUCER 7					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	CI-SILTY CLAY, firm, medium plasticity, gray, moist to very moist, uniform scattered shell fragments throughout, several small shells intact	-189.20						
202								0.0
204								
206								
208								0.0
210						20.0		
212			COATED BENTONITE PELLETS					0.0
214								
216								
218								0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SC-CLAYEY SILTY SAND, and shells, wet	-210.10						
222	CI-SILTY CLAY, firm, medium plasticity, gray, moist to very moist, scattered shell fragments throughout	-211.10				5.0		N/A
224								
226	END OF BOREHOLE @ 226.0ft BGS	-215.10						
	NOTE:							
	PORT 1 SAND PACK 16.0 TO 24.0FT BGS (-5.10 TO -13.10FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 18.6, 19.6, 20.60, 21.60, 22.60 AND 23.6FT BGS (-7.70, -8.70, -9.70, -10.70, -11.70 AND -12.70FT NGVD) TRANSDUCER (# 1142324) 21.10FT BGS (-10.20FT NGVD)							
228								
230								
	COATED BENTONITE PELLETS 24.0 TO 42.2FT BGS (-13.10 TO -31.30FT NGVD)							
232								
	PORT 2 SAND PACK 42.2 TO 48.9FT BGS (-31.30 TO -38.0FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 43.62, 44.62, 45.62, 46.62, 47.62 AND 48.62FT BGS (-32.72, -33.72, -34.72, -35.72, -36.72 AND -37.72FT NGVD)							
234								
236								
	TRANSDUCER (# 1141753) 46.12FT BGS (-35.22FT NGVD)							
238	COATED BENTONITE PELLETS 48.9 TO 67.0FT BGS (-38.0 TO -56.10FT NGVD)							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	PORT 3 SAND PACK 67.0 TO 73.8FT BGS (-56.10 TO -62.90FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
242	68.60, 69.60, 70.60, 71.60, 72.60 AND 73.60FT BGS (-57.70, -58.70, -59.70, -60.70, -61.70 AND -62.70FT NGVD) TRANSDUCER (# 1141752) 71.10FT BGS (-60.20FT NGVD)							
244	COATED BENTONITE PELLETS 73.8 TO 92.0FT BGS (-62.90 TO -81.10FT NGVD)							
246	PORT 4 SAND PACK 92.0 TO 99.0FT BGS (-81.10 TO -88.10FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
248	93.62, 94.62, 95.62, 96.62, 97.62 AND 98.62FT BGS (-82.72, -83.72, -84.72, -85.72, -86.72 AND -87.72FT NGVD) TRANSDUCER (# 1141686) 96.12FT BGS (-85.22FT NGVD)							
250	COATED BENTONITE PELLETS 99.0 TO 121.0FT BGS (-88.10 TO -110.10FT NGVD)							
252	PORT 5 SAND PACK 121.0 TO 128.8FT BGS (-110.10 TO -117.90FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS							
254	123.61, 124.61, 125.61, 126.61, 127.61 AND 128.61FT BGS (-112.71, -113.71, -114.71, -115.71, -116.71 AND -117.71FT NGVD) TRANSDUCER (# 1140296) 126.11FT BGS (-115.21FT NGVD)							
256	COATED BENTONITE PELLETS 128.8 TO 153.2FT BGS (-117.90 TO -142.30FT NGVD)							
258	PORT 6 SAND PACK							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: 95C
DATE COMPLETED: March 30, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: D. DEITNER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	153.2 TO 160.5FT BGS (-142.30 TO -149.60FT NGVD) INDIVIDUAL 3-INCH SCREEN BOTTOMS 154.57, 155.57, 156.57, 157.57, 158.57 AND 159.57FT BGS (-143.67, -144.67, -145.67, -146.67, -147.67 AND -148.67FT NGVD) TRANSDUCER (# 1140288) 159.07FT BGS (-148.17FT NGVD) COATED BENTONITE PELLETS 160.5 TO 194.0FT BGS (-149.60 TO -183.1FT NGVD) SAND PACK 194.0 TO 199.0FT BGS (-183.1 TO -188.1FT NGVD) TRANSDUCER (# 1140327) 198.0FT BGS (-187.1FT NGVD) BENTONITE PELLETS 199.0 TO 226.0FT BGS (-188.1 TO -214.1FT NGVD)							
262								
264								
266								
268								
270								
272								
274								
276								
278								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	12.58 12.14						
0	SM-GRAVELLY SAND, trace silt, fine grained, poorly graded, loose, brown, moist, with cobbles, neutral pH (6)		CONCRETE					
2	NO RECOVERY (1.5 to 10.0ft BGS)	11.08						
4			CEMENT/ BENTONTIE GROUT	1RS		1.5		0
6			6" BOREHOLE					
8			2" PVC WELL CASING					
10	SP-SAND, trace silt, fine grained, poorly graded, loose, red grains and white grains, brown, moist	2.58		-000				
12	- loose at 12.0ft BGS							5
14				2RS		10.0		
16	- loose at 16.0ft BGS - wet at 16.5ft BGS							
18	- compact at 17.5ft BGS							382

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- 0.2' ML-SILT lens, negative DNAPL dye test at 20.0ft BGS - gray at 21.0ft BGS			-001				
22	- with silt at 22.5ft BGS							
24				3RS -002		10.0		867
26	ML-CLAYEY SILT, low plasticity, soft, gray, wet	-13.12						
28	- trace fine sand at 27.9ft BGS - trace fine sand at 28.5ft BGS							
30	ML-SANDY SILT, trace clay, soft, low plasticity, gray, wet, neutral pH (7)	-17.42						
32	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, wet, trace shell fragments - with silt at 33.6ft BGS	-19.92						
34				4RS -003		10.0		874
36	- with silt at 37.5ft BGS							
38	- 0.3' ML-SILT lens at 38.3ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (3RS-002, 4RS-003)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- loose, neutral pH (6) at 40.0ft BGS - white shell fragments at 41.0ft BGS							
44	- compact at 44.0ft BGS							
46	- white shell fragments at 45.5ft BGS			5RS		10.0		137
48				-004				
50	ML-SANDY SILT, low plasticity, soft, gray, wet	-36.22						
52	SP-SAND, trace silt, fine grained, poorly graded, red grains and white grains, brown, wet - loose at 52.5ft BGS	-38.32						
54	- with silt at 55.0ft BGS			6RS		10.0		5
56								
58	- wood fragments at 57.5ft BGS			-005				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- with silt at 60.0ft BGS	-47.42						
	SM-SILTY SAND, fine grained, poorly graded, loose, brown, wet	-48.22						
	SP-SAND, trace silt, fine grained, poorly graded, red grains and white grains, brown, wet							
62								
64								
	- compact at 65.0ft BGS			7RS-006		10.0		4
66								
68								
	- with silt at 68.8ft BGS							
70								
								9
72								
	- shell fragments at 73.0ft BGS							
								14
74								
	- neutral pH (7) at 75.0ft BGS			8RS		10.0		
76				-007				7
	- with silt at 76.9ft BGS							
78								
								5
	- with silt at 79.6ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82				9RS		5.0		10
	- compact at 83.0ft BGS							
84								8
	- neutral pH (6) at 85.0ft BGS							
86								7
	- with silt at 87.1ft BGS							
88	- compact at 88.0ft BGS			10RS		5.0		
				-008				8
90	- neutral pH (7) at 90.0ft BGS							
								19
92	- compact at 92.0ft BGS			11RS		5.0		
								27
94								
	- wood fragments at 95.0ft BGS							
96								9
				12RS		5.0		
98	SM-SILTY SAND, fine grained, poorly graded, compact, brown, wet	-85.32						261
				-009				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, fine grained, poorly graded, compact, red grains and white grains, brown, wet	-87.42						98
102				13RS		5.0		
104								351
106								340
108				14RS -010		5.0		
	SM-SILTY SAND, fine grained, poorly graded, loose, gray, wet	-95.52						451
110	SP-SAND, trace silt, fine grained, poorly graded, compact, red grains and white grains, brown, wet, neutral pH (6)	-97.42						1003
112				15RS		5.0		
114	- negative DNAPL dye test at 114.5ft BGS							1042
	- negative DNAPL dye test at 115.5ft BGS			-011				
116								482
				16RS		5.0		
118	- negative DNAPL dye test, compact at 118.0ft BGS							399

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test, compact at 121.0ft BGS							1187
122				17RS		5.0		
								781
124	- negative DNAPL dye test at 124.5ft BGS							
126								135
	- negative DNAPL dye test, with silt from 127.5 to 128.3ft BGS			18RS -012		5.0		
128								2681
130								
	- negative DNAPL dye test at 131.0ft BGS							1635
132	- compact at 132.0ft BGS - negative DNAPL dye test at 132.5ft BGS			19RS		5.0		
	- with silt at 133.7ft BGS							1729
134								
	- negative DNAPL dye test at 135.5ft BGS			-013				
136	- with silt at 136.6ft BGS							6902
				20RS		5.0		
138	- 0.3' CL-CLAY lens at 138.3ft BGS							
	- negative DNAPL dye test at 139.0ft BGS							2270

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
142	- negative DNAPL dye test at 142.0ft BGS							1942
	SM-SILTY SAND, fine grained, poorly graded, loose, brown, wet	-129.82		21RS		5.0		
144								1839
	ML-SILT, with fine grained sand, low plasticity, hard, brown, wet, high pH (11)	-132.42		-014				
146	- positive DNAPL dye test at 145.0ft BGS							8628
	- negative DNAPL dye test at 147.0ft BGS			22RS		5.0		
148								
	- negative DNAPL dye test at 149.0ft BGS			-015				2500
150	- positive DNAPL dye test at 150.0ft BGS	-137.42						
	SP-SAND, trace silt, fine grained, poorly graded, compact, red grains and white grains, brown, wet							1445
	- negative DNAPL dye test at 151.5ft BGS							
152				23RS		4.0		
	- negative DNAPL dye test at 153.0ft BGS							
	ML-SILT, trace fine grained sand, low plasticity, hard brown, wet	-140.82						1399
154		-141.42						
	NO RECOVERY (154.0 to 155.0ft BGS)							
	ML-SILT, trace fine grained sand, low plasticity, hard brown, wet	-142.42						
	- high pH (12) at 155.5ft BGS			-016				378
156	NO RECOVERY (156.0 to 160.0ft BGS)	-143.42						
				24RS		1.0		
158								--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-CLAYEY SILT, trace fine grained sand, low to medium plasticity, soft, gray, wet, elevated pH (9) - negative DNAPL dye test at 160.5ft BGS	-147.42						776
162				25RS		5.0		
164								236
	SP-SAND, trace silt, fine grained, poorly graded, compact, red grains and white grains, brown, wet, elevated pH (9.5) - negative DNAPL dye test at 165.5ft BGS - loose at 166.5ft BGS	-152.42		-017				
166								1083
	NO RECOVERY (116.5 to 170.0ft BGS)	-153.92		26RS		1.5		
168								
170	SP-SAND, trace silt, fine grained, poorly graded, compact, red grains and white grains, brown, wet, neutral pH (7) - compact, white shell fragments at 171.0ft BGS	-157.42						95
172				27RS		5.0		
174	- loose, white shell fragments at 174.7ft BGS - 0.1' ML-SILT lens at 174.8ft BGS - white and red shell fragments at 175.0ft BGS - neutral pH (8.5) at 175.5ft BGS							12
176				-018				9
	- 0.3' ML-SILT lens, trace small cobbles at 177.2ft BGS			28RS		5.0		
178								
	- with silt, trace small cobbles at 178.9ft BGS							3
	- rounded cobbles at 179.7ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- neutral pH (8) at 180.0ft BGS							8
182				29RS		5.0		
	- with shell fragments, medium to coarse grained at 183.4ft BGS	-171.12						4
184	SM-GRAVELLY SAND (glacial), with silt, with cobbles, trace clay, fine to coarse grained, well graded, loose, gray to light brown, wet	-172.42						
	SP-SAND, trace silt, fine to coarse grained, poorly graded, compact, light brown, wet, neutral pH (6)	-173.12		-019				
186	ML-SANDY SILT, with clay, with cobbles, trace fine to medium gravel, low plasticity, soft, light brown to gray	-174.22						5
	SM-SILTY SAND, with small cobbles, trace medium to coarse gravel, fine to medium grained, well graded, loose, light brown to brown, wet	-175.62		30RS		5.0		
188	SC-CLAYEY SAND, with silt, trace coarse gravel, medium grained, poorly graded, loose, light brown and gray, wet							3
190	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, light brown, wet, neutral pH (7)	-177.42	BENTONITE PELLETS					
192				31RS		5.0		3
	SM-SILTY SAND, trace clay, medium to coarse grained, poorly graded, loose, brown to gray, wet	-180.92						6
194	- with clay at 194.9ft BGS	-182.42						
	SP-SAND, trace silt, loose, fine grained, poorly graded, brown, wet - coarse grained at 195.7ft BGS - with small cobbles at 196.0ft BGS - light brown at 196.2ft BGS			-020				4
196								
	NO RECOVERY (197.5 to 200.0ft BGS)	-184.92		32RS		2.5		
198			2" PVC WELL SCREEN					--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-DEEP
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, loose, fine grained, poorly graded, brown, wet, neutral pH (6)	-187.42	SAND PACK					7
202	SM-SILTY SAND, trace medium to coarse gravel, with cobbles, compact, medium to coarse grained, poorly graded, brown to light brown, wet	-188.62	SUMP	33RS		5.0		
	SP-SAND, trace silt, compact, medium grained, poorly graded, light brown, wet	-190.62						3
204	- with silt at 204.5ft BGS			-021				
	END OF BOREHOLE @ 205.0ft BGS	-192.42						
206	NOTE: GLACIAL CONTACT ASSUMED AT 183.70FT BGS							
208								
210								
212								
214								
216								
218								

WELL DETAILS
Screened interval:
-184.42 to -189.42ft
197.00 to 202.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-175.42 to -179.42ft
188.00 to 192.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-179.42 to -192.42ft
192.00 to 205.00ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-021)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	12.56 11.95						
	NOT SAMPLED (0.0 TO 130.0ft BGS) - SEE EXT-9DEEP FOR STRATIGRAPHIC INFORMATION		CONCRETE 2" STAINLESS STEEL WELL CASING 6" BOREHOLE					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64								
66								
68								
70								
72								
74			CEMENT/ BENTONITE GROUT					
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
102								
104								
106								
108								
110								
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
122								
124								
126								
128								
130	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium to dark brown, wet, trace sand size shell fragments, neutral pH (6 to 7)	-117.44						2052
	- 3" sand seam at 131.0ft BGS	-119.04						
132	SC-CLAYEY SAND, trace silt, soft, very fine grained, medium plasticity, rapid dilatancy, medium brown, wet	-119.94						2397
	SM-SILTY SAND, compact to dense, very fine grained, trace white grains and red grains, medium brown, wet, negative DNAPL dye test							
134	- 2" sand seam at 132.9ft BGS	-121.94						
	SC-CLAYEY SAND, trace silt, soft, very fine grained sand, medium plasticity, low dilatancy, medium brown, wet	-122.94						
136	SM-SILTY SAND, compact, very fine grained, trace white grains and red grains, medium brown, wet							1291
	- elevated pH (8 to 9) at 136.5ft BGS	-124.14						
	SC-CLAYEY SAND, trace silt, soft, very fine grained, medium plasticity, low dilatancy, medium brown, wet							
138	- grading to clay with trace very fine grained sand at 137.5ft BGS	-125.44		-001				
	SM/ML-SILTY SAND/SANDY SILT, dense, very fine grained sand, trace white grains and red grains, medium brown, wet							9905

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- weak positive DNAPL dye test, high pH (10) at 138.5ft BGS - negative DNAPL dye test at 139.0ft BGS - continuing high pH (10 to 11) at 141.0ft BGS							5401
142								
	- weak positive DNAPL dye test at 143.0ft BGS			-002				
144								9845
	NO RECOVERY (145.0 to 150.0ft BGS)	-132.44	BENTONITE CHIPS					
146								
148								
150	SM/ML-SILTY SAND/SANDY SILT, dense, very fine grained sand, trace white grains and red grains, medium brown, wet	-137.44						
		-138.44						412
152	SP-SAND, trace silt, compact, fine to medium grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments, continuing high pH (10 to 11) - 3" silty sand lens at 152.8ft BGS		2" STAINLESS STEEL WELL SCREEN	-003				
154	- 2" silty sand lens at 154.2ft BGS		SAND PACK					262
	END OF BOREHOLE @ 155.0ft BGS	-142.44	SUMP					
156								
158								

WELL DETAILS
Screened interval:
-137.44 to -142.44ft
150.00 to 155.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: STAINLESS STEEL
Seal:
-131.94 to -134.44ft

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-002, -003)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-INTERMEDIATE
DATE COMPLETED: August 26, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
162			144.50 to 147.00ft BGS Material: BENTONITE CHIPS Sand Pack: -134.44 to -143.94ft 147.00 to 156.50ft BGS Material: SAND					
164								
166								
168								
170								
172								
174								
176								
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

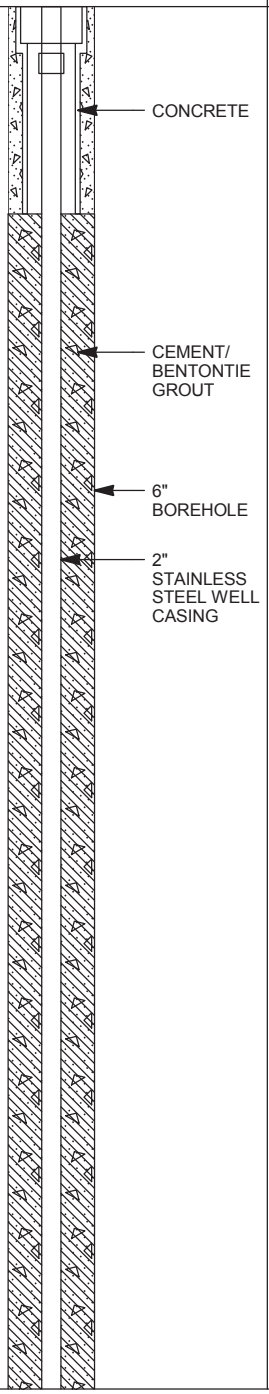
CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	12.59 12.21						
	SEE EXT-9-DEEP (0.0 to 103ft BGS) FOR STRATIGRAPHIC INFORMATION							



2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
102								
		-90.41						
104	SM/ML-SILTY SAND TO SANDY SILT, trace clay, soft, very fine grained, white grains and red grains, low to medium plasticity, low to medium dilatancy, medium brown, wet, neutral pH (6.3 to 7.5)							31.8
106								565
		-93.91						
	SP-SAND, trace to with silt, compact, very fine to fine grained, trace white grains and red grains throughout, medium brown, wet, trace sand size shell fragments	-94.91						
108	SM/ML-SILTY SAND TO SANDY SILT, trace clay, soft to firm, very fine grained, trace white grains and red grains, low to medium plasticity, low to medium dilatancy, medium brown, wet - 6" SP-SAND lens, fine to medium grained at 108.5ft BGS							1020
110								630
112								413
114	- increase in sand content, becoming compact at 115.0ft BGS		BENTONITE PELLETS					
116		-103.41						2146
	SP-SAND, trace to with silt, compact, fine grained, white grains and red grains throughout, medium brown, wet, trace sand size shell fragments throughout							
118	- 4" ML-SANDY SILT lens at 118.0ft BGS							1972

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-EXT-9-SHALLOW
DATE COMPLETED: August 28, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
122	- increase in silt content, sandy silty partings at 121.5ft BGS		2" STAINLESS STEEL WELL SCREEN; SAND PACK; SUMP	-001				1811
	END OF BOREHOLE @ 123.0ft BGS	-110.41						
124								
126								
128								
130								
132								
134								
136								
138								

WELL DETAILS
Screened interval:
-105.41 to -110.41ft
118.00 to 123.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: STAINLESS STEEL
Seal:
-98.91 to -102.41ft
111.50 to 115.00ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-102.41 to -111.91ft
115.00 to 124.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.17 10.65						
	SM-GRAVELLY SAND, with silt, fine to medium grained, poorly graded, loose, brown, dry		CONCRETE					
2	SP-SAND, trace silt, fine to medium grained, poorly graded, loose, brown, red grains and white grains, dry - fine grained, loose at 2.0ft BGS	9.37						
4	- loose at 4.0ft BGS		BENTONITE CHIPS					
				1RS				3
6	- loose at 6.0ft BGS							
			6" BOREHOLE					
8			2" PVC WELL CASING	-001				
10	- loose at 10.0ft BGS							
12	- loose at 12.0ft BGS							
	- with silt, wet at 13.0ft BGS							
14								
	- loose at 15.0ft BGS			2RS				2
16	- wet at 16.0ft BGS			-002				
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	CL-SILTY CLAY, trace fine sand, low plasticity, soft, gray, wet	-9.63 -9.83						
22	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet							
24	- loose, wet at 24.0ft BGS							
	- continuing neutral pH (6) at 25.0ft BGS			3RS				185
26	- loose at 26.0ft BGS			-003				
28	- loose at 28.0ft BGS							
30								
32	- loose at 32.0ft BGS							
34	- negative DNAPL dye test, loose at 34.0ft BGS			-004				
				4RS				288
36	- loose at 36.0ft BGS							
38	- negative DNAPL dye test at 38.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- negative DNAPL dye test, neutral pH (8) at 42.0ft BGS			-005				288
44				5RS				
46								
48	- negative DNAPL dye test at 48.0ft BGS							1630
50								811
52	- 0.5' ML-SILT lens at 52.2ft BGS - negative DNAPL dye test at 52.5ft BGS							
54	- negative DNAPL dye test at 54.0ft BGS			-006				1722
56	- negative DNAPL dye test at 56.5ft BGS - wood fragments at 57.0ft BGS			6RS				1035
58	- negative DNAPL dye test at 58.0ft BGS - with silt at 58.2ft BGS							801

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- continuing neutral pH (6) at 61.0ft BGS							290
62	ML-SANDY SILT, low plasticity, soft, brown to gray, wet - negative DNAPL dye test at 63.0ft BGS	-50.93						
64	- negative DNAPL dye test at 64.5ft BGS - low to medium plasticity at 65.0ft BGS			-007 7RS				373
66	- negative DNAPL dye test at 66.0ft BGS							491
	- negative DNAPL dye test at 67.5ft BGS							
68								311
70								
	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-59.73						1420
72	- negative DNAPL dye test at 73.0ft BGS - with silt at 73.4ft BGS			-008				
74	- 0.3' ML-SILT lens at 74.6ft BGS - negative DNAPL dye test at 75.0ft BGS	-63.83		8RS				485
	ML-SANDY SILT, low plasticity, soft, brown, wet - negative DNAPL dye test at 76.0ft BGS							1185
76								
	- negative DNAPL dye test at 77.5ft BGS							
78								1321
		-68.63						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-007, -008)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-68.83						
	ML-SANDY SILT, low to medium plasticity, soft, gray, wet							858
82	- negative DNAPL dye test at 82.5ft BGS			-009				
84	- negative DNAPL dye test at 84.5ft BGS		CEMENT/ BENTONITE GROUT					1228
	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-73.83		9RS				
86	- negative DNAPL dye test at 86.0ft BGS							1017
	ML-SILT, with sand, low plasticity, soft, gray to brown, wet	-75.43						
88	- negative DNAPL dye test at 88.5ft BGS							781
	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-78.53						
90	- with silt at 90.5ft BGS			-010				
	- negative DNAPL dye test at 91.0ft BGS							1560
	ML-SANDY SILT, low plasticity, soft, gray, wet	-80.33						
92								
94	SP-SAND, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-82.93						763
	- negative DNAPL dye test at 94.5ft BGS			10RS				
96	- negative DNAPL dye test at 96.0ft BGS							813
98	- negative DNAPL dye test at 98.0ft BGS							
	- compact at 99.0ft BGS							120

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- loose at 101.0ft BGS			-011				827
102	- compact at 102.0ft BGS							
	NO RECOVERY (102.5 to 105.0ft BGS)	-91.33						
104								
	SP-SAND, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-93.83		11RS				
106								139
108	- compact at 108.0ft BGS							24
110								
	- negative DNAPL dye test at 110.5ft BGS			-012				
112	- negative DNAPL dye test at 112.0ft BGS							965
114	- 0.8' ML-SANDY SILT lens at 113.8ft BGS							55
	NO RECOVERY (115.0 to 116.0ft BGS)	-103.83		12RS				
116	SP-SAND, fine grained, poorly graded, loose, brown, red grains and white grains, wet	-104.83						105
118	- compact, wet at 118.0ft BGS							51

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- loose at 120.0ft BGS							448
122	- negative DNAPL dye test at 122.5ft BGS							
124	- compact at 124.0ft BGS			-013				1070
				13RS				
126	- negative DNAPL dye test, continuing neutral pH (7) at 126.0ft BGS							843
	- loose at 127.5ft BGS							
128	- negative DNAPL dye test at 128.0ft BGS							
	- compact at 129.0ft BGS							384
130								
								200
132	- negative DNAPL dye test at 132.0ft BGS			-014				
								121
134	- with silt at 134.6ft BGS			14RS				
136								382
138	- 0.5' ML-SANDY SILT lens at 138.5ft BGS							
	- with silt at 139.0ft BGS							156

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
				-015				
	ML-SANDY SILT, low plasticity, soft, brown, wet, trace wood fragments	-129.73						76
142								
	ML-SILT, with fine sand, trace clay, low to medium plasticity, soft, gray, wet	-132.13						4
144	- 0.4' SP-SAND lens at 145.0ft BGS			15RS				
146								89
	- with sand at 146.7ft BGS - trace medium gravel at 147.2ft BGS							
148	- trace yellow shell fragments at 148.0ft BGS							8
	- trace medium gravel, low to medium plasticity at 149.0ft BGS							
150	SP-SAND, trace silt, fine grained, poorly graded, loose, brown, red grains and white grains, wet, trace shell fragments	-138.83						340
				-016				
152								
	ML-SILT, trace clay, trace fine sand, some cobbles, low plasticity, gray, wet	-141.63						30
154								
	SP-SAND, trace fine to coarse gravel, medium grained, well graded, loose, brown, red grains, white grains and yellow grains, wet	-143.83		16RS				
156								7
	GM-SILTY GRAVEL (glacial), with cobbles, trace fine sand, fine to coarse grained, well graded, loose, light brown, wet	-145.43						
158								5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
162								2
	SP-SAND, some cobbles, trace silt, trace medium gravel, fine grained, poorly graded, compact, brown, wet	-151.73						
164	- oxidation at 164.5ft BGS			-017				2
	ML-SILT, trace clay, low plasticity, stiff, gray, wet	-153.63 -153.83		17RS				
	SP-SAND, trace silt, fine grained, poorly graded, compact, light brown, wet		BENTONITE PELLETS					
166								8
168								
								10
170								
	GM-SILTY GRAVEL, with medium cobbles, trace fine sand, fine to coarse grained, well graded, gray, wet	-159.23		-018				21
172	NO RECOVERY (172.0 to 175.0ft BGS)	-160.83	2" PVC WELL SCREEN					
174								
	SP-SAND, trace silt, fine grained, poorly graded, compact, light brown, wet	-163.83	SAND PACK	18RS				
176								13
			SUMP					
178								
								9
	- cobbles at 179.8ft BGS			-019				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-017)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-DEEP
DATE COMPLETED: July 10, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
182	END OF BOREHOLE @ 180.0ft BGS NOTE: GLACIAL CONTACT ASSUMED AT 156.6FT BGS	-168.83	WELL DETAILS Screened interval: -159.83 to -164.83ft 171.00 to 176.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Seal: -152.83 to -155.83ft 164.00 to 167.00ft BGS Material: BENTONITE CHIPS Sand Pack: -155.83 to -168.83ft 167.00 to 180.00ft BGS Material: SAND					
184								
186								
188								
190								
192								
194								
196								
198								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.15 10.82						
	NOT SAMPLED (0 TO 115ft BGS) - SEE MW-F-DEEP FOR STRATIGRAPHIC INFORMATION		CONCRETE 6" BOREHOLE 2" PVC WELL CASING					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64								
66			CEMENT/ BENTONITE GROUT					
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
102								
104								
106								
108								
110								
112								
114								
116	ML-SANDY SILT, low plasticity, trace white grains and red grains, dark gray/brown, wet, trace sand size shell fragments, neutral pH (6.7 to 8)	-103.85						43.4
118								124

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
								298
122	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments	-110.35						
124	- negative DNAPL dye test at 124.0ft BGS							3098
126	- negative DNAPL dye test at 126.0ft BGS							1265
	ML-SILT, trace to with sand, low plasticity, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments	-115.35						
128								
	- negative DNAPL dye test at 129.5ft BGS							1081
130			BENTONITE CHIPS					
	- 2" fine sand seam at 131.4ft BGS							170
132								
	SP-SAND, trace silt, loose, fine grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments	-121.65						
134	- negative DNAPL dye test at 133.0ft BGS	-122.45						1275
	SM-SILTY SAND, compact, fine grained to very fine grained sand with silt, trace white grains and red grains, dark gray/brown, wet, trace sand size shell fragments							
136	- 1/2" silt lens at 135.0ft BGS							786
	- increase in sand content at 137.0ft BGS		2" PVC WELL SCREEN					
	- negative DNAPL dye test at 137.5ft BGS		SAND PACK					
138								776

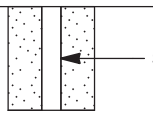
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-INTERMEDIATE
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 140.0ft BGS END OF BOREHOLE @ 140.0ft BGS	-128.85	 WELL DETAILS Screened interval: -123.85 to -128.85ft 135.00 to 140.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Seal: -116.85 to -120.85ft 128.00 to 132.00ft BGS Material: BENTONITE CHIPS Sand Pack: -120.85 to -130.35ft 132.00 to 141.50ft BGS Material: SAND	-001				
142								
144								
146								
148								
150								
152								
154								
156								
158								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.20 10.94						
	NOT SAMPLED (0.0 TO 80.0ft BGS) - SEE MW-F-DEEP FOR STRATIGRAPHIC INFORMATION		CONCRETE 6" BOREHOLE 2" PVC WELL CASING					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42								
44			CEMENT/ BENTONITE GROUT					
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, trace clay, fine grained, poorly graded, gray, wet, negative DNAPL dye test, neutral pH (7)	-68.80						>10000
82								
84	- loose at 84.0ft BGS							>10000
	- negative DNAPL dye test, continuing neutral pH (7) at 85.0ft BGS							
86	- fine to medium grained at 86.0ft BGS							9526
	SM-SAND, trace silt, fine to medium grained, poorly graded, red grains and white grains, gray, wet	-76.30	BENTONITE CHIPS					
88								2269
90	- continuing neutral pH (7) at 90.0ft BGS							
								431
92	- with silt at 92.5ft BGS							
								1631
94			2" PVC WELL SCREEN					
	- negative DNAPL dye test, continuing neutral pH (7) at 95.0ft BGS							
96	- trace silt, loose at 96.0ft BGS			-001				1749
			SAND PACK					
	SM-SILTY SAND, trace clay, fine grained, poorly graded, gray, wet	-86.30						
98								1312
	- negative DNAPL dye test at 99.5ft BGS		SUMP					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-F-SHALLOW-NEW
DATE COMPLETED: September 30, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	END OF BOREHOLE @ 100.5ft BGS	-89.30	WELL DETAILS Screened interval: -81.80 to -86.80ft 93.00 to 98.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Seal: -73.80 to -78.80ft 85.00 to 90.00ft BGS Material: BENTONITE CHIPS Sand Pack: -78.80 to -88.30ft 90.00 to 99.50ft BGS Material: SAND					
102								
104								
106								
108								
110								
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	10.38 9.95						
	AIR KNIFED (0 to 6ft BGS)		CONCRETE					
2								
4				1RS		4.0		
6	SP-SAND, trace silt, loose, fine grained, poorly graded, red grains and white grains, brown, moist, neutral pH (7) - negative DNAPL dye test at 6.5ft BGS	4.38	6" BOREHOLE					
8			2" PVC WELL CASING					179
	- negative DNAPL dye test at 9.0ft BGS			-001				
10	- loose at 10.0ft BGS							983
12	- loose, negative DNAPL dye test at 12.0ft BGS							
14	- with wood fragments at 14.0ft BGS							638
				2RS		10.0		
16	- loose, negative DNAPL dye test at 16.0ft BGS - wet at 16.5ft BGS			-002				NM
18	- with silt at 18.0ft BGS							
	ML-CLAYEY SILT, trace fine grained sand, soft, low to medium plasticity, gray, wet	-7.92						
	SP-SAND, trace silt, loose, fine grained, poorly	-9.22						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	graded, red grains and white grains, brown, wet							
	- negative DNAPL dye test at 21.0ft BGS							1122
22	- 0.2' ML-SILT lens at 22.3ft BGS							
	ML-SILT, trace fine grained sand, soft, low plasticity, gray, wet	-12.52						
24	- negative DNAPL dye test at 23.0ft BGS							249
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet	-14.32		3RS		10.0		
26								954
28								960
30	- negative DNAPL dye test at 30.0ft BGS			-003				
	- negative DNAPL dye test at 31.5ft BGS							724
32	- with silt at 31.9ft BGS							
34								947
	- negative DNAPL dye test at 35.0ft BGS			4RS		10.0		
	- continuing neutral pH (8) at 35.5ft BGS							
36	ML-SANDY SILT, soft, low plasticity, brown to gray, wet	-25.42						937
	- negative DNAPL dye test at 36.5ft BGS							
38								1024
	- negative DNAPL dye test at 39.5ft BGS			-004				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-29.92						
	SM-SILTY SAND, loose, fine grained sand, poorly graded, red grains and white grains, brown, wet							1367
42	- negative DNAPL dye test at 42.0ft BGS							
44								1424
		-34.32						
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet			5RS		10.0		
46	- negative DNAPL dye test at 45.0ft BGS							1189
	- negative DNAPL dye test at 46.5ft BGS							
	- with silt at 47.2ft BGS							
48								
	- compact, negative DNAPL dye test at 49.0ft BGS			-005				2644
50								
	- continuing neutral pH (7) at 50.5ft BGS							
	- negative DNAPL dye test at 51.5ft BGS							6518
52	- compact at 52.0ft BGS							
	- with silt at 53.5ft BGS							
54								3510
	- negative DNAPL dye test at 54.5ft BGS			-006				
				6RS		10.0		
56								
	- negative DNAPL dye test at 56.5ft BGS							1143
	- with silt at 57.2ft BGS							
58								
								1134
	- negative DNAPL dye test at 59.5ft BGS			-007				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-50.12						
	SM-SILTY SAND, loose, fine grained sand, poorly graded, brown, wet - negative DNAPL dye test at 61.0ft BGS							908
62								
64								2189
	- trace silt, negative DNAPL dye test at 65.0ft BGS			7RS-008		10.0		
66	- negative DNAPL dye test at 66.0ft BGS							945
	- negative DNAPL dye test at 67.5ft BGS							
68	- loose at 68.0ft BGS							372
70	- negative DNAPL dye test, continuing neutral pH (7) at 70.0ft BGS			-009				
	- negative DNAPL dye test at 71.0ft BGS							1216
72	- loose at 72.0ft BGS							
74	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet	-63.42						1028
	- negative DNAPL dye test at 75.0ft BGS	-64.72		8RS		10.0		
76	SM-SILTY SAND, loose, fine grained sand, poorly graded, brown, wet							1995
	- negative DNAPL dye test at 77.0ft BGS							
78								1331
	- negative DNAPL dye test at 79.5ft BGS			-010				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82	- negative DNAPL dye test at 80.5ft BGS							1332
	- negative DNAPL dye test at 82.5ft BGS							
84								1688
	SP-SAND, trace silt, loose, fine grained sand, poorly graded, red grains and white grains, brown, wet, continuing neutral pH (7)	-74.22		9RS		10.0		
86	- very fine grained sand, negative DNAPL dye test at 85.0ft BGS							516
88	- negative DNAPL dye test at 88.0ft BGS							2113
	- negative DNAPL dye test at 89.5ft BGS			-011				
90								852
92	- negative DNAPL dye test at 91.5ft BGS							
	- with silt at 93.3ft BGS							916
94	- negative DNAPL dye test at 94.0ft BGS			-012				
	- trace silt, compact at 94.7ft BGS			10RS		10.0		
96								889
	- negative DNAPL dye test at 97.0ft BGS							
98								949
	SM-SILTY SAND, loose, fine grained sand, poorly graded, brown, wet	-87.92						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 100.0ft BGS			-013				
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet	-90.32						982
	- negative DNAPL dye test at 101.5ft BGS	-91.32		-014				
102	SM-SILTY SAND, loose, fine grained sand, poorly graded, brown, wet							
104	- negative DNAPL dye test at 104.0ft BGS							868
	- compact at 104.8ft BGS			11RS		10.0		
	- negative DNAPL dye test at 105.5ft BGS							
106			CEMENT/ BENTONITE GROUT					885
108								
								871
	- negative DNAPL dye test at 109.5ft BGS			-015				
110	- with silt at 109.7ft BGS							
	- negative DNAPL dye test at 111.0ft BGS							1493
112	- loose at 112.0ft BGS							
	- negative DNAPL dye test at 113.0ft BGS							
114								1507
	- compact at 114.8ft BGS							
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet	-104.62		12RS		10.0		
116	- negative DNAPL dye test, continuing neutral pH (7) at 115.5ft BGS			-016				845
	- negative DNAPL dye test at 117.0ft BGS	-106.52						
	SM-SILTY SAND, loose, fine grained, poorly graded, brown, wet							
118								482

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet	-109.62						
	- negative DNAPL dye test at 121.0ft BGS							1651
122								
								977
124	- large shell fragment at 124.0ft BGS							
	- negative DNAPL dye test at 124.5ft BGS			13RS		10.0		
126	- negative DNAPL dye test, continuing neutral pH (7) at 126.0ft BGS			-017				1280
128								
	- with silt at 128.7ft BGS							710
	- compact at 129.0ft BGS							
	- negative DNAPL dye test at 129.5ft BGS							
130								
	- negative DNAPL dye test at 130.5ft BGS							
								623
132								
								318
134	- very compact at 134.0ft BGS							
	- negative DNAPL dye test at 135.0ft BGS			14RS		10.0		
136								
	- negative DNAPL dye test at 136.5ft BGS			-018				932
138								
								596
	- with silt, compact at 139.3ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-017, -018)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- very compact, red grains and white grains, negative DNAPL dye test at 140.0ft BGS - negative DNAPL dye test at 140.5ft BGS - small shell fragments at 141.0ft BGS							678
142								
144	- negative DNAPL dye test at 144.0ft BGS							253
	- negative DNAPL dye test at 145.5ft BGS			15RS -019		10.0		
146	ML-SANDY SILT, hard, low plasticity, brown to gray, wet	-136.02						226
148								205
150	SP-SAND, trace silt, loose, fine grained sand, poorly graded, red grains and white grains, brown, wet	-139.62						
	- negative DNAPL dye test at 151.0ft BGS							1496
152								
	SM-SILTY SAND, compact, fine grained sand, poorly graded, brown to gray, wet	-142.82						374
154								
	- negative DNAPL dye test at 155.0ft BGS			16RS -020		10.0		
156								277
	ML-SANDY SILT, soft, low plasticity, gray, wet	-146.22						
158	- continuing neutral pH (8) at 158.0ft BGS							7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, red grains and white grains, brown, wet, trace shell fragments, continuing neutral pH (7)	-149.62						
	- negative DNAPL dye test at 161.5ft BGS							880
162								
								167
164	- negative DNAPL dye test at 164.0ft BGS							
	- trace shell fragments, compact at 165.0ft BGS			17RS		10.0		
166								
	- negative DNAPL dye test at 166.5ft BGS							239
168				-021				
	- negative DNAPL dye test at 168.5ft BGS							224
170	ML-SILT, trace fine grained sand, soft, low plasticity, gray, wet, continuing neutral pH (8)	-159.62						
								326
172	- negative DNAPL dye test at 172.0ft BGS							
								542
174	- negative DNAPL dye test at 174.5ft BGS							
	- brown at 175.0ft BGS			18RS		10.0		
	- negative DNAPL dye test at 175.5ft BGS							
176								909
	- trace shell fragments at 177.6ft BGS							
178								
								2102
	- negative DNAPL dye test at 179.5ft BGS			-022				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-170.22						
	CL/ML-SILTY CLAY, trace sand, stiff, medium plasticity, dark gray/brown, wet, trace shell fragments throughout							2496
182	- negative DNAPL dye test at 182.0ft BGS			-023				
184	- negative DNAPL dye test at 184.0ft BGS							2518
				19RS		10.0		
186	- negative DNAPL dye test at 186.0ft BGS - continuing neutral pH (7 to 8) at 186.5ft BGS - increase in sand content at 187.0ft BGS - negative DNAPL dye test at 187.5ft BGS							1210
188								1008
190	- diagonal sand seam, gray/green at 189.4ft BGS - increase in sand content, gray/green at 190.1ft BGS							
	SP/ML-SILTY SAND/SANDY SILT, trace rounded pebbles and stone, compact, very fine grained sand, well sorted, red grains and white grains throughout, dark gray/brown, wet, shell fragments throughout	-180.62						1009
192	- negative DNAPL dye test at 192.0ft BGS			-024				
194	- increase in rounded pebble content, negative DNAPL dye test at 194.0ft BGS							510
	- wood fragments at 195.0ft BGS	-184.62		20RS		8.0		
	NO RECOVERY (from 195.0 to 197.0ft BGS)							
196		-186.62						
198	SP/ML-SILTY SAND/SANDY SILT, trace rounded pebbles and fine gravel, compact, very fine grained sand, well sorted, red grains and white grains throughout, dark gray/brown, wet, shell fragments throughout - partially complete shells, negative DNAPL dye test at 198.0ft BGS - shell fragments at 199.0ft BGS - sandy clast, green at 199.7ft BGS							110

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- rounded pebbles at 200.0ft BGS	-189.92						
	SP-SAND, dense, fine to medium grained sand, well rounded, gray, wet							12.5
202	- negative DNAPL dye test at 202.0ft BGS							
	- fine to medium grained sand, continuing neutral pH (7 to 8) at 203.0ft BGS			-025				
204	SW-SAND (glacial), with fine gravel, loose, fine to coarse grained sand, angular to subangular, gray, wet, negative DNAPL dye test	-193.62						11.5
		-195.12		21RS		6.0		
206	GP-GRAVEL, some fine to medium grained sand, trace silt, fine to coarse gravel, gray, wet, negative DNAPL dye test	-195.62						5.7
	NO RECOVERY (206.0 to 210.0ft BGS)							
208								
210	SC-CLAYEY SAND, cobble and stones, trace silt, gray, wet	-199.62						37.5
	NO RECOVERY (211.0 to 215.0ft BGS)	-200.62						
212			BENTONITE PELLETS					
214								
	SP/GP-SAND AND GRAVEL, trace silt, compact, fine grained sand, gray, wet, changing to trace fine grained sand, fine gravel, brown, wet	-204.62		22RS -026		2.0		NM
216	- negative DNAPL dye test at 215.5ft BGS	-205.62						
	NO RECOVERY (216.0 to 220.0ft BGS)							
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-DEEP
DATE COMPLETED: July 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: N. HINSPERGER/ K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SC-CLAYEY SAND, with fine to medium gravel, small cobble and pebbles, compact, fine grained sand, gray, wet	-209.62	2" PVC WELL SCREEN					
				-027				8.2
222	- negative DNAPL dye test at 222.0ft BGS		SAND PACK	23RS		10.0		
			SUMP					
224	- negative DNAPL dye test at 224.0ft BGS	-213.72						9.3
	ML-SANDY SILT, with gravel, small cobble and pebbles, compact, brown, wet	-214.62						
	END OF BOREHOLE @ 225.0ft BGS							
226	NOTE: GLACIAL CONTACT ASSUMED AT 204.0FT BGS							
228								
230								
232								
234								
236								
238								

WELL DETAILS
Screened interval:
-207.02 to -212.02ft
217.40 to 222.40ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-199.52 to -203.42ft
209.90 to 213.80ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-203.42 to -213.52ft
213.80 to 223.90ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-027)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	10.39 10.05						
	NOT SAMPLED (0.0-146.0ft BGS) - SEE MW-G-DEEP FOR STRATIGRAPHIC INFORMATION		CONCRETE 8" BOREHOLE 2" PVC WELL CASING					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64								
66								
68								
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82			CEMENT/ BENTONITE GROUT					
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
102								
104								
106								
108								
110								
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
142								
144								
146	SM-SILTY SAND, compact, very fine sand to sand with silt, white grains and red grains throughout, dark gray-brown, wet, sand size shell fragments, neutral pH (6.5 to 8)	-135.61						124
148	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments throughout	-137.61						131
		-138.81						
150	SM-SILTY SAND, compact, very fine sand to sand with silt, trace white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments							30.54
	- 1" sand seam, wet at 151.5ft BGS							
152								15.18
154								1.20
156								
158								15.77
	SP-SAND, trace silt, compact, fine grained,	-149.11	BENTONITE CHIPS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-INTERMEDIATE
DATE COMPLETED: August 24, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	white grains and red grains throughout, dark gray/brown, wet, trace sand size and larger shell fragments, slightly elevated pH (8.0 to 8.5)							6.41
162								
	- grading to fine to medium sand at 163.6ft BGS							
164	SM-SILTY SAND, compact, very fine sand to sand with silt, trace white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments	-153.61						49.64
166	SC-CLAYEY SAND, trace fine rounded to subrounded gravel, soft, fine to medium grained sand, trace white grains and red grains throughout, dark gray/brown, with greenish hue, wet, trace sand size shell fragments, neutral pH (7 to 8)	-155.61 -156.61						508
168	SM-SILTY SAND, compact, very fine sand to sand with silt, trace white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments - negative DNAPL dye test at 168.5ft BGS		2" PVC WELL SCREEN					35.48
170	- negative DNAPL dye test at 170.5ft BGS		SAND PACK	-001				
	END OF BOREHOLE @ 171.0ft BGS	-160.61	SUMP					
172								
174								
176								
178								

WELL DETAILS
Screened interval:
-155.61 to -160.61ft
166.00 to 171.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-147.11 to -151.11ft
157.50 to 161.50ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-151.11 to -162.11ft
161.50 to 172.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	10.37 10.05						
	NOT SAMPLED (0.0 TO 120.0ft BGS) - SEE MW-G-DEEP FOR STRATIGRAPHIC INFORMATION		CONCRETE 8" BOREHOLE 2" PVC WELL CASING					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
22								
24								
26								
28								
30								
32								
34								
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
42								
44								
46								
48								
50								
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
62								
64								
66								
68			CEMENT/ BENTONITE GROUT					
70								
72								
74								
76								
78								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82								
84								
86								
88								
90								
92								
94								
96								
98								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	FID (ppm)
102								
104								
106								
108								
110								
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SM-SILTY SAND, soft, very fine to fine grained, trace white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments, neutral pH (6.5 to 8)	-109.63						400
122	- increase in silt content at 122.5ft BGS							
124	- negative DNAPL dye test at 124.0ft BGS							872
	- increase in clay content at 124.5ft BGS	-114.13						
	CL-SANDY CLAY, with silt, soft, high plasticity, rapid dilatancy, dark gray/brown, wet							
126	- negative DNAPL dye test at 125.5ft BGS							114
128	SM-SILTY SAND, trace clay, medium dense, fine to medium grained, trace white grains and red grains, dark gray/brown, wet, trace sand size shell fragments	-117.73						891
130								787
132								
	SP-SAND, trace silt, medium dense, fine to medium grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments throughout	-122.63	BENTONITE CHIPS					1013
134								279
136	- 3" silty sand lens, wet at 136.2ft BGS							
	- 3" silty sand lens, wet at 137.1ft BGS							350
138								
	SM-SILTY SAND, trace clay, medium dense, very fine to fine grained, trace white grains and red grains, dark gray/brown, wet, trace sand size shell fragments	-128.13						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-G-SHALLOW
DATE COMPLETED: August 22, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
142	SP-SAND, trace silt, loose, fine to medium grained, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments, continuing neutral pH (6.5 to 8)	-130.63	2" PVC WELL SCREEN SAND PACK SUMP	-001				643 1020
144								
146	END OF BOREHOLE @ 145.0ft BGS	-134.63						
148								
150								
152								
154								
156								
158								

WELL DETAILS
Screened interval:
-129.63 to -134.63ft
140.00 to 145.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 0.010
Material: PVC
Seal:
-122.13 to -126.13ft
132.50 to 136.50ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-126.13 to -136.13ft
136.50 to 146.50ft BGS
Material: SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE TOP OF RISER	11.41 10.93						
0	GW-SANDY SILTY GRAVEL, loose, coarse grained angular gravel, brown, dry		CONCRETE					
2	SP-SAND, trace silt, loose, fine to medium grained, dark brown with red grains and white grains, dry	9.41						
4				1RS		4.0		
6			6" BOREHOLE					
8			2" STAINLESS STEEL WELL CASING					
10	NO RECOVERY, soil in tip was SP-SAND, trace silt, loose, fine to medium grained, dark gray, with red grains and white grains, wet, trace shell fragments	1.41		-001				0
12								
14				2RS		0.0		
16								
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, with silt, loose, medium grained, gray to dark gray, with red grains and white grains, wet, shell fragments throughout	-8.59						
22								
24								
				3RS		8.0		
26								
	CL-CLAY, with silt, soft, moderate plasticity, dark gray, wet - 0.1 silt lens at 28.3ft BGS - 0.1 silt lens at 29.0ft BGS	-16.09						
28								
	SM-SILTY SAND, compact, fine to very fine grained, dark gray, with red grains and white grains, wet	-18.09 -18.59		-002				601
30	ML-SANDY CLAYEY SILT, soft, low plasticity, dark gray, wet, trace shell fragments throughout - neutral pH (7.0), negative DNAPL dye test at 30.0ft BGS							
32								
34				4RS		10.0		
	SM-SILTY SAND, loose, fine grained, dark gray, with red grains and white grains, wet, trace shell fragments - less silt at 37.0ft BGS	-24.59						
36								
38								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
42	- 0.1' clay lens, neutral pH (7.0) at 40.0ft BGS			-003				338
		-32.09						
44	SP-SAND, trace silt, loose, poorly graded, dark gray, with red grains and white grains, wet, shell fragments throughout			5RS		10.0		
46								
48	- 0.1' silt lens at 48.8ft BGS							
		-38.39						
50	ML-CLAYEY SILT, soft, moderate plasticity, dark gray, wet	-38.59		-004				1440
	SM/ML-SILT AND SAND, loose, fine grained, dark gray, with red grains and white grains, wet, trace shell fragments							
52	- neutral pH (7.0), negative DNAPL dye test at 50.0ft BGS							
		-40.79						
	- increase in grain size at 52.0ft BGS							
	ML-SILT, trace fine grained sand, compact, low plasticity, dark gray, wet, trace shell fragments							
		-42.09						
54	SM-SILTY SAND, loose, fine grained, dark gray, with red grains and white grains, wet, shell fragments throughout			6RS		10.0		
56								
		-45.09						
58	ML-SILT, compact, low plasticity, dark gray, wet, trace shell fragments							
		-47.59						
	ML-SANDY SILT, very fine grained sand, loose, gray, wet, trace shell fragments							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace to with silt, very fine grained, loose, dark gray, with red grains and white grains, trace shell fragments	-48.59		-005				20.5
	- neutral pH (7.0) at 60.0ft BGS							
62								
64				7RS		10.0		
66								
	- wood fragments at 67.0ft BGS							
68	- increase in density at 68.0ft BGS							
70	- neutral pH (6.0) at 70.0ft BGS			-006				7.11
								44
72				8RS		5.0		
								76
74								
	- increase in silt content at 75.5ft BGS							
76								214
				9RS		5.0		
78				-007				
	- decrease in silt content at 79.0ft BGS							157
			CEMENT/					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
82			BENTONITE GROUT	10RS		5.0		105
84	- 0.1' ML-SILT lens at 84.5ft BGS							43
86	- 1' ML-SILT lens at 86.0ft BGS							195
88				11RS		5.0		
				-008				291
90								
92				12RS		5.0		105
94	- 0.5' SM-SILTY SAND lens at 93.6ft BGS							67
96	- 0.1' SM-SILTY SAND lens at 96.8ft BGS							88
98	ML-SILT, with sand, compact, no plasticity, dark gray, wet - shell fragments at 98.2ft BGS	-86.59		13RS -009				89

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, with red grains and white grains, wet	-88.59						213
102				14RS				
104	- 0.3' SM-SILTY SAND lens at 104.0ft BGS							74
106								219
108	- negative DNAPL dye test at 108.0ft BGS			15RS				
	ML-SANDY SILT, stiff, dark gray, wet	-97.09						847
110	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, with red grains and white grains, wet	-98.59		-010				
	- negative DNAPL dye test at 110.5ft BGS							2112
112				16RS				
	- negative DNAPL dye test at 113.0ft BGS							1583
114				-011				
	- negative DNAPL dye test at 115.5ft BGS							
116								1097
				17RS				
118	- negative DNAPL dye test at 118.0ft BGS							
	- <0.1' ML-SILT lens at 119.0ft BGS							1100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	NO RECOVERY	-108.59		-012				375
122	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, with red grains and white grains, wet	-110.59		18RS				
	- negative DNAPL dye test at 123.0ft BGS							1056
124								
	- negative DNAPL dye test at 125.5ft BGS							
126								987
	- 0.5' ML-SANDY SILT lens at 127.0ft BGS							
				19RS				
128	- negative DNAPL dye test at 128.0ft BGS							
	- 0.1' ML-SILT lens at 129.0ft BGS							703
				-013				
130								
	- negative DNAPL dye test, grading to very fine sand, compact at 130.5ft BGS							812
132				-014				
				20RS				
	- negative DNAPL dye test at 133.0ft BGS							
134	- ML-SILT lens, trace fine sand, stiff, no plasticity, dark gray, wet at 134.0ft BGS							1437
	- negative DNAPL dye test at 135.5ft BGS							
136								1207
				21RS				
138	- negative DNAPL dye test at 138.0ft BGS							
	- 0.2' ML-SILT lens at 138.5ft BGS							1183
				-015				
	- 0.2' ML-SILT lens at 139.8ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	ML-SILT, trace fine sand, stiff, low to medium plasticity, gray to brown, wet	-128.59		-016				
	- negative DNAPL dye test, 0.2' SM-SAND lens at 140.5ft BGS							4478
142				22RS				
								289
144								
	- negative DNAPL dye test at 145.5ft BGS			-017				
146								4330
	- continuing neutral pH (6.0) at 147.5ft BGS			23RS				
148								
	SM-SILTY SAND, loose, fine grained, poorly graded, dark gray, red grains and white grains, wet	-136.89						129
150	- compact, wet at 150.0ft BGS							
	- high pH (12) at 150.5ft BGS							498
152	- loose at 152.0ft BGS							
	- high pH (12) at 152.5ft BGS			24RS				
								253
154								
	- negative DNAPL dye test, elevated pH (11) at 155.0ft BGS							
156								874
	- negative DNAPL dye test, elevated pH (10) at 157.5ft BGS		BENTONITE CHIPS	25RS				
158	- loose at 158.0ft BGS							
	- negative DNAPL dye test at 158.5ft BGS							950

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 160.0ft BGS - negative DNAPL dye test, elevated pH (9) at 160.5ft BGS			-018				292
162	- trace white shell fragments at 162.0ft BGS - neutral pH (8) at 162.5ft BGS			26RS				239
164	- loose at 164.5ft BGS	-153.59	2" STAINLESS STEEL WELL SCREEN					
	SP-SAND, trace silt, fine grained, poorly graded, compact, brown, red grains and white grains, wet, trace white shell fragments							
166	- negative DNAPL dye test, neutral pH (7) at 165.5ft BGS - negative DNAPL dye test at 166.5ft BGS		SAND PACK	-019				3378
168	- negative DNAPL dye test, neutral pH (6) at 167.5ft BGS - negative DNAPL dye test at 168.5ft BGS		SUMP	27RS				2502
170	- compact at 170.0ft BGS		WELL DETAILS Screened interval: -150.84 to -155.84ft 162.25 to 167.25ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: STAINLESS STEEL Seal: -145.09 to -147.59ft 156.50 to 159.00ft BGS Material: BENTONITE CHIPS Sand Pack: -147.59 to -157.34ft 159.00 to 168.75ft BGS Material: SAND					69
172				28RS				40
174	- 2" ML-SILT lens at 174.9ft BGS							
176	ML-SANDY SILT (glacial), trace fine to coarse gravel, low plasticity, soft, gray, wet - very soft, few coarse cobbles at 176.6ft BGS	-164.29		-020				30
178				29RS				6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: MW-H-01
DATE COMPLETED: June 18, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, trace medium gravel, coarse grained sand, poorly graded, compact, brown, moist	-168.59		-021 30RS				
	- medium sand, little cobble at 180.4ft BGS	-169.29						
182	GW-GRAVEL, trace medium sand, trace silt, fine to coarse gravel, well graded, gray, wet	-169.49						
	SP-SAND, trace silt, with medium cobbles, medium grained, poorly graded, compact, light brown, wet	-169.79						
184	END OF BOREHOLE @ 181.2ft BGS							
	NOTE: GLACIAL CONTACT ASSUMED AT 175.7FT BGS							
186								
188								
190								
192								
194								
196								
198								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-100
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-18.11						
0	0-34' BGS - See Log from PZ-SHI-1-75 for Stratigraphy							
2								
4								
6								
8								
10								
12				GW1				
14								
16								
18								
20								
22				GW2				
24								
26								
28			CEMENT/ BENTONITE GROUT					
30								
32			2"Ø STEEL RISER	GW3				
34	SM-SAND, with silt, fine grained sand, dark gray,	-52.11						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-100
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	1 to 5 mm wide light gray silt seams	-53.69
36	SP-SAND, fine grained, dark gray with red grains	
38	- 0.5 inch silt seam @ 38.7 ft BGS	
40	SP/SM-SAND, trace to with silt, very fine grained	-58.11
	- 1 mm wood fragment @ 40.5 ft BGS	-59.11
42	SHELBY TUBE SAMPLE	
44		
46	SP-SAND, fine grained, dark gray with red grains (possible heave)	-64.11
48	ML-SANDY SILT, gray	-66.03
	SP-SAND, very fine grained, dark gray with red grains (red grains slightly visible)	-67.03
50		
52	- occasional silty sand seams from 52.5 to 53.7 ft BGS	
54	- with 1 to 3 mm silt seams from 53.2 to 53.6 ft BGS	
56	- fine grained, red grains clearly visible, occasional silty sand (SM) layers from 54 to 63.5 ft BGS	
58		
60		
62		
64	- no silty sand layers evident from 63.5 to 69.5 ft BGS	
66		
68		-87.61

MONITORING WELL: BENTONITE PELLETS; 8.5"Ø BOREHOLE; 10-20 SILICA SAND; 2"Ø SS SCREEN

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS19		1.2	24	0.0
SS20		0.7	16	0.0
SS21		1.2	14	0.2
SS22		2.0	18	0.9
SH23/GW4		0.0	--	--
SH24		0.0	--	--
SS25		0.8	16	0.1
SS26		1.3	15	0.0
SS27		1.4	10	0.4
SS28/GW5		1.5	16	0.7
SS29/GW5		1.1	20	0.1
SS30		1.8	21	0.0
SS31		1.3	13	0.0
SS32		1.5	32	0.0
SS33		2.0	21	0.0
SS34/GW6		1.5	4	0.0
SS35		1.5	4	0.0
SH36		0.0	--	--
SS38		1.3	2	0.0
SH37		0.0	--	--

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-100
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	Not Sampled		2"Ø SS SUMP	GW7				
74	ML/SP-SILT AND SAND (LAYERED), 2 to 6-inch layers. ML-SANDY SILT, gray. SP-SAND, dark gray with red grains.	-92.11		SS39		2.0	28	70
76				SS40		1.5	20	17
78				SS41		1.5	10	11.3
80				SS42		2.0	18	96
82				SS43/GW8		2.0	22	11
84				SS44		1.5	13	72
86				SS45		1.5	9	38
88	- layered sandy silt and silty sand, gray from 87.5 to 89 ft BGS - 2 to 12-inch silt and sand layers below 89 ft BGS			SS46		1.5	21	48
90				SS47		1.5	16	35
92	- silt with clay, gray from 92 to 92.5 ft BGS - silt contains less sand (with sand) and contains fine sand seams below 93 ft BGS - 1-inch clay seam @ 93 ft BGS			SS48		2.0	13	18
94				SS49/GW9		2.0	6	44
96				SS50		2.0	12	19
98	SP-SAND, fine grained, gray with red grains, significant heave	-115.11		SS51		1.8	18	133
100				SS52		1.5	20	75
102			CEMENT/ BENTONITE GROUT	SS53		2.0	16	17
104				GW10				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-100
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	Not Sampled	-124.11						
108		-127.11						
110	ML-SILT, with fine sand, hard, black, cohesive	-128.11		SS54		1.5	--	95
	ML-SILT, very hard, gray, dry, cohesive	-129.11						
112	Not Sampled			GW11				
114								
116	Not Sampled	-134.11						
118		-137.11						
120	SP-SAND, very fine grained, gray, significant heave	-139.11		SS55		1.0	--	--
122	Not Sampled			GW12				
124								
126								
128								
130				GW13				
132	END OF BOREHOLE @ 132.0ft BGS	-150.11	NATIVE MATERIAL					
134	Stratigraphy log also represents HYD-3.							
136								
138								

WELL DETAILS
Screened interval:
-84.11 to -89.11ft NGVD
66.00 to 71.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-126
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-16.14						
	0-76' BGS - See Log from PZ-SHI-1-100/HYD-3 for Stratigraphy		8"Ø BOREHOLE; CEMENT/ BENTONITE GROUT; 2"Ø STEEL RISER					

2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-126
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36								
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68			CEMENT/ BENTONITE GROUT					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-126
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72								
74								
76	SM-SAND with SILT, compact, medium to fine grained, poorly graded, dark brown, trace red and white fine grained sand, moist	-92.14						
78	- 0.16' sandy silt seam @ 77.5 ft BGS	-94.14		SS1		1.5	12	25.2
	Not Sampled							
80								
82	SM/ML-SILTY SAND, trace wood debris (occasional), compact, fine grained, poorly graded, dark brown/gray, trace red and white fine grained sand, saturated	-97.14		SS2		0.5	14	9.5
	Not Sampled	-99.14	2"Ø STEEL RISER					
84								
86	SM/ML-SILTY SAND, trace wood debris (occasional), very loose, fine grained, poorly graded, dark brown/gray, trace red and white fine grained sand, saturated	-102.14		SS3		0.2	4	7.5
88	Not Sampled	-104.14	8"Ø BOREHOLE					
90								
92	ML/SM-SANDY SILT, trace clay, trace wood debris (occasional), stiff, low plasticity, blocky, gray/brown, trace red and white fine grained sand, moist	-107.14		SS4		1.0	9	9.4
	Not Sampled	-109.14	SAND 10-20					
94								
96			2"Ø SS SCREEN					
98				SS5		2.0		
100	SM-SAND with SILT, compact, medium to fine grained, poorly graded, dark brown, trace red and white fine grained sand, moist	-116.14		SS6		2.0	27	19.2
102	- 0.16' sandy silt seam below 101.1 ft BGS	-118.14	2"Ø SS SUMP					
	CL-SILTY CLAY, trace sand, very stiff, fine grained, trace medium grained sand, low plasticity, blocky, gray, slightly moist to moist, vertical black fine sand seams throughout	-119.14		SS7		1.0	23	3.3
104								

WELL DETAILS
Screened interval:
-112.14 to -117.14ft NGVD

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-126
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	END OF BOREHOLE @ 103.0ft BGS		96.00 to 101.00ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel					
108								
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

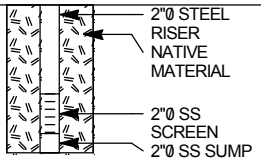
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-33
DATE COMPLETED: August 22, 2005
DRILLING METHOD: Push
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-18.14					
0	OL-CLAY and SILT, trace wood fragments, very soft, black, saturated (recent sediment)						
2	SP-SAND, fine grained, dark gray with red grains	-19.89					
4	END OF BOREHOLE @ 3.8ft BGS	-21.89					
	Stratigraphy taken from PZ-SHI-1-175.		WELL DETAILS Screened interval: -20.39 to -21.39ft NGVD 2.25 to 3.25ft BGS Length: 1ft Diameter: 2in Slot Size: 10 Material: Stainless Steel				
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-75
DATE COMPLETED: August 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-18.12						
0	OL-CLAY and SILT, trace wood fragments, very soft, black, saturated (recent sediment)			SS1		2.0	7	0.0
2	SP-SAND, fine grained, dark gray with red grains	-19.87		SS2		1.5	7	0.0
4	- trace silt, odor from 4 to 6 ft BGS			SS3		1.3	14	0.0
6				SS4		1.5	12	0.0
8	- dark brown/black from 7.5 to 9 ft BGS			SS5		1.5	7	0.0
10				SS6		1.5	11	0.0
12	- silty fine grained sand (SM) from 11.4 to 11.75 ft BGS			SS7		1.2	10	0.0
14	- silt with fine sand (ML), olive gray from 14.5 to 14.75 ft BGS		CEMENT/ BENTONITE GROUT	SS8		0.8	11	0.0
16	- with 1 to 3 mm, olive-gray, silt seams: 16.17, 16.75, and 17.25 ft BGS			SS9		1.5	4	0.0
18	SM-SAND, with silt grading to silty, fine grained, dark gray with red grains	-35.62		SS10		1.3	10	0.0
20	SP-SAND, fine grained, dark gray with red grains	-37.37		SS11		1.2	15	0.0
22	SP and SM-SAND (LAYERED). SP-SAND, fine grained, clean. SM-SILTY SAND.	-38.54	2"Ø STEEL RISER	SS12		1.5	14	0.0
24	SP-SAND, trace silt, fine grained	-40.37	8.5"Ø BOREHOLE	SS13		1.4	14	0.0
26								
28	SM-SAND, with silt, fine grained, dark gray with red grains (red grains slightly visible), chemical odor, purple and gold colored sheen @ 29.58 ft BGS	-45.62						
30	SM and ML-SAND AND SILT (LAYERED), 2 to 6-inch layers, odor. SM-SILTY SAND. ML-SILT, with fine sand, gray.	-48.12		SS14		1.4	4	0.0
32			BENTONITE PELLETS					
34	SP-SAND, fine grained, dark gray with red	-52.45						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-1-75
DATE COMPLETED: August 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	grains, occasional 1 mm silt seams			SS15		1.5	13	0.0
38								
40				SS16		1.3	31	0.0
42			10-20 SILICA SAND					
	SM-SAND, with silt, very fine grained, dark gray with red grains (red grains slightly visible)	-60.62	2"Ø SS SCREEN					
44								
	SP-SAND, trace silt, fine grained, dark gray with red grains, stained - no staining from 44.83 to 45.42 ft BGS	-62.62		SS17		1.4	19	2.0
46								
	ML-SANDY SILT, gray	-64.95	2"Ø SS SUMP	ST18			--	--
48		-66.37	NATIVE MATERIAL					
	END OF BOREHOLE @ 48.3ft BGS							
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

WELL DETAILS
Screened interval:
-59.12 to -64.12ft NGVD
41.00 to 46.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-100
DATE COMPLETED: August 29, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-5.94						
0	RIP-RAP							
2		-8.64						
4	ML-SILT, with coarse sand and fine gravel, 2 inches brown, 4 inches black, wood fibers and sheen at tip	-9.89		SS1			5	0.4
6	SW-SAND, trace silt, trace shell fragments, medium to coarse grained, trace fine sand, black			SS2			2	0.0
8	SP-SAND, fine grained, black	-13.14		SS3			7	0.0
10	SP-SAND, medium grained, black, intermittent sheen (occurs from 8.7 to 10.7 ft BGS), odor - fine grained below 10.2 ft BGS	-14.64		SS4			10	0.4
12	- fine grained, dark gray with red grains below 10.7 ft BGS			SS5			17	0.6
14	- occasional cemented pieces of sand @ 13.9 and 14.2 ft BGS - slippery feel from 14.7 to 16.7 ft BGS			SS6			>80	2.4
16	- medium grained below 16.7 ft BGS			SS7			18	11
18				SS8			17	9.7
20	SM-SAND, with silt, fine grained, some 1-inch wide fine sand (SP) and silt (ML) seams	-25.64 -26.14		SS9			20	--
22	SP-SAND, trace silt, fine grained, dark gray, red grains (slightly visible)	-26.64		SS10			33	0.6
24	SP-SAND, medium grained, dark gray with red grains SP/SM-SAND, trace to with silt, fine grained, dark gray with red grains	-28.47		SS11			24	1.1
26	SP-SAND, trace silt, fine grained, dark gray with red grains	-32.14		SS12			22	1.6
28				SS13			36	0.6
30				SS14			22	0.2
32	- silt from 31.7 to 31.9 ft BGS			SS15			33	49.7
34	- silt from 33.7 to 38.8 ft BGS			SS16			14	21.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-100
DATE COMPLETED: August 29, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- silt seam @ 36.4 ft BGS - SM-SAND, with silt, fine grained - silt with fine sand from 37.7 to 37.8 ft BGS and 37.9 to 38 ft BGS		CEMENT/ BENTONITE GROUT	SS17			23	0.0
38			2"Ø STEEL RISER	SS18			43	13.7
40	SM-SILTY SAND, very fine grained, dark gray with red grains (red grains slightly visible) - no red grains from 40.7 to 41.7 ft BGS	-45.22		SS19			43	10.9
42	- with silt, red grains visible from 41.7 to 42 ft BGS	-48.26		SS20			14	12.5
44	ML-SANDY SILT, gray, 1 to 5 mm fine sand (SP) seams SP-SAND, trace silt, fine grained, dark gray with red grains, with 10 to 20 mm sandy silt (ML) seams	-50.14	8.5"Ø BOREHOLE	SS21			24	9.8
46	- trace silt, seams do not containing silt below 46.7 ft BGS			SS22			30	12.6
48	- trace fine gravel (one piece) below 47.6 ft BGS - red grains slightly visible below 47.7 ft BGS	-54.54		SS23			25	9.7
50	SM-SILTY SAND, grading to with silt, fine grained, gray, red grains slightly visible SP and ML-SAND AND SILT (LAYERED), gray. ML-SILT with fine sand.	-55.31		SS24			24	47
52		-58.64		SS25			52	2.6
54	SP-SAND, trace fine gravel (occasional), subrounded, fine grained, dark gray with red grains, green then black, significant heave - silty sand (SM) from 55.2 to 55.7 ft BGS			SS26			27	0.0
56								
58				SS27			43	0.0
60				SS28			25	0.0
62	- trace silt, black, stained appearance from 61.7 to 61.8 ft BGS SP and ML-SAND AND SILT (LAYERED), trace fine gravel (one piece), gray	-67.89 -68.22 -68.31		SS29			25	1800
64	SP-SAND, fine grained, dark brown, stained appearance, odor ML-SILT, trace fine sand, dense, gray	-69.01 -71.39		SS30			33	520
66	SP-SAND, fine grained, dark gray with faint red grains, 5 to 20 mm silt seams SP-SAND with GRAVEL, fine grained, subrounded, dark gray with red grains	-73.39		SS31			74	763
68	SP/SM-SAND, trace to with silt, very fine sand - 1-inch stained silt @ 68.1 ft BGS	-74.64						
	SP-SAND, fine grained, dark gray with red							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

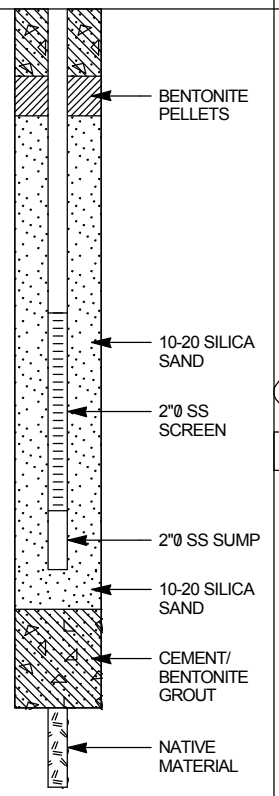
CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-100
DATE COMPLETED: August 29, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	grains, chemical odor	
	- trace to with silt from 71.5 to 71.7 ft BGS	
72	- red grains slightly visible from 71.7 to 72.8 ft BGS	-78.72
	SM-SILTY SAND, fine grained, gray	-79.39
74	SP-SAND, fine grained, dark gray with red grains, no odor	
	- layered silt and fine sand from 75.4 to 75.5 ft BGS	-81.64
76	SM-SAND, with SILT, very fine grained, dark gray, red grains slightly visible	-82.22 -82.72
78	ML and SP-SILT AND SAND (LAYERED), layers are 1 to 10 mm. ML-SILT, fine sand. SP-SAND, trace silt	
	SM-SAND, with SILT grading to SILTY, very fine grained, dark gray, red grains slightly visible	
80	ML-SANDY SILT, dark gray	-86.56
82	SP-SAND, fine grained, dark gray with red grains	-88.14 -88.89
84	ML-SILT, with fine SAND, gray, slightly moist	
	- sandy, dry from 85.7 to 86.4 ft BGS	
86	- fine sand (SP) from 86.4 to 86.6 ft BGS	
	- with 1 to 3 mm silty sand seams (varved app.), very dense, dry below 86.6 ft BGS	-93.22
88	ML/SM-SILT AND SAND, soft, dark gray	-94.14
	ML-SILT, trace fine sand, dense, gray, dry	
90	END OF BOREHOLE @ 89.7ft BGS	-95.64
92		
94		
96		
98		
100		
102		
104		



WELL DETAILS
Screened interval:
-83.64 to -88.64ft NGVD
77.70 to 82.70ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS32			7	201
SS33			4	140
SS34			35	12
SS35			33	47
SH36			--	--
SS37			18	5.0
SH38			--	--
SS39			24	17
SS40			51	5
SS41			19	4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-25
DATE COMPLETED: August 31, 2005
DRILLING METHOD: Push
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-8.57					
0	ML-SILT, with coarse sand and fine gravel, 2 inches brown, 2 inches black, wood fibers @ 2 ft BGS		2"Ø STEEL RISER NATIVE MATERIAL 2"Ø SS SCREEN 2"Ø SS SUMP				
2	SW-SAND, with silt and shell fragments, fine to coarse grained, black	-10.57		SH1		0.8	–
4							
6	END OF BOREHOLE @ 5.3ft BGS Stratigraphy taken from PZ-SHI-2-100.	-13.82					
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-12.32 to -13.32ft NGVD
3.75 to 4.75ft BGS
Length: 1ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-75
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-4.18						
2	RIP-RAP							
	Not Sampled (see PZ-SHI-2-100 for lithology)	-6.68						
4	SM/GM-SILTY SAND and GRAVEL, fine to coarse grained sand, fine grained gravel, brown to 3.9 ft BGS then black, stained appearance	-7.68		SH1 SS2		0.0 0.5	-- 4	--
6	Not Sampled (see PZ-SHI-2-75 for lithology)	-9.68						
8								
10								
12								
14								
16								
18								
20								
22			CEMENT/ BENTONITE GROUT					
24								
26			2"Ø STEEL RISER					
28								
30			8.5"Ø BOREHOLE					
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-2-75
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
56	SP-SAND, fine grained, dark gray/black, with red grains	-60.68	BENTONITE PELLETS	SH3		0.8	–	
58	Not Sampled	-62.68	10-20 SILICA SAND	SS4		0.8	33	
60	END OF BOREHOLE @ 61.0ft BGS	-65.18	2"Ø SS SCREEN 2"Ø SS SUMP					

WELL DETAILS
Screened interval:
-58.68 to -63.68ft NGVD
54.50 to 59.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ GRAIN SIZE ANALYSIS ▭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-100
DATE COMPLETED: September 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-13.28						
0	ML-SILT, with clay, with sand, very soft, loose material, coarse grained, dark gray (precipitant)			SS1			0	0
2								
4	- extremely soft, yellow, beige, white, and gray layers @ 3.1 ft BGS		2"Ø STEEL RISER	SS2			0	0
6				SS3			0	0
8				SS4			0	0
10								
12			8.5"Ø BOREHOLE	SS5			0	0
14	SP-SAND, fine grained, black	-26.88		SS6			0	0
	ML-SILT, with fine sand, black, purple shells	-27.08						
16				SS7			0	0
18	SM-SILTY SAND, trace shell fragments, fine grained, light gray, purple shell fragments	-30.78						
	ML-SANDY SILT, gray	-32.08		SS8			24	0
20	SP-SAND, trace shell fragments, fine to medium grained, clean, medium gray with red grains and white shell fragments	-32.28						
22	ML-SILT, gray	-34.78		SS9			25	0
	SP-SAND, very fine, gray-brown with red grains	-35.08						
24	SM-SAND, with silt, very fine grained, dark gray with red grains, odor	-37.28		SS10			16	0
26				SS11			21	0
28	SM/SP-SAND, trace silt, very fine grained	-41.28						
	ML-SILT, gray	-42.28		SS12			30	0
30	ML-SILT, with sand, gray	-43.58	CEMENT/ BENTONITE GROUT	001 SS13			12	0
32	SM/SP-SAND, with silt, very fine grained, dark gray with red grains, white shells @ 32.1, odor	-45.08 -45.38						
	ML-SANDY SILT, gray	-46.78						
34	SP-SAND, saturated	-47.28		SS14			21	0
	SM-SAND, with silt, fine grained, dark gray with							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-100
DATE COMPLETED: September 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	red grains	-48.28						
36	SP-SAND, very fine grained, dark gray with red grains	-49.28		SS15			6	0
	SM-SAND, fine grained, gray-brown, slightly more coarse @ 37 ft BGS	-51.28						
38	SP-SAND, very fine grained, dark gray with red grains	-52.28		SS16			13	0
	SM-SILTY SAND, very fine grained, gray	-53.28						
40	SP-SAND, very fine grained, dark gray with red grains - SM-SILTY SAND			002 SS17			17	0
42			CEMENT/ BENTONITE GROUT					
	SP-SAND, compact, fine to medium grained, non-cohesive, non-plastic, dark gray with red grains interspersed, moist to wet	-56.28						
44	- wet below 44 ft BGS			SS18		2.0		0.0
	- trace silt, trace shells below 45 ft BGS							
46	- dilatant below 46 ft BGS			SS19		2.0	14	0.0
	- not dilatant, trace gravel below 47 ft BGS							
48				SS20		2.0	20	NR
	SM-SILTY SAND, very fine grained, slightly cohesive, non-plastic, gray, moist to wet	-61.58 -61.98						
	SM/ML-SILTY SAND / SANDY SILT, slightly cohesive, low to no plasticity, gray brown, moist	-62.78 -63.08		SS21				NR
50	SP-SAND, trace silt, loose, very fine to fine grained, moist to wet							
52	- dilatant, wet, increase in sand content, slight odor below 50 ft BGS			SS22		1.0	1	NR
	SM/ML-SANDY SILT, gray, moist							
54	- decrease in sand below 51 ft BGS			SS23		2.0	11	NR
	- moist to wet, slightly dilatant below 55 ft BGS							
56				SS24		2.0		0.0
58		-71.28						
	SP-SAND, trace silt, trace organic debris, fine grained, compact, non-cohesive, non-plastic, dark gray, wet	-72.78						
60	SM-SILTY SAND, very fine grained, slightly cohesive, slightly plastic, dark gray, wet, slight odor, dilatant			SS25		1.5	8	0.0
	SP-SAND, trace silt, fine grained, non-cohesive, non-plastic, dark gray, wet	-74.78						
62				SS26		2.0		0.0
	- some silt, slightly dilatant below 63.5 ft BGS							
64	- wet, very dilatant below 64 ft BGS							
	- trace silt, moist, slightly dilatant below 64.5 ft BGS			SS27		2.0	3	0.0
66	- with silt, wet, dilatant below 65.5 ft BGS	-79.28						
	SM-SILTY SAND, soft, slightly cohesive, non-plastic, gray, wet	-79.58		SS28		2.0	5	0.0
68	SP-SAND, trace to little silt, non-cohesive, non-plastic, dark gray, red grains, moist							
	- 0.1' some organic debris @ 67.7 ft BGS		SAND PACK	SS29		1.5	10	NR
	- trace organic debris below 68 ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-100
DATE COMPLETED: September 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	- wet below 70 ft BGS - 0.16' wood debris, trace to little silt @ 72.3 ft BGS - dilatant below 72.5 ft BGS - compact, slightly dilatant 73 ft BGS - wood debris 74.3 ft BGS		2"Ø SS SCREEN	SS30		1.5	9	NR
74				SS31		1.5	26	NR
76	Not Sampled	-88.78	2"Ø SS SUMP					
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98			CEMENT/ BENTONITE GROUT					
100								
102								
104								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-100
DATE COMPLETED: September 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106								
108								
110								
112								
114								
116								
118								
120	END OF BOREHOLE @ 120.0ft BGS Stratigraphy log also represents HYD-7.	-133.28	WELL DETAILS Screened interval: -83.32 to -88.32ft NGVD 70.04 to 75.04ft BGS Length: 5ft Diameter: 2in Slot Size: 10 Material: Stainless Steel					
122								
124								
126								
128								
130								
132								
134								
136								
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-42
DATE COMPLETED: September 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-13.28					
0	ML-SILT, with clay, with sand, very soft, loose material, coarse grained, dark gray (precipitant)		2"Ø STEEL RISER				
2							
4	- extremely soft, yellow, beige, white, and gray layers @ 3.1 ft BGS		8.5"Ø BOREHOLE				
6							
8			CEMENT/ BENTONITE GROUT				
10							
12							
14	SP-SAND, fine grained, black	-26.88					
	ML-SILT, with fine sand, black, purple shells	-27.08	SAND PACK	SH1			
16			2"Ø SS SCREEN				
		-30.28	2"Ø SS SUMP				
18	END OF BOREHOLE @ 17.0ft BGS						
20	Stratigraphy taken from PZ-SHI-3-100 / HYD-7.						
22							
24							
26							
28							
30							
32							
34							

WELL DETAILS
Screened interval:
-28.28 to -29.28ft NGVD
15.00 to 16.00ft BGS
Length: 1ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-75
DATE COMPLETED: September 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-13.28					
0	0-45.5' BGS - See Log from PZ-SHI-3-100/HYD-7 for Stratigraphy		2"Ø STEEL RISER; 8.5"Ø BOREHOLE; CEMENT/ BENTONITE GROUT				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PZ-SHI-3-75
DATE COMPLETED: September 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42							
44							
46	SP-SAND, trace silt, trace shells, fine to medium grained, non-plastic, non-cohesive, dark gray, red grains interspersed, moist to wet, slight odor	-58.78	10-20 SILICA SAND	SH1		1.0	
	- some silt @ 46.8 ft BGS	-60.78	2"Ø SS SCREEN	SS1 / 001			15
48	(Refer to the stratigraphy log from PZ-SHI-3-100 / HYD-7 for lithology)						
50							
52	END OF BOREHOLE @ 52.5ft BGS	-65.78	22"Ø SS SUMP NATIVE MATERIAL				
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-57.78 to -62.78ft NGVD
44.50 to 49.50ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: Stainless Steel

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

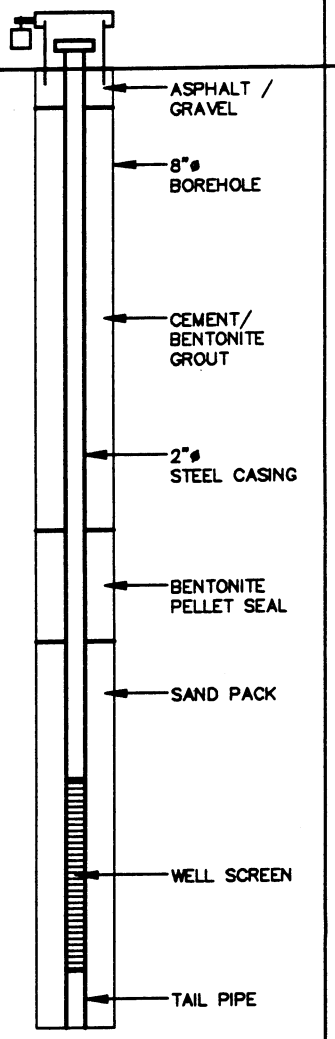
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-39)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-25
DATE COMPLETED: FEBRUARY 27, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	12.33 ??.?				
	For stratigraphy from 0.0 to 25.0 ft BGS see T3-25 located 10 ft west.					
25.0	END OF HOLE @ 25.0 FT. BGS NOTES: 1. For overburden stratigraphy from 0.0 to 25.0 ft BGS see T3-25 located 10 ft west.	-25.0				



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
14.9 to 25.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-40)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-50 (Page 1 of 2)
DATE COMPLETED: FEBRUARY 27, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	15.22 ??.?				
	For stratigraphy from 0.0 to 25.0 ft BGS see T3-25 located 12 ft west.		ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5			8"ø BOREHOLE			
25.0	For stratigraphy from 25.0 to 50.0 ft BGS see T3-50 located 10 ft west.	-25.0				
27.5						
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-40)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-50 (Page 2 of 2)
DATE COMPLETED: FEBRUARY 27, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			CEMENT/ BENTONITE GROUT; 8"ø BOREHOLE			
37.5						
40.0			BENTONITE PELLET SEAL; 2"ø STEEL CASING			
42.5						
45.0			SAND PACK; WELL SCREEN			
47.5						
50.0	END OF HOLE @ 50.0 FT. BGS	-50.0	TAIL PIPE			
52.5						
55.0						
57.5						
60.0						
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
43.5 to 48.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
40.0 to 50.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-41)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-100 (Page 1 of 4)
DATE COMPLETED: MARCH 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*11.22* *??.?*				
	For stratigraphy from 0.0 to 25.0 ft BGS see T3-25 located 14 ft northwest.		ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5			6"ø BOREHOLE			
25.0	SM-SAND(NATIVE), trace to little silt, loose, fine to medium grained, dark olive gray, wet	*-25.0*		1SS		40
	- gray sandy silt beds, trace shells	*-26.5*		2SS		20
27.5	For stratigraphy from 26.5 to 50.0 ft BGS see T3-50 located 12 ft northeast.					
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-41)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-100 (Page 2 of 4)
DATE COMPLETED: MARCH 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø STEEL CASING			
45.0						
47.5						
50.0	SP-SAND, silt interbeds, silt lenses, fine grained, dark olive gray and gray, wet	-50.0	CEMENT/ BENTONITE GROUT	3SS	X	>100
52.5	- 5" thick sandy silt bed			4SS	X	65
55.0	SM/ML-SAND and SILT, interbeded, gray sand, dark olive gray silt, wet	-55.0	6"ø BOREHOLE	5SS	X	29
57.5	SM-SAND, some silt, fine graned, dark olive gray	-57.5		6SS	X	40
60.0	- interbeded silty sand and silt			7SS	X	80
62.5				8SS	X	30
65.0	ML-SILT, some sand, olive gray	-65.0		9SS	X	35

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-41)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-100 (Page 3 of 4)
DATE COMPLETED: MARCH 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5	– interbedded with silty sand, thin to medium bedded		6"ø BOREHOLE	10SS		25
70.0				11SS		36
72.5				12SS		24
75.0	SM/ML–SAND and SILT, interbeded, trace thin decayed wood seams, fine grained, dark olive gray sand, olive gray silt, wet	-75.0	CEMENT/ BENTONITE GROUT	13SS		30
77.5	– laminated			14SS		27
80.0				15SS		50
82.5	– incease in fine grained sand		2"ø STEEL CASING	16SS		>100
85.0				17SS		>100
87.5			BENTONITE PELLET SEAL	18SS		65
90.0	ML–SILT, some fine sand, trace thin silty fine sand interbeds, dark olive gray to gray, wet	-90.0	SAND PACK	19SS		50
92.5				20SS		60
95.0	– some silty fine sand and sandy fine silt interbeds		WELL SCREEN	21SS		40
97.5	SM–SAND, some silt, dark olive gray, wet	-97.5	TAIL PIPE	22SS		80

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-41)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T1-100
(Page 4 of 4)
DATE COMPLETED: MARCH 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	– trace gray silt lenses		SAND PACK 8"ø BOREHOLE TAIL PIPE CAVE 3"ø SPLIT SPOON	23SS	☒	>50
	END OF HOLE @ 100.6 FT. BGS	-100.6				
102.5	NOTES: 1. Sample method consisted of jar driven split spoons.		SCREEN DETAILS: Screened Interval: 93.5 to 98.5' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -TYPE 316 SCH 40 Stainless Steel Sand pack interval: 89.0 to 100.0' BGS Material -# 10x20 Sand			
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

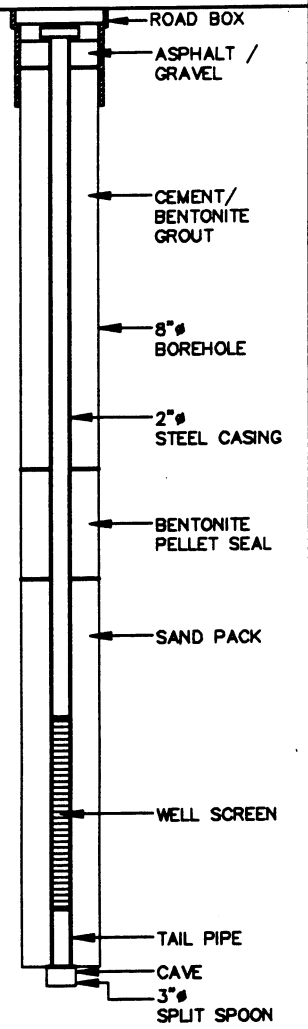
(L-42)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD, WEST OF STORES

HOLE DESIGNATION: T2-25
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	10.85
	GROUND SURFACE	11.1
2.5	SW-SAND(FILL), little to some fine to coarse gravel, little shells, loose, fine to coarse grained, brown, moist	
5.0	- silt lenses, brown and gray, very moist	
7.5	- trace silt lenses, shells, fine to medium grained, olive gray - trace silty sand lenses, gray, wet	
10.0		
12.5	SW-SAND(NATIVE), trace gravel, trace silt seams, fine to medium grained, dark olive gray, wet - trace silt, trace silt lenses	0.6
15.0	- trace shells, trace fine gravel	
17.5	- thick fine sandy silt bed	
20.0	SM-SAND, trace to little silt, trace sub-rounded gravel, trace silt lenses, fine to medium grained, dark olive gray, wet - abundant shell material, trace wood, trace coarse sand	-6.9
22.5	- some coarse sand, little fine sand, little fine and medium gravel - little coarse sand, shell fragments	
25.0		
27.5	END OF HOLE @ 25.5 FT. BGS NOTES: 1. Sample method consisted of jar driven split spoons.	-14.4
30.0		
32.5		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
15.0 to 25.0' BGS
Material -# 10x20 Sand

SAMPLE NUMBER	STATE	'N' VALUE
1SS	X	40
2SS	X	82
3SS	X	82
4SS	X	49
5SS	X	19
6SS	X	50
7SS	X	40
8SS	X	40
9SS	X	36
10SS	X	38
11SS	X	58
12SS	X	38
13SS	X	65
14SS	X	50
15SS	X	56

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-43)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD, WEST OF STORES

HOLE DESIGNATION: T2-50 (Page 1 of 2)
DATE COMPLETED: FEBRUARY 27, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*10.78*				
	GROUND SURFACE	*11.0*				
	For stratigraphy from 0.0 to 25.0 ft BGS see T2-25 located 5 ft north.		ROAD BOX; ASPHALT / GRAVEL; 2"ø STEEL CASING; CEMENT/ BENTONITE GROUT; 8"ø BOREHOLE			
25.0	No recovery	*-14.0*		1SS		40
27.5	SW-SAND, trace gravel and coarse sand, trace sandy silt interbeds with some shells, medium grained, dark olive gray to gray, wet	*-15.5*		2SS		25
	- little subangular fine to coarse gravel, medium to coarse grained			3SS		25
30.0	- trace to some medium sand, trace coarse gravel, trace silty sand lenses, trace shells, fine grained			4SS		55
				5SS		50
32.5				6SS		55

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-43)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD, WEST OF STORES

HOLE DESIGNATION: T2-50 (Page 2 of 2)
DATE COMPLETED: FEBRUARY 27, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0	SM/ML-SAND and SILT, interbedded, trace wood, fine grained, dark olive gray and gray, wet	-23.0	CEMENT/ BENTONITE GROUT	7SS	X	60
	SM-SAND, trace to little silt, trace fine sandy silt lenses, trace shells, dark olive gray, wet, slight chemical odor	-24.5	8"ø BOREHOLE	8SS	X	>50
37.5				9SS	X	>50
	SM/ML-SAND and SILT, interbedded, fine grained, dark olive gray and gray	-27.5	BENTONITE PELLET SEAL	10SS	X	>50
40.0	- trace wood, shells, fine sand seams			11SS	X	>50
	- increase in fine sand content		2"ø STEEL CASING	12SS	X	>50
42.5				13SS	X	>50
45.0	ML-SILT, some fine sand, trace silty fine sand interbeds, gray, wet	-33.5	SAND PACK	14SS	X	67
	SM/ML-SAND and SILT, thin to thick interbeds, trace gravel, decayed wood seams, fine grained, dark olive gray and gray, wet	-35.0	WELL SCREEN	15SS	X	>50
47.5	- beds with abundant shell material, larger decayed wood pieces			16SS	X	70
	SM-SAND, some silt, some interbeds of laminated fine sandy silt and silty fine sand, thin wood seams, dark olive gray and gray, wet	-38.0		17SS	X	>50
50.0		-39.0	TAIL PIPE			
	END OF HOLE @ 50.0 FT. BGS					
52.5	NOTES: 1. Sample method consisted of jar driven split spoons.					
55.0			SCREEN DETAILS: Screened Interval: 43.5 to 48.5' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -TYPE 316 SCH 40 Stainless Steel Sand pack interval: 39.0 to 50.0' BGS Material -# 10x20 Sand			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

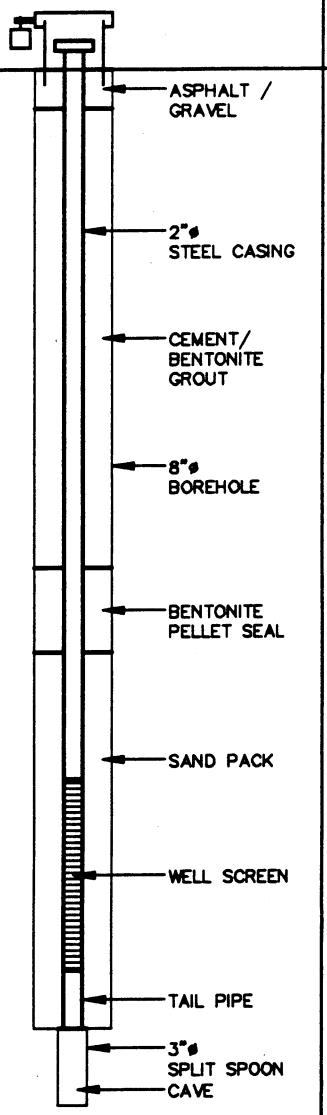
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-44)

PROJECT NAME: EXTRACTION AND MONITORING WELL
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-25
DATE COMPLETED: FEBRUARY 25, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	*12.27*
	GROUND SURFACE	*??.?*
	Augered through concrete to 3.0 ft BGS	
2.5		
	SW-SAND(FILL), some fine to coarse gravel, shells, brown, moist to wet	*-3.0*
5.0		
	- coarse grained sand	
7.5	- fine to medium grained sand, trace shells, trace gravel	
	- trace fine gravel, trace shells, coarse grained, dark brown	
10.0	- fine to medium grained	
	- trace gravel and shells	
12.5		
	- some silt interbeds, trace wood, dark olive gray	
15.0		
	SM-SAND(NATIVE), some silt, thin silt interbeds, dark olive gray	*-15.5*
17.5	- trace silt interbeds - trace to little silt, fine grained	
	- shells, fine to medium grained	
20.0		
22.5		
	SP-SAND, trace gravel, medium grained, dark olive gray	*-24.0*
25.0		
	SW-SAND, 1" silt interbeds, trace clay, fine to medium grained, dark olive brown	*-25.5*
	END OF HOLE @ 27.0 FT. BGS	*-27.0*
27.5	NOTES: 1. Sample method consisted of jar driven split spoons.	
30.0		
32.5		



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
15.2 to 25.0' BGS
Material -# 10x20 Sand

SAMPLE NUMBER	STATE	'N' VALUE
1SS	X	37
2SS	X	66
3SS	X	66
4SS	X	>50
5SS	X	>50
6SS	X	37
7SS	X	18
8SS	X	>50
9SS	X	>50
10SS	X	>50
11SS	X	70
12SS	X	50
13SS	X	60
14SS	X	>50
15SS	X	57

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-45)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-50 (Page 1 of 2)
DATE COMPLETED: FEBRUARY 25, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	13.48 ?.??				
	For stratigraphy from 0.0 to 25.0 ft BGS see T3-25 located 6 ft north.		ROAD BOX ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0						
			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5						
			8"ø BOREHOLE			
25.0	SW-SAND, trace to little fine to coarse gravel, shells, olive gray and brown, wet	-25.0		1SS		45
	SM-SAND, little to some silt, trace fine to coarse gravel, trace wood, sandy silt seam, dark olive brown and dark olive gray, wet	-26.5		2SS		30
27.5	- trace to little sandy silt, trace coarse subrounded gravel			3SS		46
30.0	- little shell fragments, fine grained, decreased silt content			4SS		60
				5SS		48
32.5				6SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-45)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-50 (Page 2 of 2)
DATE COMPLETED: FEBRUARY 25, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0	– trace sandy silt lenses		CEMENT/ BENTONITE GROUT; 8"ø BOREHOLE; 2"ø STEEL CASING; BENTONITE PELLET SEAL; SAND PACK; WELL SCREEN; TAIL PIPE; 3"ø SPLIT SPOON; CAVE	7SS	X	>50
37.5				8SS	X	>100
40.0	– no silt lenses, trace shells			9SS	X	>100
42.5	– trace silt lenses			10SS	/	>100
45.0				11SS	X	>100
47.5				12SS	X	>100
50.0				13SS	X	>100
52.5	END OF HOLE @ 51.5 FT. BGS	-51.5		14SS	X	>100
55.0	NOTES: 1. Sample method consisted of jar driven split spoons.		SCREEN DETAILS: Screened Interval: 43.5 to 48.5' BGS; Length -5.0'; Diameter -2.0"; Slot # 10; Material -TYPE 316 SCH 40 Stainless Steel; Sand pack interval: 41.5 to 50.0' BGS; Material -# 10x20 Sand	15SS	X	>100
57.5				16SS	/	>100
60.0				17SS	X	>100
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-46)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-100
(Page 1 of 4)
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	11.19 ??.?				
	For stratigraphy from 0.0 to 25.0 ft BGS see T1-25 located 26 ft northeast.		ASPHALT / GRAVEL			
2.5						
5.0						
7.5						
10.0			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5			6"ø BOREHOLE			
25.0	For stratigraphy from 25.0 to 50.0 ft BGS see T1-50 located 12 ft northeast.	-25.0				
27.5						
30.0						
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-46)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-100
(Page 2 of 4)
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5						
40.0						
42.5			2"ø STEEL CASING			
45.0						
47.5						
50.0	For stratigraphy from 50.0 to 100.0 ft BGS see T1-100 located 10 ft east.	-50.0	CEMENT/ BENTONITE GROUT			
52.5						
55.0			6"ø BOREHOLE			
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-46)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING

PROJECT NO.: 1002-15

CLIENT: OXYCHEM-TACOMA

LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-100 (Page 3 of 4)

DATE COMPLETED: FEBRUARY 28, 1994

DRILLING METHOD: 6"ø CABLE TOOL

CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0			6"ø BOREHOLE			
72.5						
75.0			CEMENT/ BENTONITE GROUT			
77.5						
80.0						
82.5			2"ø STEEL CASING			
85.0						
87.5			BENTONITE PELLET SEAL			
90.0			SAND PACK			
92.5						
95.0			WELL SCREEN			
97.5			TAIL PIPE			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

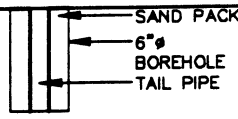
CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-46)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T3-100 (Page 4 of 4)
DATE COMPLETED: FEBRUARY 28, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	END OF HOLE @ 100.2 FT. BGS	-100.2	 SCREEN DETAILS: Screened Interval: 93.7 to 98.7' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -TYPE 316 SCH 40 Staineless Steel Sand pack interval: 89.7 to 100.2' BGS Material -# 10x20 Sand			
102.5						
105.0						
107.5						
110.0						
112.5						
115.0						
117.5						
120.0						
122.5						
125.0						
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

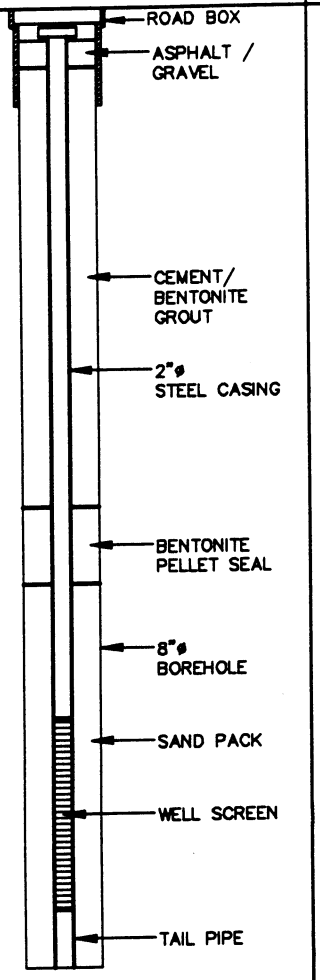
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-47)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T4-25
DATE COMPLETED: FEBRUARY 26, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	13.38
	GROUND SURFACE	??.?
2.5	SP-SAND(FILL), some fine to coarse gravel, trace gray silt lenses, shells, medium grained, brown, moist	
	- trace to little fine gravel	
5.0	- trace gray clayey silt lenses and shells, very moist	
7.5	- trace to little silt, trace gravel, brown and olive gray, wet	
		-9.5
10.0	SM-SAND(NATIVE), fine to medium grained, olive gray, wet	
	- thin silty fine sand interbeds, fine grained, olive gray, gray to dark olive gray, faintly laminated	
12.5	- fine sandy silt interbeds	
	- trace silt lenses	
15.0		
	- trace sandy silt interbeds, trace shells, dark olive gray	
17.5	- trace silt and fine sandy silt interbeds and lenses, trace gravel and shells, gray to dark olive gray	
20.0		
	- abundant shells	-21.5
22.5	SW-SAND, little coarse sand and fine gravel, fine grained, dark olive gray, wet	
	- abundant shells	
	- some fine angular to subangular gravel, trace fine sand, wet	
25.0		-25.0
	END OF HOLE @ 25.0 FT. BGS	
	NOTES:	
	1. Sample method consisted of jar driven split spoons.	
27.5		
30.0		
32.5		



SAMPLE NUMBER	STATE	'N' VALUE
1SS		18
2SS		24
3SS		25
4SS		25
5SS		20
6SS		41
7SS		40
8SS		38
9SS		60
10SS		>50
11SS		56
12SS		50
13SS		52
14SS		54
15SS		>50

SCREEN DETAILS:
Screened Interval:
18.5 to 23.5m BGS
Length -5.0m
Diameter -2.0mm
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
15.0 to 25.0m BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-48)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T4-50 (Page 1 of 2)
DATE COMPLETED: FEBRUARY 26, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	13.41 ??.?				
	For stratigraphy from 0.0 to 25.0 ft BGS see T4-25 located 5 ft north.		CONCRETE SEAL			
2.5						
5.0						
7.5						
10.0			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5			8"ø BOREHOLE			
25.0	SW-SAND, trace to little fine gravel, trace coarse gravel, loose, fine to medium grained olive brown, wet	-25.0		1SS		45
		-27.0		2SS		20
27.5	ML-SILT, trace sand and clay, trace wood, sand seams, olive brown and gray, wet	-28.0		3SS		18
	SM-SAND, trace to some silt, trace shells and clayey sandy silt seams, fine grained, olive gray and gray, wet			4SS		23
30.0		-31.0		5SS		55
	SW-SAND, trace silt and coarse subrounded gravel, trace silty sand lenses, fine to medium grained, dark olive brown, wet - trace shells and decayed wood, fine grained			6SS		40
32.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-48)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: NORTH OF SALT PAD

HOLE DESIGNATION: T4-50
(Page 2 of 2)
DATE COMPLETED: FEBRUARY 26, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0	– trace silty fine sand and silt lenses, trace shells		CEMENT/ BENTONITE GROUT	7SS		58
				8SS		49
37.5	– interbedded sandy silt, dark olive gray and gray		8"ø BOREHOLE	9SS		46
			BENTONITE PELLET SEAL	10SS		34
40.0				11SS		60
	– trace silt		2"ø STEEL CASING	12SS		50
42.5						
			SAND PACK	13SS		40
45.0				14SS		45
			WELL SCREEN	15SS		80
47.5	– no silt lenses			16SS		40
				17SS		>50
50.0	END OF HOLE @ 50.0 FT. BGS	-50.0	TAIL PIPE			
	NOTES: 1. Sample method consisted of jar driven split spoons.		SCREEN DETAILS: Screened Interval: 43.5 to 48.5' BGS Length -5.0' Diameter -2.0" Slot # 10 Material -TYPE 316 SCH 40 Stainless Steel Sand pack interval: 40.0 to 50.0' BGS Material -# 10x20 Sand			
52.5						
55.0						
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

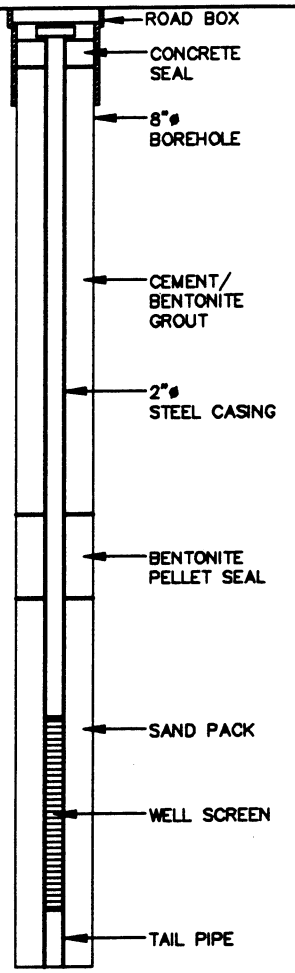
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-49)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-25
DATE COMPLETED: FEBRUARY 11, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	10.91
	GROUND SURFACE	11.4
	Augered through gravel to 2.0 ft BGS	
		9.4
2.5	GW-GRAVEL(FILL), some sand, gray and brown, moist	
	- some concrete, 2" layer of gray clayey silt like material, light to dark gray and rust brown	
5.0		
	- concrete rubble, gray	
7.5		
		3.4
	GW/SW-GRAVEL and SAND, some wood, gray, brown and black, wet	2.4
10.0	SM-SAND, some silt, trace sandy silt seams, fine grained, olive brown and olive gray, wet - little silt, trace fine gravel - silty fine sand seam with roots and wood	
		-0.6
12.5	SM/ML-SAND and SILT, organic matter, roots, fine grained, brown, wet - sand and angular gravel	
		-2.6
15.0	ML-SILT, some fine sand, abundant vegetation little subangular to subrounded gravel, dark brown, wet	
		-4.6
17.5	ML-SILT(NATIVE), some fine sand, abundant wood, roots, little subangular to subrounded gravel, trace clay, gray, moist	
	SW-SAND, trace gray silt interbeds with trace vegetation, dark olive brown, moist	-6.6
20.0		-8.6
	SM-SAND, trace to little silt and fine gravel, shells, trace wood, dark olive brown, wet	
		-10.6
22.5	SW-SAND, trace silt lenses, fine to coarse grained, dark olive brown, wet	
25.0		-13.6
	END OF HOLE @ 25.0 FT. BGS	
27.5	NOTES: 1. Sample method consisted of jar driven split spoons.	
30.0		
32.5		



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
15.4 to 25.0' BGS
Material -# 10x20 Sand

SAMPLE NUMBER	STATE	'N' VALUE
1SS		>100
2SS		>100
3SS		>100
4SS		46
5SS		26
6SS		52
7SS		>100
8SS		>100
9SS		60
10SS		>100
11SS		40
12SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ⧗

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-51)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-120
(Page 1 of 4)
DATE COMPLETED: FEBRUARY 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.75* *11.2*				
	For stratigraphy from 0.0 to 25.0 ft BGS see T5-25 located 10 ft north.		ROAD BOX CONCRETE SEAL			
2.5						
5.0						
7.5						
10.0						
			2"ø STEEL CASING			
12.5						
15.0						
17.5			CEMENT/ BENTONITE GROUT			
20.0						
22.5						
			6"ø BOREHOLE			
25.0	ML-SILT, little to some fine sand, trace clay, wood, shells, stiff, olive gray, very moist - no wood, very moist to wet	*-13.8*		1SS		>100
				2SS		60
27.5		*-16.8*		3SS		15
30.0	SP-SAND, trace clayey silt interbeds and lenses, little broken and whole shells, loose, fine to medium grained, dark olive gray to dark olive brown, wet - trace to little shell fragments			4SS		69
32.5	- no silt interbeds			5SS		62

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-51)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-120 (Page 2 of 4)
DATE COMPLETED: FEBRUARY 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0	No recovery			6SS	X	18
				7SS	/	10
		-25.8				
37.5	SM-SAND, some silt, some medium sand, fine grained, dark olive gray to dark olive brown, wet			8SS	X	40
	- little silt			9SS	X	100
40.0	- trace to little silt, trace gray silt lenses, very fine to fine grained			10SS	X	>100
	- trace gray silt interbeds with trace clay			11SS	X	>100
42.5			2"ø STEEL CASING			
				12SS	X	75
	- trace red brown wood			13SS	X	93
45.0	- no wood, shells or silt lenses			14SS	X	75
47.5				15SS	X	>100
	- trace shells			16SS	X	50
50.0			CEMENT/ BENTONITE GROUT			
52.5	- trace silt interbeds			17SS	X	90
55.0	- no silt interbeds			18SS	X	>100
			6"ø BOREHOLE			
57.5	- trace silt lenses			19SS	X	>100
60.0	- olive gray fine sandy silt interbeds			20SS	X	60
62.5	SM/ML-SAND and SILT, interbedded, fine grained, thickly bedded, dark olive gray to dark olive brown, wet	-51.3		21SS	X	>100
65.0				22SS	X	>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-51)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-120 (Page 3 of 4)
DATE COMPLETED: FEBRUARY 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5	SM-SAND, some silt, some thinly bedded fine sandy silts and fine sand, fine grained, dark olive gray to dark olive brown, wet	-56.3		23SS		60
70.0				24SS		90
72.5	- thin silt interbeds			25SS		35
75.0	- trace medium gray silt lenses		2"ø STEEL CASING	26SS		60
77.5	- some thin to thick medium gray silt interbeds			27SS		>100
	SM/ML-SAND and SILT, interbedded, trace clay, trace silt interbeds, trace wood and shell fragments, thin to medium bedded, dark olive gray and medium gray, very moist to wet	-67.5				
80.0				28SS		>100
82.5			CEMENT/ BENTONITE GROUT	29SS		95
85.0	SM-SAND, some silt, trace to little fine sandy silt interbeds, fine grained, dark olive gray, wet	-73.8		30SS		>100
87.5			6"ø BOREHOLE	31SS		45
90.0				32SS		>100
92.5	ML-SILT, little to some fine sand, olive gray, moist to wet	-81.3		33SS		>100
95.0	- very hard, some silty fine sand, trace wood fibers, moderately cemented, glossy			34SS		>100
97.5	SM/ML-SAND and SILT, interbedded, fine grained, olive gray and gray, wet	-86.3		35SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-51)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-120 (Page 4 of 4)
DATE COMPLETED: FEBRUARY 2, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	ML-SILT, little to some fine sand, little silty fine sand with trace organic matter, very hard, moderately cemented, olive gray and gray, dry to moist	-88.8		36SS		>100
102.5	- some fine sand, trace clay, 4" bed with abundant decayed wood, hard, increase in sand content with depth		CEMENT/ BENTONITE GROUT	37SS		>100
105.0	SM-SAND, little to some silt, trace decayed wood layers, fine grained, olive gray, wet	-93.8	2"ø STEEL CASING	38SS		>100
107.5			BENTONITE PELLET SEAL	39SS		>100
110.0	SM/ML-SAND and SILT, abundant organic matter (wood, twigs), medium dense, fine grained, dark olive gray, wet	-98.8		40SS		>50
112.5	SM-SAND, little to some silt, fine grained, olive gray to dark olive gray, wet	-101.3	6"ø BOREHOLE	41SS		>100
115.0	- trace sandy silt with trace shells and fine sand with little to some silt		SAND PACK WELL SCREEN	42SS		>100
117.5	- 3" bed of silt, black, dense, moist		TAIL PIPE	43SS		>100
120.0	- 2" bed of fine sandy silt with wood, trace fine gravel and black silt, moist to wet	-109.5	CAVE 3"ø SPLIT SPOON	44SS		>100
122.5	END OF HOLE @ 120.7 FT. BGS NOTES:					
125.0						
127.5						
130.0						

SCREEN DETAILS:
Screened Interval:
113.0 to 118.0' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
109.3 to 120.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-50)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-60

DATE COMPLETED: FEBRUARY 12, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	10.38 11.3				
2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5	For stratigraphy from 0.0 to 25.0 ft BGS see T5-25 located 5 ft north.		ROAD BOX CONCRETE SEAL 2"ø STEEL CASING CEMENT/ BENTONITE GROUT 8"ø BOREHOLE			
25.0 27.5 30.0 32.5	For stratigraphy from 25.0 to 60.0 ft BGS see T5-120 located 5 ft south.	-13.7				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-50)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T5-60
(Page 2 of 2)
DATE COMPLETED: FEBRUARY 12, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			8"ø BOREHOLE			
37.5						
40.0			CEMENT/ BENTONITE GROUT			
42.5						
45.0			2"ø STEEL CASING			
47.5						
50.0			BENTONITE PELLET SEAL			
52.5						
55.0			SAND PACK			
57.5			WELL SCREEN			
60.0	END OF HOLE @ 60.0 FT. BGS	-48.7	TAIL PIPE			
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
53.5 to 58.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
50.0 to 60.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

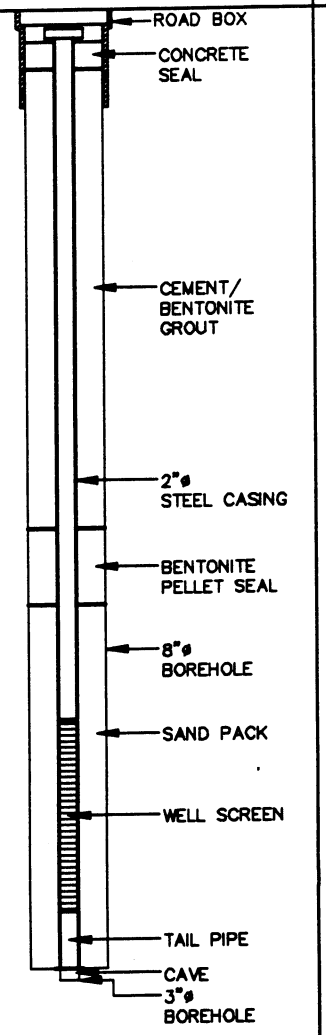
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-52)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T6-25
DATE COMPLETED: FEBRUARY 12, 1994
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.35				
	GROUND SURFACE	11.0				
2.5	Augered through asphalt and gravel to 2.0 ft BGS No recovery			1SS		>100
5.0	GW/SW-SAND and GRAVEL(FILL), some concrete, brown and gray, moist	6.9		2SS		39
7.5	SW-SAND, trace gravel and wood, fine to coarse grained, brown, moist to wet	4.9		3SS		39
10.0	SW-SAND(NATIVE), fine to medium grained, dark olive gray to darkm olive brown, wet	+3.0		4SS		34
12.5	- trace shells			5SS		33
15.0	SM-SAND, trace to little silt, trace thin sandy silt seams, fine grained, dark olive gray, wet	-3.1		6SS		5
	- 2" thick hard silt bed, moist			7SS		34
17.5	- little to some silt, trace to little shell material and clay			8SS		>100
20.0				9SS		>100
22.5	- some silt, little fine gravel, hard, fine to medium grained			10SS		>100
25.0	- little to some silt, trace gravel			11SS		>100
	END OF HOLE @ 25.3 FT. BGS	-14.4		12SS		>100
27.5	NOTES:					
30.0						
32.5						



SCREEN DETAILS:
Screened Interval:
18.5 to 23.5' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
15.5 to 25.0' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

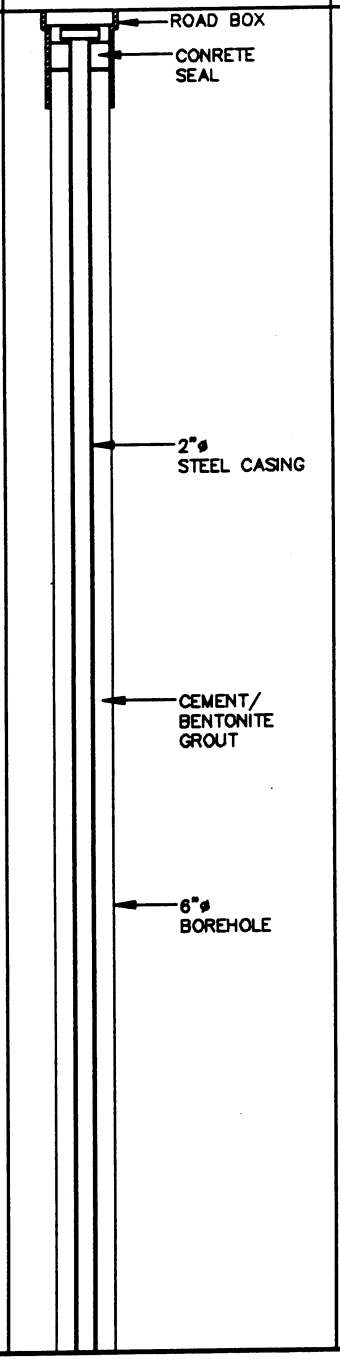
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-53)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T6-60
(Page 1 of 2)
DATE COMPLETED: FEBRUARY 10, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.33				
	GROUND SURFACE	10.9				
	For stratigraphy from 0.0 to 25.0 ft BGS see T6-25 located 5 ft north.					
25.0	For stratigraphy from 25.0 to 59.8 ft BGS see T6-120 located 5 ft south.	-14.1				



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-53)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: T6-60 (Page 2 of 2)
DATE COMPLETED: FEBRUARY 10, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0			2"ø STEEL CASING			
37.5						
40.0			CEMENT/ BENTONITE GROUT			
42.5						
45.0			6"ø BOREHOLE			
47.5			BENTONITE PELLET SEAL			
50.0						
52.5			SAND PACK			
55.0			WELL SCREEN			
57.5			TAIL PIPE			
60.0	END OF HOLE @ 59.8 FT. BGS	-48.9				
62.5						
65.0						

SCREEN DETAILS:
Screened Interval:
53.3 to 58.3' BGS
Length -5.0'
Diameter -2.0"
Slot # 10
Material -TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
50.3 to 59.8' BGS
Material -# 10x20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-54)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD, SOUTHWEST C-120

HOLE DESIGNATION: T6-120 (Page 1 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	10.39				
	GROUND SURFACE	10.9				
	For stratigraphy from 0.0 to 25.0 ft BGS see T6-25 located 10 north.		ROAD BOX; CONCRETE SEAL; 2"ø STEEL CASING; CEMENT/ BENTONITE GROUT; 6"ø BOREHOLE			
25.0	SM-SAND, little to some silt, trace to little large shells, fine grained, dark olive gray to dark olive brown, wet	-14.1		1SS		>100
27.5	- fine to medium sand, sandy silt, trace fine to coarse gravel			2SS		>100
	- little to some silt, trace angualr gravel and shells			3SS		90
30.0	- fine grained, trace to little silt, trace gravel			4SS		11
	- trace to little silt, shells			5SS		>100
32.5	- silt seam, trace clay			6SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-54)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD, SOUTHWEST C-120

HOLE DESIGNATION: T6-120
(Page 2 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
		-23.1				
35.0	SM-SAND, trace to little silt, trace fine to coarse subrounded gravel, dark olive gray to dark olive brown and gray, wet			7SS	X	77
				8SS	X	>100
37.5	- little silt - sandy silt laminations			9SS	X	30
				10SS	X	74
40.0	- trace sandy silt beds			11SS	X	60
	- trace thin layers of decayed wood			12SS	X	63
42.5			2"ø STEEL CASING	13SS	X	40
45.0						
				14SS	X	66
47.5				15SS	X	70
	- interbedded with gray fine sandy silt and silt, laminated			16SS	X	>100
50.0			CEMENT/ BENTONITE GROUT			
52.5	- little silt, trace silty interbeds			17SS	X	60
55.0	- no silt interbeds			18SS	X	67
			6"ø BOREHOLE			
57.5	- trace thin layers of decayed wood			19SS	X	100
60.0	- trace fine sandy silt interbeds			20SS	X	>100
62.5				21SS	X	75
65.0	- little to some silt, no silt interbeds			22SS	X	90

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-54)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD, SOUTHWEST C-120

HOLE DESIGNATION: T6-120
(Page 3 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5	ML-SILT, little to some fine sand, interbeded with silty fine sand, trace shells and decayed wood, gray, wet	-56.6		23SS		>100
70.0	SM/ML-SAND and SILT, interbeded, fine grained, dark olive brown and gray wet	-59.1		24SS		>100
72.5	SM-SAND, little to some silt, trace silt seams, fine grained, dark olive brown to dark olive gray, wet	-61.6		25SS		43
75.0	- little to some silt		2"ø STEEL CASING	26SS		>100
77.5	- gray fine sandy silt, moist			27SS		34
80.0				28SS		40
82.5			CEMENT/ BENTONITE GROUT	29SS		90
85.0	- trace coarse gravel, cemented very dense silty fine sand			30SS		25
87.5			6"ø BOREHOLE	31SS		60
90.0				32SS		>100
92.5				33SS		>100
95.0	ML-SILT, trace fine sand and clay, hard, gray, moist to very moist	-84.1		34SS		50
97.5	- increased fine sand, 5" layer moderately cemented, very hard			35SS		>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

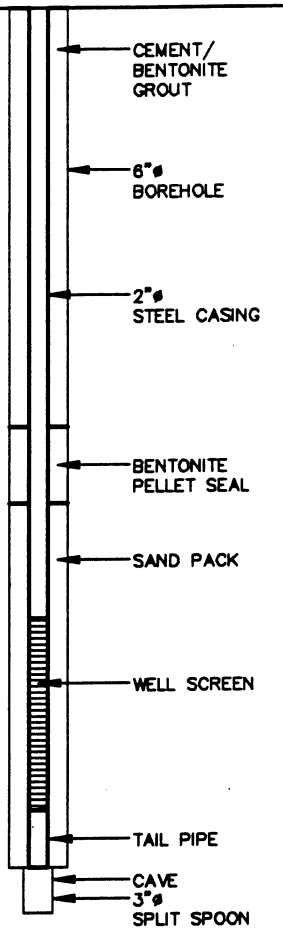
(L-54)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD, SOUTHWEST C-120

HOLE DESIGNATION: T6-120 (Page 4 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 6"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
100.0	– 1" layer of silty fine sand with decayed wood, medium dense, dark olive gray – trace to some fine sand, occasional silty fine sand bed, dense, moist	
102.5	SM–SAND, little to some silt, very dense, fine grained, moderately to very cemented, dark olive gray, very moist	–91.6
105.0	– little silt, wet	
107.5		
110.0		
112.5	SM/ML–SAND and SILT, interbedded, trace to little silty fine sand beds, trace thin wood seams, fine grained, dark olive gray and gray, wet	–101.6
115.0		
117.5	ML–SILT, some fine sand, trace black organic matter, trace silty fine sand seams, trace thin hard silt seams, dark olive gray and gray, wet	–106.6
120.0	SM–SAND, little to some silt, fine grained, dark olive gray, wet	–109.1 –110.2
122.5	END OF HOLE @ 121.1 FT. BGS NOTES: 1. Sample method consisted of jar driven split spoons.	
125.0		
127.5		
130.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
113.4 to 118.4' BGS
Length –5.0'
Diameter –2.0"
Slot # 10
Material –TYPE 316 SCH 40 Stainless Steel
Sand pack interval:
110.4 to 119.9' BGS
Material –# 10x20 Sand

SAMPLE NUMBER	STATE	'N' VALUE
35SS	☒	>100
36SS	☒	>100
37SS	☒	>100
38SS	☒	>100
39SS	☒	>100
40SS	☒	>100
41SS	☒	>100
42SS	☒	>100
43SS	☒	>100
44SS	☒	>100

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

pH Pilot Study Wells and Borings

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-001
DATE COMPLETED: December 7, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -290.82 EASTING: 753.68 GROUND SURFACE	11.60					
	Not Sampled.		CONCRETE 2"Ø PVC RISER BENTONITE 2"Ø PVC SCREEN SAND PACK 8.5"Ø BOREHOLE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-001
DATE COMPLETED: December 7, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42	END OF BOREHOLE @ 41.0ft BGS Ground surface elevation is estimated.	-29.40	2"Ø PVC SCREEN SAND PACK 8.5"Ø BOREHOLE WELL DETAILS Screened interval: 1.60 to -28.40ft NGVD 10.00 to 40.00ft BGS Length: 30ft Diameter: 2in Slot Size: 10 Material: PVC				
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-002
DATE COMPLETED: December 4, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

NORTHING: -287.15
EASTING: 753.68

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.60
	ASPHALT	10.60
2	SP-SAND, trace silt, trace fine subrounded gravel, compact, fine grained, poorly graded, dark brown, moist	
4		
6	- trace red and white grains, no gravel below 5.0 ft BGS - saturated, dark brown to black below 6.0 ft BGS	
8		
10	- slight increase in silt content below 9 ft BGS	
12		
14		-2.60
	SM-SILTY SAND, compact, fine grained, poorly graded, dark brown to gray, saturated	-3.40
16	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated	-4.40
		-5.40
18	ML-SILT, trace fine sand, trace clay, compact, firm, non-plastic, gray, moist to very moist - wood pieces @ 16.6 ft BGS	-7.40
20	SM/ML-SILTY SAND and SILT, alternating thin beds, compact to dense, gray to dark gray, very moist, trace shells and woody material	
22	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated - fine to medium grained sand below 21.0 ft BGS	-10.20
24	SM-SAND with SILT, compact, fine to medium grained sand, poorly graded, gray, saturated	
26	ML-SILT, trace fine sand, trace clay, dense/very stiff, non-plastic, gray, moist	-14.20
		-15.40
28	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated	
30	- more silt below 29.8 ft BGS	
		-19.40
32	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated	
34		

MONITORING WELL: CONCRETE; 2"Ø PVC RISER; BENTONITE; 2"Ø PVC SCREEN; SAND PACK; 8.5"Ø BOREHOLE

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS1		1.1	23	0
SS2		1.0	13	3.1
SS3		1.0	11	3.4
SS4		1.7	34	0
SS5		1.5	22	3.8
SS6		1.7	7	4.9
SS7		1.5	7	5.8
SS8		2.0	56	5.1
SS9		1.3	37	4.6
SS10		1.5	25	5.4
SS11		1.5	10	6.9
SS12		1.3	19	4.3
SS13		2.0	45	3.9
SS14		1.5	20	0
SS15		1.0	19	3.4
SS16		1.5	58	5.4
SS17		1.0	>50	3.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-002
DATE COMPLETED: December 4, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			2"Ø PVC SCREEN	SS18		1.0	9	3.1
38			SAND PACK	SS19		1.0	8	2.8
40			8.5"Ø BOREHOLE	SS20		1.5	33	0.4
42	END OF BOREHOLE @ 41.0ft BGS Ground surface elevation is estimated.	-29.40	WELL DETAILS Screened interval: 1.60 to -28.40ft NGVD 10.00 to 40.00ft BGS Length: 30ft Diameter: 2in Slot Size: 10 Material: PVC					
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-003
DATE COMPLETED: December 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -283.23 EASTING: 753.68 GROUND SURFACE	11.60					
	Not Sampled.		CONCRETE; 2"Ø PVC RISER; BENTONITE; 2"Ø PVC SCREEN; SAND PACK; 8.5"Ø BOREHOLE				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-003
DATE COMPLETED: December 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36							
38							
40							
42	END OF BOREHOLE @ 41.0ft BGS Ground surface elevation is estimated.	-29.40	2"Ø PVC SCREEN SAND PACK 8.5"Ø BOREHOLE WELL DETAILS Screened interval: 1.60 to -28.40ft NGVD 10.00 to 40.00ft BGS Length: 30ft Diameter: 2in Slot Size: 10 Material: PVC				
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-004
DATE COMPLETED: December 5, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

NORTHING: -295.82
EASTING: 762.68

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.60					
	ASPHALT	10.60					
2	No Recovery. Pushed large gravel.		SS1		0.0	15	
		8.60					
4	SP-SAND, trace silt, trace fine gravel, loose, fine grained sand, trace medium to coarse grained sand, poorly graded, dark brown, moist		SS2		1.0	6	0.6
6			SS3		1.0	6	3.1
	- saturated below 6.8 ft BGS	4.60					
8	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, poorly graded, dark brown to black, trace red and white sand grains, saturated		SS4		1.5	10	3.4
10		1.40	SS5		1.5	30	3.6
12	SM-SAND with SILT, compact, fine grained sand, poorly graded, dark gray, saturated		SS6		1.5	12	0.6
		-1.90					
14	SM/ML-SAND and SILT, compact, fine grained sand, non-plastic, gray, very moist to saturated	-2.60	SS7		1.7	19	0.2
16	ML-SILT, trace fine grained sand, trace clay, trace wood, compact/firm, non-plastic, gray, moist	-3.90	SS8		1.0	17	0
18	SM/ML-SILTY SAND and SILT, alternating thin beds, compact, fine grained sand, dark gray to gray, very moist	-5.40	SS9		1.0	19	0.1
	SM-SAND with SILT, compact, fine grained sand, poorly graded, dark gray, saturated	-7.40					
20	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, poorly graded, dark brown to black, trace red and white sand grains, saturated		SS10		1.0	30	0.4
22	- more silt below 21.5 ft BGS		SS11		1.5	20	0.3
24			SS12		1.5	17	0.4
26	ML-SILT, trace fine sand, trace clay, dense/very stiff, non-plastic, gray, moist	-14.20	SS13		1.8	25	0.2
		-15.90					
28	SM/ML-SAND and SILT, trace shell fragments, dense, fine grained sand, non-plastic, gray, very moist		SS14		1.5	35	0.3
30			SS15		1.5	26	0.3
32	- 3" silt seam @ 32.3 ft BGS		SS16		1.7	32	0.2
		-21.40					
34	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, poorly graded, dark brown to black, trace red and white sand grains,		SS17		1.5	19	0.3

MONITORING WELL: CONCRETE; 2"Ø PVC RISER; BENTONITE; 2"Ø PVC SCREEN; SAND PACK; 8.5"Ø BOREHOLE; ▽ WATER FOUND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-004
DATE COMPLETED: December 5, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	saturated - more silt below 36 ft BGS		2"Ø PVC SCREEN	SS18		1.5	34	0.2
38			SAND PACK	SS19		1.5	30	0.1
40			8.5"Ø BOREHOLE	SS20		1.5	28	0.1
42	END OF BOREHOLE @ 41.0ft BGS Ground surface elevation is estimated.	-29.40	WELL DETAILS Screened interval: 1.60 to -28.40ft NGVD 10.00 to 40.00ft BGS Length: 30ft Diameter: 2in Slot Size: 10 Material: PVC					
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-005L
DATE COMPLETED: January 22, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

NORTHING: -295.82
EASTING: 764.18

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.60
	ASPHALT	
		10.60
2	SP-SAND, trace silt, trace gravel, loose to compact, medium to coarse grained, subangular to subrounded fine grained gravel, massive, dark brown, moist	
4		
6		
	- moist to wet below 7 ft BGS	
8	- loose, saturated below 8 ft BGS	
	- occasional medium gravel below 8.5 ft BGS	
	- layer of shells between 9.5 and 9.6 ft BGS	
10		
	- increasing silt content, fine to medium grained sand, wet to saturated below 11 ft BGS	
12		
		-0.90
	SM/SP-SAND with silt, loose to compact, fine to medium grained sand, occasional subangular coarse grained sand, poorly graded, dark brown, wet to saturated	
14		
		-3.70
16	ML/SM-SILT and SAND, hard/compact, low plasticity, well graded, stratified, gray, moist	
	- layer of wood debris @ 16.6 ft BGS	-4.90
18	SM-SAND with silt, with clay, dense, fine to medium grained sand, well graded, stratified, gray, moist, occasional layer of wood debris and occasional layer of shell fragments, silt fraction is denoted as silty	
	- layer of wood debris @ 17 ft BGS	
	- layer of wood debris @ 17.3 ft BGS	
	- layer of wood debris @ 18 ft BGS	
		-8.10
	SM/SP-SAND, loose to compact, fine to medium	

MONITORING WELL: CONCRETE SURFACE SEAL; 0.625"Ø PVC RISER; 3"Ø BOREHOLE; BENTONITE GROUT

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
DP1		4.0	
DP2		4.0	
DP3		4.0	
DP4		4.0	
DP5		4.0	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-005L
DATE COMPLETED: January 22, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	grained, poorly graded, grayish dark brown, saturated						
22				DP6		4.0	
24	SM-SAND with silt, with clay, dense, fine to medium grained sand, well graded, stratified, gray, moist, silt fraction is denoted as silty	-12.20					
	SM/SP-SAND, loose, fine to medium grained, poorly graded, grayish dark brown, wet to saturated	-13.40					
26	ML-SILT, with clay, with sand, hard, fine grained sand, low plasticity, some stratification, gray, moist	-14.10	SAND PACK 2"Ø PVC SCREEN	DP7		4.0	
	- sandy below 27.5 ft BGS						
28	ML/SM-SILT and SAND, trace clay, hard/dense, fine to medium grained sand, low plasticity, well graded, massive, occasional stratification, moist - mixed layer of wood and shell debris between 28 and 28.4 ft BGS	-16.20	BENTONITE GROUT AND NATURAL COLLAPSE	DP8		2.2	
30	SP-SAND, trace silt, compact, fine to medium grained, massive, dark brown, wet	-18.30					
	END OF BOREHOLE @ 30.5ft BGS	-18.90					
	Ground surface elevation is estimated.						
32							
34							
36							
38							

WELL DETAILS
Screened interval:
-14.90 to -15.90ft NGVD
26.50 to 27.50ft BGS
Length: 1ft
Diameter: 0.6in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-GP1
DATE COMPLETED: February 1, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -295.82 EASTING: 754.68 GROUND SURFACE	11.60				
	ASPHALT					
	FILL-SAND, trace silt, trace gravel, dense, medium grained, well graded, grayish brown, dry	11.10				
2			DP1		1.5	
	SP-SAND, trace silt, trace gravel, compact, fine to medium grained, subangular gravel, poorly graded, grayish brown	8.60				
4						
6			DP2		1.5	
	- moist to wet, wood debris below 7.5 ft BGS					
8	- non aqueous free phase liquid, strong petroleum hydrocarbon odor below 8 ft BGS		DP3		2.0	
10	- fine to medium grained sand, strong petroleum hydrocarbon odor below 10 ft BGS		DP4		2.0	
12						
			DP5		3.0	
14						
	ML-SILT, with clay, with sand, loose, slightly cohesive, low plasticity, stratified, gray	-3.90				
16		-4.90				
	SM-SILTY SAND, trace shells, dense, fine to medium grained, well graded, stratified, gray, moist, occasional layer of vegetative material		DP6		4.0	
18						
	- laminae of vegetative material below 19.5 ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS1-GP1
DATE COMPLETED: February 1, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
22	SM/SP-SAND, with silt, loose, fine to medium grained sand, poorly graded, massive, greenish gray, wet to saturated	-8.40	DP7		2.0	
			DP8		2.5	
24	ML-SILT, trace clay, trace sand, very stiff/dense, fine grained sand, no plasticity, brown and gray, moist	-12.40				
26			DP9			
28						
	END OF BOREHOLE @ 29.0ft BGS	-17.40				
30	Ground surface elevation is estimated.					
32						
34						
36						
38						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-001
DATE COMPLETED: March 9, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

NORTHING: -210.65
EASTING: 590.56
GROUND SURFACE ELEV. ft NGVD: 11.14
TOP OF RISER ELEV. ft NGVD: 10.35

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
0	ASPHALT-FILL	10.94	CONCRETE					
	Not Sampled							
2								
			2"Ø PVC RISER					
4								
6			BENTONITE					
8								
10			8.0"Ø BOREHOLE					
12								
14								
16			BENTONITE					
18	SP-SAND, trace silt, trace gravel, trace shells, fine to medium grained, loose, poorly graded, dark gray-brown (with red and white grains), wet. pH~11 to 12.	-6.36		SS1		2.0	2	0
	ML-SANDY SILT layer, trace shells, trace vegetation (light brown, wood-like), soft to firm, dark gray-brown, moist to wet (approximately 4	-7.36 -7.76 -8.36	SAND PACK					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-001
DATE COMPLETED: March 9, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	inches thick)							
	SP-SAND, trace silt, trace gravel, trace shells, fine to medium grained, loose, poorly graded, dark gray-brown (with red and white grains), wet			SS2		2.0	3	0
22	SW-SAND, trace shells, fine to coarse grained, loose, dark gray-black (with red and white grains), wet		SAND PACK					
	- trace gravel, trace silt below 21.5 ft BGS			SS3		2.0	19	0
	- compact below 23.5 ft BGS. pH~11 between 23.5 and 25.5 ft BGS							
24			2"Ø PVC SCREEN					
	ML-SILT, with sand, trace shells, fine grained, very stiff, dark gray, moist	-13.26		SS4		2.0	15	0
	SW-SAND, trace silt, trace shells, fine to coarse grained, compact, dark gray, wet	-14.36						
26				SS5		2.0	15	0
	ML-SILT and sand, trace shells, fine grained, very stiff, dark gray, moist	-15.56	TAILPIPE					
	END OF BOREHOLE @ 27.5ft BGS	-16.36						
28	pH samples taken from pH strips.							
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-9.86 to -14.86ft NGVD
21.00 to 26.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-002
DATE COMPLETED: March 8, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

NORTHING: -207.65
EASTING: 590.56

GROUND SURFACE: 11.19 ft NGVD
TOP OF RISER: 10.86 ft NGVD

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
0	ASPHALT-FILL	10.99	CONCRETE					
	Not Sampled							
2								
			2"Ø PVC RISER					
4								
6			BENTONITE					
8								
10			8.0"Ø BOREHOLE					
12								
14								
16			BENTONITE					
18	SW-SAND, trace silt, trace shells, fine to coarse grained, compact, dark gray-brown (with black, red, and white grains), wet	-6.81	SAND PACK	SS1		2.0	16	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/13/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-002
DATE COMPLETED: March 8, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22			SAND PACK	SS2			15	0
24	- pH~12 between 24.0 and 26.0 ft BGS		2"Ø PVC SCREEN	SS3			18	0
		-14.31		SS4		2.0	15	0
26	ML-SILT and sand, trace shells, very stiff, dark gray-brown, moist	-14.81						
	Not Sampled		2"Ø PVC SUMP					
	END OF BOREHOLE @ 27.5ft BGS	-16.31						
28	pH samples taken from pH strips.							
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-9.81 to -14.81ft NGVD
21.00 to 26.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-003
DATE COMPLETED: March 8, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

NORTHING: -204.65
EASTING: 590.56

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.25						
	TOP OF RISER	10.83						
	ASPHALT-FILL	11.05	CONCRETE					
	FILL, No Sample Collected							
	FILL, gravel and sand, fine to coarse grained, compact, well graded, brown, moist	10.25						
2				SS1		1.0	10	0
	- with concrete fragments, dry between 3.3 and 3.6 ft BGS		2"Ø PVC RISER					
4	- with concrete fragments, dry between 4.1 and 4.4 ft BGS	6.85		SS2		1.8	76	0
	SP-SAND, with gravel, fine to medium grained, compact, brown, moist							
6	- trace gravel, trace silt, trace shells, fine grained, dense, gray-brown, wet to moist below 5.0 ft BGS. pH~11 to 12 between 5.0 and 7.0 ft BGS			SS3		1.3	38	0
		4.25	BENTONITE					
	SM-SILTY SAND, trace shells, trace vegetation (small wood fragments, light brown), fine grained, compact, dark gray, wet. pH~12.							
8				SS4		1.8	17	
	- fine to medium grained, gray-brown below 9.0 ft BGS							
10			8.0"Ø BOREHOLE	SS5		2.0	14	0
12				SS6		2.0	14	0
		-2.65						
14	ML-SILT with sand, fine grained, trace wood fragments (black), stiff, dark gray-brown, wet. pH~12 to 13.	-3.25		SS7		2.0	14	0
	SM-SILTY SAND, fine grained, compact, dark gray-brown, wet							
16		-4.85		SS8		2.0	18	0
	ML-SILT with sand, trace shells, fine grained, stiff, dark gray-brown, wet	-5.15						
	SM-SILTY SAND, trace shells, trace wood fragments (red-black) fine grained, compact to dense, dark gray-brown, wet		BENTONITE					
		-6.25						
18	SW-SAND, trace silt, trace shells, fine to medium grained, compact, well graded, dark gray-black (red and white grains), wet. pH~12 to 13.			SS9		2.0	18	0
			SAND PACK					
	- trace fibers (vegetation-light brown) fine to coarse sand, color includes yellow grains below							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-003
DATE COMPLETED: March 8, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	19.5 ft BGS			SS10		2.0	12	0
	ML-SILT, stiff, dark gray-brown, moist	-9.75						
22	SW-SAND, trace gravel, fine to coarse grained, compact, well graded, dark gray-black (red and white grains), wet. pH~12 to 13.	-10.25	SAND PACK	SS11		2.0	17	0
	ML-SILT, trace shells, very stiff, dark gray-brown, moist	-11.85						
24	SP-SAND, trace silt, fine to medium grained, compact, poorly graded, dark gray-brown (black, red, and white grains), wet	-12.25	2"Ø PVC SCREEN	SS12		2.0	21	0
	ML-SILT, trace shells, hard, dark gray-brown, moist	-13.65						
26	SP-SAND, with silt, trace wood pieces, fine to medium grained, compact, dark gray-black (black, red, and white grains), wet	-14.25		SS13		2.0	23	0
	ML-SILT, trace shells, hard, dark gray-brown, moist	-15.75	2"Ø PVC SUMP					
28	END OF BOREHOLE @ 27.5ft BGS	-16.25						
	pH samples taken from pH strips.							
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-9.75 to -14.75ft NGVD
21.00 to 26.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-005
DATE COMPLETED: March 7, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

NORTHING: -220.65
EASTING: 590.56

GROUND SURFACE: 10.93
TOP OF RISER: 10.36

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	ASPHALT-FILL	
	FILL, gravel and sand, fine to coarse grained, loose, well graded, brown, moist	9.93
2	- with cobbles, compact below 2.5 ft BGS	
4	SP-SAND, trace silt, trace shells, fine grained, compact, poorly graded, brown, moist	6.93
	SM-SILTY SAND, trace gravel, fine grained, soft, poorly graded, dark gray-brown, wet. pH~11 to 12.	5.43
6	- trace shells, soft to firm below 7.0 ft BGS. pH~12 to 13 between 7.0 and 8.5 ft BGS.	
8	SP-SAND, trace silt, trace shells, fine to medium grained, compact, dark gray-brown with red and white grains, wet. pH~12 to 13.	2.43
10	SM-SAND, with silt, trace shells, fine to medium grained, compact, poorly graded, dark gray-brown with red and white grains, wet	0.93
	- silt layer with black wood fragments, 1.5 inches thick below 11.1 ft BGS	
12	- trace plant/wood fibers below 11.5 ft BGS. pH~12 to 13 between 11.5 and 13.0 ft BGS	
	- pH~13 between 13.0 and 14.5 ft BGS	
14	- silt layer with shell fragments, 2 inches thick below 14.1 ft BGS	
	- compact to dense, slight raw odor below 14.5 ft BGS. pH~13 between 14.5 and 16.0 ft BGS	
16	- increased silt content, fine grained, loose to compact below 16.0 ft BGS	
	- fine to medium grained, dense, moist, wood fragments have increased in size below 16.5 ft BGS	-6.57
18	SW-SAND, trace silt, trace shells, fine to coarse grained, compact, well graded, dark gray-brown, wet. pH~12.	
	- loose to compact, dark gray-brown with red, white, and clear grains below 19.0 ft BGS	

MONITORING WELL: CONCRETE; 2"Ø PVC RISER; BENTONITE; 8.0"Ø BOREHOLE; BENTONITE; SAND PACK

SAMPLE NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
SS1		0.8	6	0
SS2		0.2	>100	0
SS3		1.4	17	0
SS4		1.3	4	0
SS5		1.3	25	0
SS6		1.2	21	0
SS7		1.5	15	0
SS8		1.5	12	0
SS9		1.5	9	0
SS10		1.5	24	0.3
SS11		1.5	32	4.7
SS12			14	1.3
SS13		1.5	10	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-005
DATE COMPLETED: March 7, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22	- trace gravel, compact below 20.5 ft BGS. pH~10 to 12 between 20.5 and 22.0 ft BGS		SAND PACK	SS14			21	0
24	- pH~13 between 23.5 and 24.7 ft BGS		2"Ø PVC SCREEN	SS15			27	0
	ML-SILT, trace sand, trace shells, fine grained, gray, very stiff, moist	-13.77		SS16			27	0
26	SM-SILTY SAND, fine grained, compact to dense, poorly graded, dark gray-brown, moist	-14.07		SS17			22	0
		-15.57	2"Ø PVC SUMP					
28	END OF BOREHOLE @ 27.5ft BGS pH samples taken from pH strips.							
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-10.07 to -15.07ft NGVD
21.00 to 26.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-006
DATE COMPLETED: March 9, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

NORTHING: -214.65
EASTING: 583.56
GROUND SURFACE: 10.90
TOP OF RISER: 10.47

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
0	ASPHALT-FILL	10.70	CONCRETE					
	FILL, sand and gravel, with cobbles, brown, moist. Vacuumed with vacuum truck. No split spoon sample collected.							
2								
	- concrete between 3.5 ft BGS and 4.5 ft BGS. No split spoon sample collected.		2"Ø PVC RISER					
4								
	- trace silt, compact, black, yellow, and white grains, wet below 5.0 ft BGS							
6	SP-SAND, trace silt, trace shells, trace wood fragments (black) fine grained, compact, poorly graded, wet	4.90	BENTONITE	SS1		2.0	12	0
	- layer of fine sand and wood fragments below 6.7 ft BGS	3.40						
8	SM-SILTY SAND, trace shells, fine grained, loose to compact, gray, wet. pH=12 to 13.			SS2		2.0	23	0
	- compact, dark gray-brown below 9.5 ft BGS		8.0"Ø BOREHOLE					
10				SS3		2.0	20	0
12				SS4		2.0	15	0
	- silt layer with wood fragments, approximately 3 inches thick @ 13.2 ft BGS							
14	- with silt below 13.5 ft BGS			SS5		2.0	27	0
	- silty sand below 15.8 ft BGS							
16				SS6		2.0	25	0
	- silt layer with trace sand, trace wood, brown-black, approximately 1 inch thick @ 16.8 ft BGS		BENTONITE					
18	- trace wood fragments, fine to medium grained sand, dense, poorly graded, moist below 16.8 ft BGS							
	- trace gravel, compact below 17.5 ft BGS	-7.60	SAND PACK	SS7		2.0	16	0
	SW-SAND, trace silt, fine to coarse grained, compact, well graded, dark gray-black (with red and white grains), wet							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-006
DATE COMPLETED: March 9, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22	- with silt below 19.5 ft BGS - trace shells below 21.5 ft BGS		SAND PACK	SS8		2.0	18	0
	ML-SILT, trace shells, dark gray-brown, stiff, moist	-11.60		SS9		2.0	12	
24	SM-SILTY SAND, trace shells, fine grained, very stiff, poorly graded, dark gray-brown, moist	-12.60	2"Ø PVC SCREEN	SS10		2.0	17	
26	- trace wood fragments, stiff, moist to wet below 25.5 ft BGS			SS11			13	
	- with silt below 27.0 ft BGS		2"Ø PVC SUMP					
28	END OF BOREHOLE @ 27.5ft BGS pH samples taken from pH strips.	-16.60						
30								
32								
34								
36								
38								

WELL DETAILS
Screened interval:
-10.10 to -15.10ft NGVD
21.00 to 26.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/13/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-GP1
DATE COMPLETED: March 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

NORTHING: -217.5
EASTING: 590.56

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.05					
	ASPHALT	10.75					
	FILL, gravel with sand, brown, dry - and sand, trace silt, fine grained gravel, medium to coarse grained sand, subangular to subrounded, well graded, light brown, moist below 0.5 ft BGS		DP1		4.0		0
2							
4	- with sand, very hard, massive, gray, dry below 3.8 ft BGS						
	SP-SAND, with gravel, compact, medium grained sand, fine grained gravel, massive, poorly graded, dark brown, moist, grading to fine to medium grained sand with increasing depth	6.75					
	- fine to medium grained sand below 5 ft BGS	5.75					
	SM-SAND, with silt, trace wood fragments, compact, fine grained sand, poorly graded, light gray with orange, moist to wet	5.45	DP2		4.0		0
6	SP-SAND, with gravel, compact, medium grained sand, fine grained gravel, massive, poorly graded, dark brown, moist, grading to fine to medium grained sand						
	- wet below 6.0 ft BGS	3.85					
	SM/ML-SILTY SAND trace clay, trace shells, trace wood fragments, compact, fine to medium grained sand, poorly graded, dark brown-gray, moist, some bedding	3.05					
8	SP-SAND, trace silt, compact, fine to medium grained sand, massive, moderately to poorly graded, dark brown, saturated						
10			DP3		4.0		
	SM-SAND, with silt, trace clay, compact to dense, fine to medium grained sand, poorly graded, massive, dark brown-gray, dry to moist, odor moderate	-0.05					
12	- wet, trace gravel below 12.0 ft BGS						
14	ML-SILT, with clay, trace sand, trace wood fragments, moist to wet, contains sand lense	-2.95	DP4		4.0		
	SM-SAND, with silt, trace clay, compact to dense, fine to medium grained sand, poorly graded, massive, dark gray, dry to moist, odor moderate	-3.35					
16	- and silt, trace clay, trace gravel, trace wood fragments, compact, hard, dark gray, moist to wet, some bedding below 16.0 ft BGS						
	SP/SW-SAND, trace silt, compact, fine to medium grained sand with trace coarse grained sand, massive, dark gray, moist to wet	-6.45	DP5		3.0		
18	- saturated below 19.0 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS2-GP1
DATE COMPLETED: March 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Lotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
			DP6		3.0		
	ML-SILT, with clay, trace sand, stiff, fine grained sand, slightly to moderately plastic, massive, moist to wet, gray, contains clay layers	-9.75					
22							
	SM/ML-SILT and SAND, moist	-11.95	DP7		3.0		
24							
	SM-SAND, with silt, trace shells, compact, fine to medium grained sand, massive, dark brown-gray, wet	-13.95					
26			DP8		3.0		
28							
	SP-SAND, loose to compact, fine to medium grained sand, poorly graded, brown, saturated	-16.95					
			DP9		3.0		
30							
32			DP10		3.0		
	- trace wood fragments below 33.5 ft BGS	-22.55					
34	ML/SM-SANDY SILT, trace clay, compact, slightly plastic, gray, moist	-22.95					
	END OF BOREHOLE @ 34.0ft BGS						
	Ground surface elevation is estimated.						
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP1A
DATE COMPLETED: July 5, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Not Sampled						
18	SM-SAND and SILT, trace shells, trace black wood fragments, compact, fine to medium grained, poorly graded, gray, wet	-6.40					
20			DP1				0.0
22	SW-SAND, with silt, trace shells, trace gravel, loose, fine to coarse grained sand, fine to medium grained gravel, well graded, gray, wet	-10.40					
24			DP2				0.0
	ML-SILT, trace sand, trace shells, very stiff, homogeneous, gray, moist (layer)	-13.50					
26	SM-SAND and SILT, loose, fine to medium grained, gray, wet	-13.90 / -14.40					
	END OF BOREHOLE @ 26.0ft BGS						
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP2A
DATE COMPLETED: July 5, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, sand with gravel, compact, fine to coarse sand, fine to medium rounded gravel, brown, moist						
4							
6	- gravel, sand, and silt, compact, fine to coarse grained below 5.2 ft BGS - increasing gravel content below 5.8 ft BGS - concrete fragments, pinkish-white, dry below 6.5 ft BGS		DP1				4.8
8	- sand with gravel, fine to coarse grained sand, fine to medium grained gravel (angular), dark gray-brown below 7.0 ft BGS						
	- brick layer below 9.1 ft BGS	2.20					
10	SM-SAND, SILT, and GRAVEL, brown, wet	2.00	DP2				0.1
	SW-SAND, trace silt, trace shells, trace wood fragments, trace gravel, loose, fine to coarse grained sand, dark brown-gray/black with white and red grains, yellow-brown wood fragments, wet	0.20					
12	SP-SILTY SAND, compact, fine grained, poorly graded, gray, moist to wet - trace black wood, trace shells, compact to loose, fine to medium grained below 12 ft BGS	-1.90					
14	ML-SILT, trace sand, firm, fine grained, gray, moist	-2.60	DP3				0.1
	SP-SILTY SAND, trace black wood fragments, trace shells, compact to loose, fine grained, gray, wet						
16	- fine to medium grained sand below 14.9 ft BGS - two rounded, hardened pieces consisting of silt, sand, and shell fragments (hard, similar to fine grained gravel) below 16 ft BGS						
	SM-SAND and SILT, trace shells, trace gravel, loose, fine to coarse grained, well graded, gray, wet	-5.90					
18			DP4				0.0
20							
22			DP5				0.0
24							
	ML-SILT, trace sand, trace shells, stiff to hard, fine grained, homogeneous, gray, moist	-13.50					
26			DP6				0.0
	END OF BOREHOLE @ 27.0ft BGS	-15.40					
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP2A-1
DATE COMPLETED: June 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, gravelly sand, loose, fine to coarse gravel, well graded sand, brown, moist		DP1		2.0		0.0
4							
6	- cobble below 5 ft BGS - concrete fragments below 5.2 ft BGS - sand with gravel, trace brick fragments, moist to wet below 5.9 ft BGS		DP2		2.0		0.0
8							
10	- sand, trace shells, trace brick fragments, trace silt, trace gravel, loose, medium to coarse grained, black with red and white grains, wet below 9 ft BGS		DP3		2.0		0.0
12	- ~4" piece of wood, dark brown, wet below 11.6 ft BGS						
	SP-SAND, trace silt, loose to compact, fine to medium grained, dark gray with red and white grains, wet, increasing silt content with depth	-0.40					
14	SM-SILTY SAND, loose to compact, fine grained, dark gray, wet	-1.70	DP4		2.0		0.0
16							
	ML-SILT, trace sand, firm, fine grained sand, gray, moist to wet	-5.50					
18	SM-SAND and SILT, with reddish-black wood fragments, trace shell fragments, soft to firm, fine to medium grained, gray, wet	-6.20	DP5				
20	- trace wood fragments below 20 ft BGS - with silt below 20.8 ft BGS						0.0
22			DP6				
24							
26	ML-SILT, trace sand, trace shell fragments, stiff to very stiff, fine grained sand, homogeneous, gray, moist to wet	-14.30	DP7				0.0
28	- hard below 27.9 ft BGS	-16.40					
	END OF BOREHOLE @ 28.0ft BGS						
30	Ground surface elevation is estimated. Refusal at 28 ft BGS.						
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP3A
DATE COMPLETED: June 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, sand, with gravel, loose, well graded, brown, moist		DP1		1.5		7.6
4							
6	- 6" thick concrete fragments below 6 ft BGS - trace brick, fine to medium grained, dark brown below 6.5 ft BGS		DP2		2.0		1.7
8							
10	SW-SAND, trace silt, trace shells, loose to compact, fine to coarse grained, dark gray-brown, dark gray with red and white grains, wet	1.60	DP3		0.6		1.2
12							
14	SP-SAND, with silt, trace shells, loose to compact, fine to medium grained, dark gray-brown with red and white grains, wet	-1.40	DP4		2.0		0.0
16	SM-SAND and SILT, trace shells, trace wood, soft, fine grained, homogeneous, dark gray-brown, wet	-4.40					
18	ML-SILT, trace sand, firm, fine grained sand, homogeneous, gray, wet	-6.30	DP5		2.0		0.5
	SM-SAND and SILT, with black wood fragments, firm, fine to medium grained, moist to wet	-6.80					
20	- with silt, trace wood fragments, soft to firm, fine to coarse sand, dark gray-brown, wet below 20 ft BGS						
22			DP6				0.0
24							
26	ML-SILT, trace fine sand, trace shell fragments, stiff to very stiff, homogeneous, gray, moist	-14.40	DP7				0.0
28	- hard below 27.9 ft BGS	-16.40					
	END OF BOREHOLE @ 28.0ft BGS						
30	Ground surface elevation is estimated. Refusal at 28 ft BGS.						
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP3A-1
DATE COMPLETED: June 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, gravelly sand, loose, fine to coarse gravel, well graded sand, brown, moist		DP1				0.0
4	- gravel and sand, trace brick, compact, gray-brown, moist below 4 ft BGS						
6	- 6" thick concrete fragments below 5.7 ft BGS - sand with gravel, trace brick fragments, trace wood fragments, brown-black, moist below 6.2 ft BGS		DP2				0.0
8			DP3				
10	- brick below 9.6 ft BGS						
	END OF BOREHOLE @ 10.0ft BGS	1.60					
12	Ground surface elevation is estimated. Refusal at 10 ft BGS.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP4A
DATE COMPLETED: July 5, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand, with gravel, loose to compact, fine to coarse grained sand, fine to medium grained gravel (rounded), brown, moist						
2							
4							
6	- <1" thick concrete fragments below 5.6 ft BGS	6.00	DP1				0.0
	GW-GRAVEL, SAND, and SILT, compact, fine to coarse grained gravel (angular), gray-brown, moist	5.10					
8	SW-SAND, with gravel, with silt, trace shells, fine to coarse grained (mostly fine grained), gray-brown, moist - trace gravel, trace silt, loose, dark gray-brown, gray-black sand with red and white grains below 8.2 ft BGS						
10			DP2				0.0
12	- 8" layer of silty fine sand (SM), trace shells, loose to compact, gray from 12.1 to 12.9 ft BGS						
14			DP3				0.0
16	SM-SILTY SAND, trace shells, loose to compact, fine grained, gray, wet	-4.40					
		-5.80					
18	ML-SILT, trace sand, trace shells, firm, fine grained, homogeneous, gray, moist (layer)	-6.30	DP4				0.0
20	SM-SAND and SILT, trace shells, trace black wood fragments, trace gravel, loose to compact, fine to coarse grained, well graded, angular gravel, gray, wet						
22	SW-SAND with silt, trace gravel, loose, fine grained gravel, well-graded, dark gray with red and white grains, wet	-9.40	DP5				0.0
24	END OF BOREHOLE @ 24.0ft BGS	-12.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS3-GP5A
DATE COMPLETED: June 29, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: I. Leclere-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 12 EASTING: 0 GROUND SURFACE	11.60					
0	FILL, sand, with gravel, loose, well graded, brown, moist						
2			DP1		2.0		6.7
4							
6	GW-GRAVEL, with sand, with silt, with cobbles, compact to dense, coarse grained gravel, brown, gray	6.60					
	SP-SAND, trace silt, trace gravel, trace shells, fine to medium grained (mostly fine), dark brown, moist	5.50	DP2		2.0		0.7
8							
	SW-SAND, trace silt, trace shells, fine to coarse grained, dark gray-brown, moist to wet	3.30					
10			DP3		2.0		0.2
12							
	SP-SAND, with silt, trace shells, fine grained, dark gray-brown	-0.90					
14			DP4		2.0		0.1
16							
18	ML-SILT, trace sand, stiff, fine grained sand, homogeneous, gray, moist (this layer is likely to act an aquitard - soil above was very wet to saturated)	-6.30 -6.90	DP5				0.1
20	SM-SAND and SILT, trace black wood fragments, trace shells, trace gravel, firm, fine to medium grained, gray-brown, moist to wet - very wet below 20 ft BGS						
22							
	ML-SILT, very stiff, homogeneous, gray, moist	-12.00 -12.40					
24	END OF BOREHOLE @ 24.0ft BGS						
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-001
DATE COMPLETED: February 6, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -210.65 EASTING: 590.56 GROUND SURFACE	11.60	3 FOOT STICK UP				
	OVERBURDEN (Not Sampled)		2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8.25"Ø BOREHOLE				

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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-001
DATE COMPLETED: February 6, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
22							
24							
26							
28							
30							
32							
34							
36							
38							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-001
DATE COMPLETED: February 6, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
42							
44							
46			BENTONITE CHIPS				
48	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-35.90		SS1			22
50				SS2			
52			2"Ø PVC SCREEN	SS3			39
54			2"Ø PVC SUMP	SS4			
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-43.10		SS5			25
56	END OF BOREHOLE @ 55.0ft BGS Ground surface elevation is estimated.	-43.40					
58							

WELL DETAILS
Screened interval:
-38.40 to -41.40ft NGVD
50.00 to 53.00ft BGS
Length: 3ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-002
DATE COMPLETED: February 5, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -207.65 EASTING: 590.56 GROUND SURFACE	11.60	3 FOOT STICK UP				
	0-20' BGS - See Log from PS4-GP2A for Stratigraphy		2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8.25"Ø BOREHOLE				

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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-002
DATE COMPLETED: February 5, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, saturated	-8.40					
	CL-SILTY CLAY, firm, low plasticity, gray, moist	-8.90		SS1			7
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-9.40					
22				SS2			7
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-11.40					
24				SS3			11
	ML-SILT, trace clay and fine sand, compact, non-plastic, gray, moist	-13.40					
26				SS4			24
				SS5			19
28				SS6			29
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-17.40					
30				SS7			80
	ML-SILT, trace clay and fine sand, compact, non-plastic, gray, moist	-18.40					
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-18.90		SS8			>50
32							
	ML-SILT, with sand, compact, non-plastic, gray, saturated	-20.40		SS9			76
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-21.90		SS10			24
34							
36				SS11			27
				SS12			49
38							
				SS13			55

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-002
DATE COMPLETED: February 5, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
42				SS14		0.0	
				SS15			12
44	- with silt below 43.5 ft BGS			SS16			15
	- trace silt below 45.5 ft BGS						
46			BENTONITE CHIPS	SS17			27
	- dense below 47 ft BGS			SS18			60
48				SS19			47
50				SS20			44
			2"Ø PVC SCREEN				
52				SS21			60
				SS22			31
54			2"Ø PVC SUMP				
				SS23			38
56	END OF BOREHOLE @ 56.0ft BGS	-44.40					
	Ground surface elevation is estimated.		WELL DETAILS Screened interval: -38.90 to -41.90ft NGVD 50.50 to 53.50ft BGS Length: 3ft Diameter: 2in Slot Size: 10 Material: PVC				
58							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-003
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: -214.65 EASTING: 590.56 GROUND SURFACE	11.60	3 FOOT STICK UP					
	See stratigraphy for PS4-GP3A		2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8.25"Ø BOREHOLE					

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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-003
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
22								
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-10.90						
		-11.40		SS1			24	0
	SM-SAND, with silt, compact, fine grained, poorly graded, dark gray, saturated	-12.00						
		-12.20						
24	ML-SILT, with sand, compact, fine grained, medium gray, moist	-12.40						
				SS2			24	0
	SM-SAND, with silt, compact, fine grained, poorly graded, dark gray, saturated	-13.40						
		-13.70						
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-14.10						
26	ML-SILT, with sand, with woody debris, compact, fine grained, medium gray, moist	-14.60		SS3			26	0
	ML/SM-SILT and SAND, compact, fine grained, dark gray, moist to very moist	-15.40						
	ML-SILT, with clay, with sand, compact, fine grained, non-plastic, dark gray, moist			SS4			26	
28	SM/SC-SAND with silt, with clay, compact, fine grained, poorly graded, non-plastic, gray, moist	-16.50						
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated			SS5			21	0
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated							
30	- 3" silty sand layer (SM) @ 29.7 ft BGS	-18.70						
	SM-SILTY SAND, with shell fragments, compact, fine grained, poorly graded, dark gray, saturated	-19.30		SS6			29	0
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-20.20						
32	SM-SILTY SAND, with shell fragments, compact, fine grained, poorly graded, dark gray, saturated	-20.80		SS7			35	0
	ML-SILT, with sand, compact, fine grained, medium gray, moist	-21.30						
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated			SS8			12	
34								
				SS9			18	
	- trace shell fragments below 35.6 ft BGS							
36				SS10			25	
38				SS11			46	
				SS12			40	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

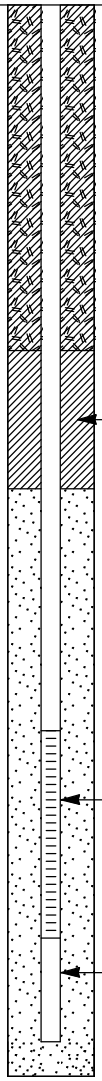
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-003
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
42	- 3" trace silt @ 42.1 ft BGS	
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated	-32.10
44	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-32.50
46	- trace shell fragments below 46.7 ft BGS	
48		
50	- trace shell fragments below 50.1 ft BGS	
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated	-39.20
52		
54	ML-SILT, with clay, with fine sand, very soft, moderate plasticity, dark gray/brown, saturated	-42.30
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated	-42.90
56	END OF BOREHOLE @ 55.5ft BGS	-43.90
	Ground surface elevation is estimated.	
58		

MONITORING WELL



WELL DETAILS
Screened interval:
-38.90 to -41.90ft NGVD
50.50 to 53.50ft BGS
Length: 3ft
Diameter: 2in
Slot Size: 10
Material: PVC

SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
SS13			34	
SS14			45	
SS15			49	
SS16			40	
SS17			16	
SS18			30	
SS19			19	
SS20			17	
SS21			47	
SS22			59	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-004
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -220.65 EASTING: 590.56 GROUND SURFACE	11.60	3 FOOT STICK UP				
	See stratigraphy for PS4-GP4A		2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8.25"Ø BOREHOLE				

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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-004
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
22							
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, saturated	-10.90		SS1			26
	- with fine gravel-sized red brick debris below 23.3 ft BGS	-11.90					
24	ML-SILT, with sand, compact, fine grained, non-plastic, light gray, moist, musty, damp odor	-12.40					
	- 1" sand seam (SP) @ 23.8 ft BGS						
	Not Sampled						
26							
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, saturated	-15.90		SS2			19
28		-17.00					
	SM-SILTY SAND, with shell fragments, compact, fine grained, poorly graded, gray, moist	-17.40					
	Not Sampled						
30							
32							
	SP-SAND, trace silt, compact, fine grained, poorly graded, medium gray, saturated	-20.90		SS3			29
	ML-SILT, with sand, compact, fine grained, non-plastic, light gray, moist, musty, damp odor	-21.90 -22.10 -22.40					
34	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, saturated						
	Not Sampled						
36							
	SP-SAND, with shell fragments, trace silt, compact, fine grained, poorly graded, dark brown/gray, saturated	-25.90		SS4			10
38	- trace shell fragments, fine to medium grained, dark gray below 38 ft BGS	-27.40					
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-004
DATE COMPLETED: February 8, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
42							
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, saturated	-30.90		SS5			20
44				SS6			10
46	- dark brown and gray below 45.8 ft BGS - dark gray below 46.3 ft BGS		BENTONITE CHIPS	SS7			25
48	SM-SAND, with silt, compact, fine grained, poorly graded, medium gray, saturated - silty sand below 48.2 ft BGS	-36.20		SS8			32
				SS9			16
50				SS10			34
			2"Ø PVC SCREEN				
52				SS11			>50
	- dense below 53.6 ft BGS - very dense below 54 ft BGS		2"Ø PVC SUMP	SS12			73
54							
	END OF BOREHOLE @ 54.5ft BGS	-42.90					
	Ground surface elevation is estimated.						
56							
58							

WELL DETAILS
Screened interval:
-38.40 to -41.40ft NGVD
50.00 to 53.00ft BGS
Length: 3ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-004A
DATE COMPLETED: March 4, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	GP-GRAVEL, with sand, compact, fine to coarse grained, brown, moist					
		10.40				
2	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, moist		RS1		5.1	
4						
6						
8			RS2		5.0	
10						
	- saturated below 11 ft BGS ▽					
		0.10				
12	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated		RS3		5.0	
14	- pH ~ 12 to 13 @ 14 ft BGS					
		-2.90				
	SM/SP-SAND and SILTY SAND mix, compact, fine grained, poorly graded, gray, saturated	-3.90				
16	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated	-4.60				
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated					
18	- trace woody material below 17.5 ft BGS		RS4		5.0	
	- trace shell fragments below 18.7 ft BGS					
20		-8.40				
	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated					
22						
24			RS5		5.0	
		-12.70				
	SM/SC-SAND with silt, with clay, compact, fine grained, non-plastic, poorly graded, gray to dark gray, saturated	-13.70				
26	CL-CLAY with silt, with sand, firm, non-plastic to slight plasticity, light gray, moist	-14.50				
	SM-SILTY SAND, trace shell fragments, dense, fine grained, poorly graded, gray, saturated					
28			RS6		5.0	
		-17.90				
30	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated					
	- 2" silty sand (SM) seam @ 31 ft BGS					
32						
		-21.40				
	ML-SILT, with clay, with sand, dense, non-plastic, light gray, moist		RS7		5.0	
34	- 1.5" sand (SP) seam @ 34 ft BGS					
		-22.90				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-004A
DATE COMPLETED: March 4, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated					
38			RS8		5.0	
	- 3" silty sand (SM) seam @ 39 ft BGS					
40	- 3" silty sand (SM) seam @ 40.8 ft BGS					
42						
44			RS9		5.0	
	- 4" silty sand (SM) seam @ 44.9 ft BGS					
46						
48			RS10		5.0	
50						
	SM-SILTY SAND, trace shell fragments, dense, fine grained, poorly graded, gray, saturated	-38.70				
52						
	- partially cemented below 53.5 ft BGS		RS11		5.0	
54						
56						
	END OF BOREHOLE @ 56.0ft BGS	-44.40				
	Ground surface elevation is estimated.					
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-005
DATE COMPLETED: February 7, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: -214.65 EASTING: 583.56 GROUND SURFACE	11.60	3 FOOT STICK UP					
	See stratigraphy for PS4-GP5A		2"Ø PVC RISER CEMENT/ BENTONITE GROUT 8.25"Ø BOREHOLE					

2
4
6
8
10
12
14
16
18

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-005
DATE COMPLETED: February 7, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
22								
	ML-SANDY SILT, with sand, compact, fine grained, non-plastic, gray, saturated	-10.90 -11.20		SS1			7	0.1
24	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated							
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-12.60 -13.00		SS2			10	0.2
	ML/SM-SILT and SILTY SAND (alternating bands of silt and silty sand, less than 0.25" thick each), compact, fine grained, poorly graded, gray and dark gray bands, saturated	-13.40 -13.80						
26	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated			SS3			33	
	SM-SAND, with silt, compact, fine grained, poorly graded, gray, saturated			SS4			43	0
28	- silty sand, trace shell fragments, light gray below 25.8 ft BGS							
	SM/SC-SAND with SILT and CLAY, compact, fine grained, non-plastic, poorly graded, gray, saturated	-16.90 -18.00		SS5			20	0
30	SM-SILTY SAND, trace shell fragments, compact, fine grained, poorly graded, light gray, saturated	-18.40						
	SP-SAND, trace silt, trace woody debris, trace shell fragments, loose, fine grained, poorly graded, dark gray with red and white grains, saturated			SS6			16	0
32				SS7			17	
	ML-SANDY SILT, with sand, compact, fine grained, non-plastic, gray to light gray, moist	-20.90 -21.20						
	SP-SAND, trace silt, trace shell fragments, loose, fine grained, poorly graded, dark gray with red and white grains, saturated	-21.90 -22.40		SS8			21	
34	ML-SANDY SILT, with sand, compact, fine grained, non-plastic, gray, saturated	-22.60 -23.20						
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated			SS9			8	
36	ML/SM-SILT and SILTY SAND (alternating bands of silt and silty sand, less than 0.25" thick each), compact, fine grained, poorly graded, gray and dark gray bands, saturated			SS10			16	
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated							
38	- trace shell fragments below 38 ft BGS			SS11			19	
	- trace pockets of silt below 39.1 ft BGS							
	SM-SILTY SAND, trace shell fragments,	-27.90		SS12			42	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-005
DATE COMPLETED: February 7, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Gowing, D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	compact, fine grained, poorly graded, light gray, saturated							
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated	-29.20		SS13			33	
42				SS14			16	
	- trace shell fragments below 43.5 ft BGS							
44				SS15			18	
			BENTONITE CHIPS					
46				SS16			14	
	- half recovery in spoon @ 47.5 ft BGS							
48				SS17			26	
	- trace silt below 49 ft BGS							
50				SS18			43	
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-38.50 -38.90						
	SP-SAND, trace silt, trace shell fragments, loose, fine grained, poorly graded, dark gray with red and white grains, saturated	-40.10	2"Ø PVC SCREEN	SS19			38	
52	ML-SANDY SILT, with sand, compact, fine grained, non-plastic, gray to light gray, moist	-40.20 -40.40						
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-41.40						
	NO RECOVERY	-41.90						
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray with red and white grains, saturated	-42.20	2"Ø PVC SUMP	SS20			>50	
54	ML-SANDY SILT, with sand, compact, fine grained, non-plastic, gray to light gray, moist	-43.40						
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated							
56	END OF BOREHOLE @ 55.0ft BGS							
	Ground surface elevation is estimated.							
58								

WELL DETAILS
Screened interval:
-38.90 to -41.90ft NGVD
50.50 to 53.50ft BGS
Length: 3ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP1A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

NORTHING: -214.65
EASTING: 589.75

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	GW-GRAVEL, fine grained (0.5 to 2 cm diameter), angular, well graded	11.10					
2	SP-SAND, trace gravel, loose, fine grained, poorly graded, olive brown, moist		DP1				0
	No Recovery (3" wood)	8.60					
4	SP-SAND, with shell fragments, loose, fine grained, poorly graded, dark gray, wet	7.60					
6			DP2				0
8	- trace silt, trace shell fragments, very fine grained, saturated below 8 ft BGS ▽						
10			DP3				
12							
14			DP4				0
16	SM-SILTY SAND, loose, very fine grained, black, saturated	-4.40					
18			DP5				0
20							
22	ML-SANDY SILT, stiff, very fine grained, non-plastic, dry	-9.40	DP6				
24	END OF BOREHOLE @ 24.0ft BGS	-12.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP2A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

NORTHING: -207.69
EASTING: 589.46

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
0	SW-GRAVELLY SAND, trace silt, loose, fine to coarse grained, subrounded to subangular gravel (0.5 to 2 cm diameter), brown, moist	11.10				
2	SP-SAND, loose, fine grained, poorly graded, brown, moist		DP1			
4	GW-SANDY GRAVEL, loose, fine to coarse grained (0.5 to 2 cm diameter), subangular, well graded, brown, moist	7.60 7.10				
6	SP-SAND, trace shell fragments, trace silt, loose, fine grained, poorly graded, dark brown, wet		DP2			
8						
10	- saturated below 10 ft BGS ▽		DP3			
12						
14			DP4			
16	OL-ORGANIC SANDY SILT, very stiff, fine grained sand, gray brown, wet	-4.40				
18			DP5			
	SP-SAND, little silt, compact, fine grained, poorly graded, dark brown, wet	-6.90				
20	SM-SILTY SAND, compact, fine grained, dark brown, wet	-8.40				
22			DP6			
	OL-ORGANIC CLAY, with silt, with sand, stiff, low plasticity, dark brown, wet	-10.90 -11.40				
24	SM-SILTY SAND, compact, fine grained, dark brown, wet ML-SANDY SILT, stiff, slight plasticity, dark brown, wet	-12.40				
26	- saturated below 26 ft BGS		DP7			
28	END OF BOREHOLE @ 28.0ft BGS	-16.40				
30	Ground surface elevation is estimated.					
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP3A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

NORTHING: -213.87
EASTING: 595.56

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
0	GW-GRAVEL, loose, subrounded, well graded, wet (surface)	11.10				
	SP-SAND, little silt, loose, fine grained, poorly graded, dark brown, wet		DP1		2.0	
2						
4	- 6" gravel (GW), loose, fine grained (0.5 to 2 cm diameter) subrounded, well graded @ 4.5 ft BGS					
6	- dark gray with red specks below 5 ft BGS		DP2		3.6	
8						
10			DP3		3.2	
12						
14			DP4		3.2	
16	- very fine grained, saturated below 16 ft BGS ▽					
	SM-SILTY SAND, dense, fine grained, very dark gray, wet, cemented	-5.40				
18			DP5		4.0	
	OL-ORGANIC SILT, trace wood fragments, non-plastic, dark brown, organic odor	-7.40 -7.90				
20	SP-SAND, trace silt, dense, very fine grained, dark gray with red specks, wet					
22			DP6		4.0	
24	END OF BOREHOLE @ 24.0ft BGS	-12.40				
	Ground surface elevation is estimated.					
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP4A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: -220.65 EASTING: 591.32 GROUND SURFACE	11.60				
0	SW-GRAVELLY SAND, loose, fine to medium grained, well graded, brown					
2	SP-SAND, trace silt, loose, fine grained, poorly graded, brown, wet	9.60	DP1			
4	- gravelly sand, trace shell fragments, fine grained, rough gravel (0.5 to 2 mm diameter) below 5 ft BGS					
6	- sand, trace gravel below 6 ft BGS		DP2			
8	No Recovery	3.60				
10			DP3			
12	SM-SILTY SAND, compact, fine grained, dark brown, saturated ▽	-0.40				
14			DP4			
16	- sand and silt, gray/brown below 16.5 ft BGS					
18	- silty sand, compact to dense below 17.5 ft BGS		DP5			
20	- loose, dark brown below 20 ft BGS					
22			DP6			
24	END OF BOREHOLE @ 24.0ft BGS	-12.40				
26	Ground surface elevation is estimated.					
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP5A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

NORTHING: -213.85
EASTING: 583.56

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
0	GW-GRAVEL, loose, fine to coarse grained (0.5 to 2 cm diameter), angular, well graded, dry	11.10				
2	SP-SAND, trace gravel, loose, fine grained, poorly graded, olive brown, moist		DP1			
		8.60				
4	No Recovery (3" wood)	7.60				
	SP-SAND, with silt, with shell fragments, loose, fine grained, poorly graded, olive brown, moist	6.60				
6	SW-GRAVELLY SAND, trace shell fragments, loose, fine to coarse grained, angular-subangular gravel (0.5 to 2 cm diameter), light brown grading to black and red, wet		DP2			
		4.10 ▽				
8	SP-SAND, trace shell fragments, loose, fine grained, poorly graded, very dark reddish brown, saturated					
10			DP3			
12						
	SM-SILTY SAND, loose, very fine grained, very dark reddish brown, saturated	-0.65				
14			DP4			
	ML-SANDY SILT, firm, very fine grained sand, very dark reddish brown, saturated	-2.90				
16						
		-5.40				
18	OL-ORGANIC CLAYEY SILT, very stiff, very low plasticity, very dark brown, moist, slightly expansive, peat-like odor		DP5			
		-6.90				
20	SM-SILTY SAND, trace shell fragments, loose, very fine grained, very dark reddish brown, moist, slight sewage-like odor - dark gray, no odor below 19.75 ft BGS					
22	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, saturated	-10.40	DP6			
24						
		-13.90				
26	CL-SILTY CLAY, stiff, low plasticity, gray, moist		DP7			
		-15.90				
28	SM-SILTY SAND, compact, very fine grained, gray, damp	-16.40				
	ML-SANDY SILT, stiff, very fine grained sand, very low plasticity, gray, moist					
30	SP-SAND, trace silt, compact, very fine grained, poorly graded, gray, moist	-17.90	DP8			
		-19.40				
32	ML-SANDY SILT, stiff, very fine grained sand, non-plastic, gray, damp	-20.40				
	SM-SILTY SAND, compact, very fine grained, very dark reddish brown, wet	-21.15				
	OL-SANDY SILT, trace organics, very stiff, non-plastic, very dark brown, moist					
34			DP9			
		-22.90				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS4-GP5A
DATE COMPLETED: December 10, 2007
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Genin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	SP-SAND, trace silt, loose, very fine grained, black, wet			X		
	END OF BOREHOLE @ 36.0ft BGS	-24.40				
	Ground surface elevation is estimated.					
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-001
DATE COMPLETED: December 15, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.60
0	CONCRETE	10.60
2	SP-SAND, trace gravel, loose, fine grained, poorly graded, brown, moist	
4		
6		4.70
8	SM-SILTY SAND, trace gravel, compact, fine grained sand, gray/brown, saturated, layer of sandy silt, <1" thick cemented sand layer	
10		0.10
12	SP-SAND, trace gravel, loose, fine grained, poorly graded, brown, moist	-1.40
14	SM-SILTY SAND, trace gravel, compact, fine grained sand, gray/brown, saturated - 4" thick compacted, cemented sand layer @ 14.7 ft BGS	
16		-5.20
18	ML-SANDY SILT, very dense, fine grained sand, poorly graded, gray, moist - trace sand, woody debris layer between 18.3 and 19.4 ft BGS	-7.80
20	SM-SILTY SAND, trace gravel, compact, fine grained sand, gray/brown, saturated, layer of sandy silt, <1" thick cemented sand layer	
22		-11.40
24	SP-SAND, with silt, trace gravel, loose, fine grained, non-plastic, gray, brown, saturated	-12.80
	SM-SILTY SAND, trace gravel, trace woody debris, compact, fine grained, poorly graded, gray, saturated	-13.60
26	ML-SANDY SILT, very dense, fine grained sand, poorly graded, gray, moist	-14.50
28	SM-SILTY SAND, trace gravel, trace woody debris, compact, fine grained, poorly graded, gray, saturated - trace shells @ 28.8 ft BGS	
30		
32		-21.10
34	SP-SAND, trace gravel, loose, fine grained, poorly graded, brown, moist	

MONITORING WELL: CONCRETE; CEMENT/ BENTONITE GROUT; 2"Ø PVC RISER; BENTONITE; 8"Ø BOREHOLE; SAND PACK; 2"Ø PVC SCREEN

SAMPLE

NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
1RS			
2RS			
3RS			
4RS			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-001
DATE COMPLETED: December 15, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	SM-SILTY SAND, trace gravel, trace woody debris, compact, fine grained, poorly graded, gray, saturated	-23.40	2"Ø PVC SUMP		X		
38	SP-SAND, trace gravel, loose, fine grained, poorly graded, brown, moist	-25.20					
	END OF BOREHOLE @ 38.5ft BGS	-26.90					
40	Ground surface elevation is estimated.						
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-20.40 to -25.40ft NGVD
32.00 to 37.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC
Seal:
-3.30 to -16.90ft NGVD
14.90 to 28.50ft BGS
Material: BENTONITE CHIPS
Sand Pack:
-16.90 to -26.90ft NGVD
28.50 to 38.50ft BGS
Material: MONTERY #20 SAND

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-002R
DATE COMPLETED: January 22, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60					
0	SP-SAND, trace cobbles, loose, fine grained, poorly graded, brown, damp		CONCRETE				
2							
4			CEMENT/ BENTONITE GROUT				
6	GM-GRAVEL, with sand, with silt, loose, fine grained sand, coarse grained gravel, brown, moist	6.10 5.10					
8	SP-SAND, trace silt, loose, fine grained, poorly graded, dark brown, moist - with silt, very dense, gray, cemented below 9 ft BGS		2"Ø PVC RISER				
10							
12							
14							
16			BENTONITE				
18	SM-SILTY SAND, dense to very dense, fine grained sand, non-plastic, poorly graded sand, gray, saturated, cemented sand	-4.90 -6.40					
20	ML-SANDY SILT, very dense, fine grained sand, non-plastic, poorly graded, gray, saturated SP-SAND, with woody debris, with silt, compact, fine grained, dark brown, moist	-7.60 -8.40	8"Ø BOREHOLE				
22	SM-SILTY SAND, dense to very dense, fine grained sand, non-plastic, poorly graded sand, gray, saturated, cemented sand		SAND PACK				
24			2"Ø PVC SCREEN				
26	ML-SANDY SILT, very dense, fine grained sand, non-plastic, poorly graded, gray, saturated	-13.90	2"Ø PVC SUMP				
28	END OF BOREHOLE @ 27.0ft BGS Ground surface elevation is estimated.	-15.40					
30							
32							
34							

WELL DETAILS
Screened interval:
-8.40 to -13.40ft NGVD
20.00 to 25.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

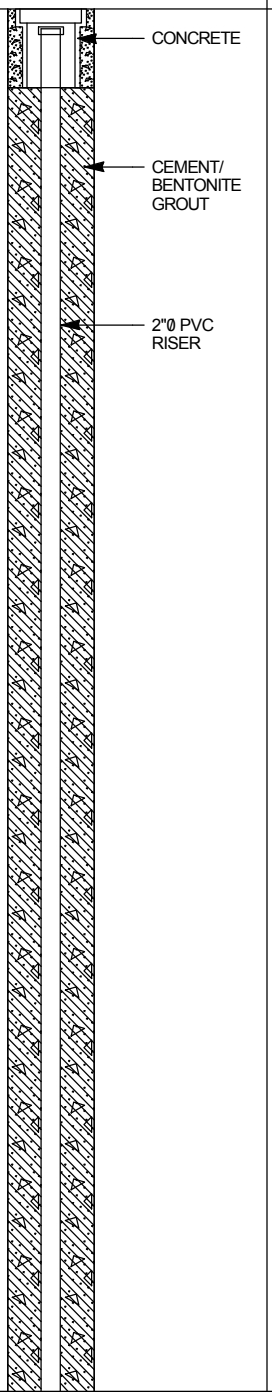
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-003
DATE COMPLETED: December 16, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
	GROUND SURFACE	11.60
	Not Sampled	
2	SP-SAND, trace gravel, loose, fine grained, poorly graded, brown/gray, moist	10.10
4		
6	- with gravel, brown/dark brown below 6.5 ft BGS	
8	- some scattered shells, trace gravel, black/brown below 8 ft BGS	
10		
12	SM-SILTY SAND, woody debris (scattered), compact, fine grained, poorly graded, gray, moist	-0.70
14	ML-SANDY SILT, dense, fine grained, poorly graded, gray, saturated	-2.20
	SP-SAND, trace silt, very dense, fine grained, poorly graded sand, gray, saturated, cemented sand, visible layers	-3.10
16		-4.50
18	SM-SILTY SAND, with woody debris, dense, fine grained, poorly graded, gray, moist - trace gravel below 16.8 ft BGS	
20		
22	SP-SAND, with silt, dense, fine grained, poorly graded, gray, moist	-10.10
24		
26	SM-SILTY SAND, with woody debris, trace gravel, dense, fine grained, poorly graded, gray, moist	-12.90
28		
30	ML-SANDY SILT, dense, fine grained, poorly graded, gray, saturated	-16.90
32		
34	SP-SAND, with silt, dense, fine grained, poorly graded, gray, moist	-21.40
		-22.90



SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
1RS			
2RS			
3RS			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-003
DATE COMPLETED: December 16, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	MONITORING WELL	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	SM-SILTY SAND, with woody debris, trace gravel, dense, fine grained, poorly graded, gray, moist	-24.70		4RS			
38	SP-SAND, with silt, dense, fine grained, poorly graded, gray, moist						
40			BENTONITE				
42	SM-SILTY SAND, with woody debris, trace gravel, dense, fine grained, poorly graded, gray, moist	-30.40					
44			8"Ø BOREHOLE				
46			SAND PACK	5RS			
48			2"Ø PVC SCREEN				
50							
52	END OF BOREHOLE @ 52.0ft BGS	-40.40	2"Ø PVC SUMP	6RS			
54	Ground surface elevation is estimated.						
56							
58							
60							
62							
64							
66							
68							

WELL DETAILS
Screened interval:
-33.40 to -38.40ft NGVD
45.00 to 50.00ft BGS
Length: 5ft
Diameter: 2in
Slot Size: 10
Material: PVC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-CMT1
DATE COMPLETED: December 22, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	Not Sampled					
	SP-SAND, trace gravel, loose, fine grained, poorly graded, light brown, moist	10.10				
	GM-SAND, SILT, and GRAVEL, compact, fine grained sand, coarse grained gravel, poorly graded, light brown, saturated	6.10	RS1			
	SP-SAND, trace silt, trace gravel, loose, fine grained, poorly graded, dark brown, saturated	4.90				
	- highly compacted, cemented sand layers below 9.8 ft BGS					
	SM-SILTY SAND, trace gravel, dense, fine grained, poorly graded, gray, moist	-1.90	RS2			
	- with shells, moderately plastic, saturated below 29.5 ft BGS		RS3			
	SP-SAND, with silt, compact, fine grained, poorly graded, dark brown, moist	-21.40				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-CMT1
DATE COMPLETED: December 22, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36			RS4			
38						
40	- trace gravel below 39.2 ft BGS					
42						
44			RS5			
46						
48	- trace silt, loose, saturated, highly compacted, cemented sand layers below 47.2 ft BGS					
50	SM-SILTY SAND, trace gravel, dense, fine grained, poorly graded, gray, moist	-37.60				
52	- trace organic matter/woody debris below 52 ft BGS		RS6			
54	SP-SAND, with silt, dense, fine grained, poorly graded, gray/dark brown, saturated	-41.90				
56	END OF BOREHOLE @ 56.0ft BGS	-44.40				
58	Ground surface elevation is estimated.					
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-CMT3
DATE COMPLETED: January 6, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	Not Sampled					
	SP-SAND, trace gravel, trace silt, loose, fine grained, poorly graded, brown, moist	10.10				
	- gravelly sand, compact below 4.2 ft BGS		RS1			
	- with gravel, loose, dark brown below 5.8 ft BGS					
	SM-SILTY SAND, compact, fine grained, poorly graded, moist	0.40				
	- trace woody debris, dense, gray below 13.5 ft BGS					
	- compact below 14 ft BGS		RS2			
	SP-SAND, with silt, very dense, fine grained, poorly graded, gray, saturated, cemented sand layers	-10.90 ▽				
		-13.90	RS3			
	ML-SANDY SILT, compact, fine grained, poorly graded, gray, saturated	-14.40				
	SM-SILTY SAND, dense, fine grained, poorly graded, gray, saturated, some cementing present					
	- with shells, compact below 27 ft BGS					
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, saturated	-17.40				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-CMT3
DATE COMPLETED: January 6, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD
40	SM-SILTY SAND, compact, fine grained, poorly graded, moist	-28.10
42	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, saturated	-29.50
44	SM-SILTY SAND, compact, fine grained, poorly graded, moist	-32.40
52	- trace gravel, dense, saturated below 52.3 ft BGS	
56	END OF BOREHOLE @ 56.0ft BGS	-44.40
	Ground surface elevation is estimated.	

SAMPLE

NUMBER	INTERVAL	REC (ft)	BLOW COUNTS
RS4			
RS5			
RS6			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-IP
DATE COMPLETED: December 17, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	Not Sampled					
		10.10				
2	SP-SAND, trace gravel, trace silt, loose, fine grained, poorly graded, brown, moist					
4	- gravelly sand, with silt, trace cobbles, compact, some gravel greater (than 5 cm in diameter), brown/red below 4.5 ft BGS		RS1			
6	- with gravel, trace silt, loose, dark brown to gray below 5.5 ft BGS					
8						
10						
		0.10				
12	SM-SILTY SAND, compact, fine grained, poorly graded, slightly plastic, gray					
	- with woody debris, dense, moist below 13 ft BGS					
14						
	- trace woody debris, compact below 15.1 ft BGS		RS2			
16						
18						
20						
	- 1" layer of woody debris @ 21 ft BGS	-9.50 ▽				
22	SP-SAND, with silt, very dense, fine grained, poorly graded, gray, saturated, cemented sand layers					
24						
		-12.90				
	ML-SANDY SILTS, compact, fine grained, poorly graded, gray, saturated	-13.40	RS3			
26	SM-SILTY SAND, trace gravel, dense, fine grained, poorly graded, gray, saturated, some light cementing					
	- with shells, compact below 26.5 ft BGS					
28						
		-17.90				
30	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark brown, saturated					
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PS5-IP
DATE COMPLETED: December 17, 2008
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36			RS4			
38	SM-SILTY SAND, compact, fine grained, poorly graded, slightly plastic, gray	-26.70				
40	No Recovery	-28.40				
42						
44			RS5			
46						
48						
50	SP-SAND, trace silt, very dense, fine grained, poorly graded, dark brown, saturated, light cementing	-37.90	RS6			
52	END OF BOREHOLE @ 51.5ft BGS Ground surface elevation is estimated.	-39.90				
54						
56						
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽

Pumping Test Wells

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-32)

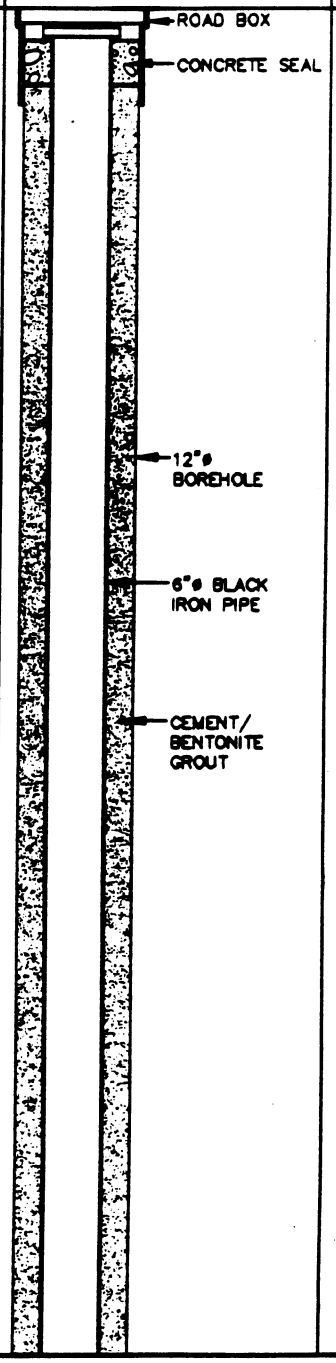
PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: A-120
(Page 1 of 4)

PROJECT NO.: 1002-15
DATE COMPLETED: JUNE 12, 1992

CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 12" CABLE TOOL

LOCATION: 115' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser)	*10.49*				
	GROUND SURFACE	*10.9*				



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ⧗

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-32)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: A-120 (Page 2 of 4)
PROJECT NO.: 1002-15
DATE COMPLETED: JUNE 12, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 12" CABLE TOOL
LOCATION: 115' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE VALUE
35.0						
37.5						
40.0						
42.5			6"ø BLACK IRON PIPE			
45.0						
47.5						
50.0	SM–SAND, trace silt, trace wood and shells, medium dense, fine to medium grained, brown to gray, wet	-39.1	CEMENT/ BENTONITE GROUT	1ST		
				1CT		
52.5				2CT		
55.0			12"ø BOREHOLE	3CT		
57.5						
60.0						
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-32)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: A-120 (Page 3 of 4)

PROJECT NO.: 1002-15
DATE COMPLETED: JUNE 12, 1992

CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 12" CABLE TOOL

LOCATION: 115' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0						
72.5						
75.0			12"ø BOREHOLE			
77.5						
80.0			CEMENT/ BENTONITE GROUT			
82.5			6"ø BLACK IRON PIPE			
85.0						
87.5						
90.0						
92.5						
95.0			BENTONITE PELLET SEAL			
97.5			SAND PACK			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

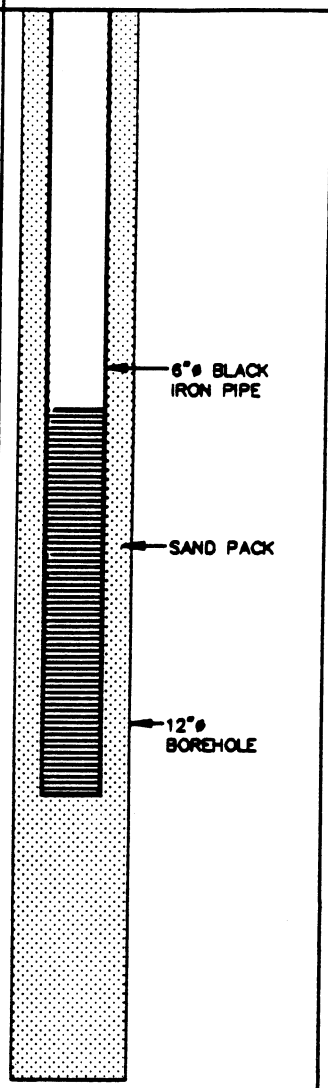
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-32)

PROJECT NAME: OXYCHEM – TACOMA
HOLE DESIGNATION: A-120 (Page 4 of 4)
PROJECT NO.: 1002-15
DATE COMPLETED: JUNE 12, 1992
CLIENT: OXYCHEM – TACOMA
DRILLING METHOD: 12" CABLE TOOL
LOCATION: 115' SOUTHEAST OF BUILDING # 9547 ON PORT OF TACOMA PROPERTY
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
100.0		
	ML–SILT, dense, dark olive to dark gray, wet to saturated	-90.1
102.5		
	SM–SAND, trace silt, dense to very dense, fine grained, angular, olive gray to dark gray, wet	-93.1
105.0		
107.5		
110.0		
112.5		
115.0		
	ML–SILT, some fine grained sand, trace clay, trace shells, medium dense, olive gray to dark gray, moist, chemical odor	-106.1
117.5		
120.0		
122.5		
	– dense	
125.0		
	END OF HOLE @ 125.3 FT. BGS	-114.4
127.5		
130.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
107.9 to 117.9' BGS
Length –10.0'
Diameter –6.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
96.0 to 125.3' BGS
Material –# 10–20 Sand

SAMPLE

NUMBER	STATE	VALUE
4CT		
5CT		
2ST		
6CT		
7CT		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

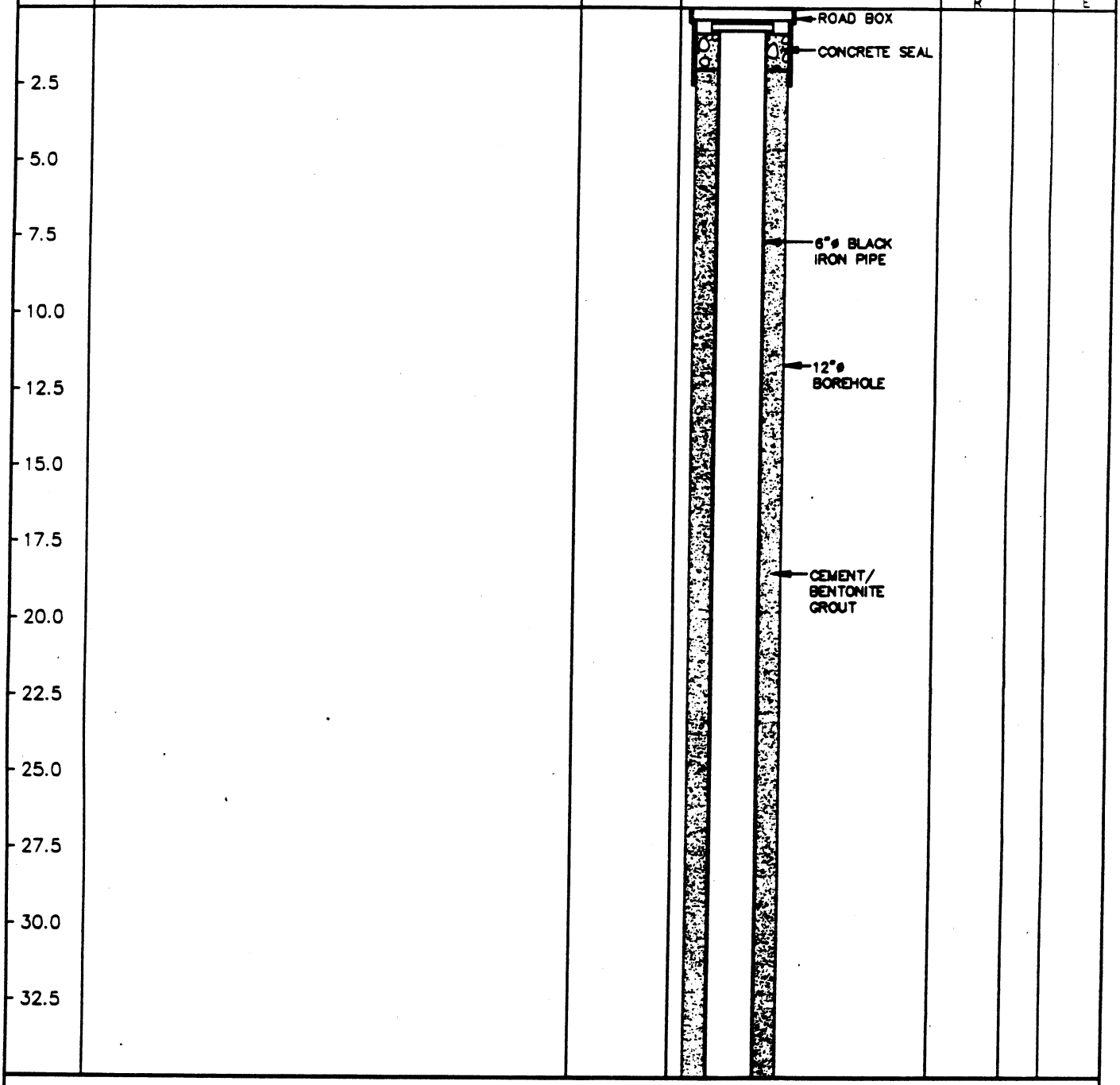
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-34)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–15
CLIENT: OXYCHEM – TACOMA
LOCATION: 30' NORTHEAST OF SALT PAD

HOLE DESIGNATION: C–70
(Page 1 of 3)
DATE COMPLETED: JULY 16, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE INTERVAL
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*10.99* *11.3*				



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-34)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-15
CLIENT: OXYCHEM – TACOMA
LOCATION: 30' NORTHEAST OF SALT PAD

HOLE DESIGNATION: C-70 (Page 2 of 3)
DATE COMPLETED: JULY 16, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5			CEMENT/ BENTONITE GROUT			
40.0						
42.5			6"ø BLACK IRON PIPE			
45.0						
47.5						
50.0						
52.5	SM–SAND, some silt, dense, fine to medium grained, olive gray to dark gray, moist	-51.0	BENTONITE PELLET SEAL	1SS		35
				2SS		30
55.0			12"ø BOREHOLE			
57.5						
60.0	– medium dense			3SS		20
62.5			SAND PACK			
65.0			WELL SCREEN			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-34)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–15
CLIENT: OXYCHEM – TACOMA
LOCATION: 30' NORTHEAST OF SALT PAD

HOLE DESIGNATION: C-70
(Page 3 of 3)
DATE COMPLETED: JULY 16, 1992
DRILLING METHOD: 12" CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE N VALUE
67.5			12"ø BOREHOLE			
			6"ø BLACK IRON PIPE	4SS		16
70.0			WELL SCREEN	1ST		
72.5			SAND PACK			
	ML–SILT, som fine grained sand, some silt/ sandstone, dark olive, moist	-74.0		5SS		47
75.0	END OF HOLE ● 76.0 FT. BGS	-76.0				
77.5						
80.0						
82.5						
85.0						
87.5						
90.0						
92.5						
95.0						
97.5						

SCREEN DETAILS:
Screened Interval:
65.0 to 75.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
55.0 to 76.0' BGS
Material –# 10–20 Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

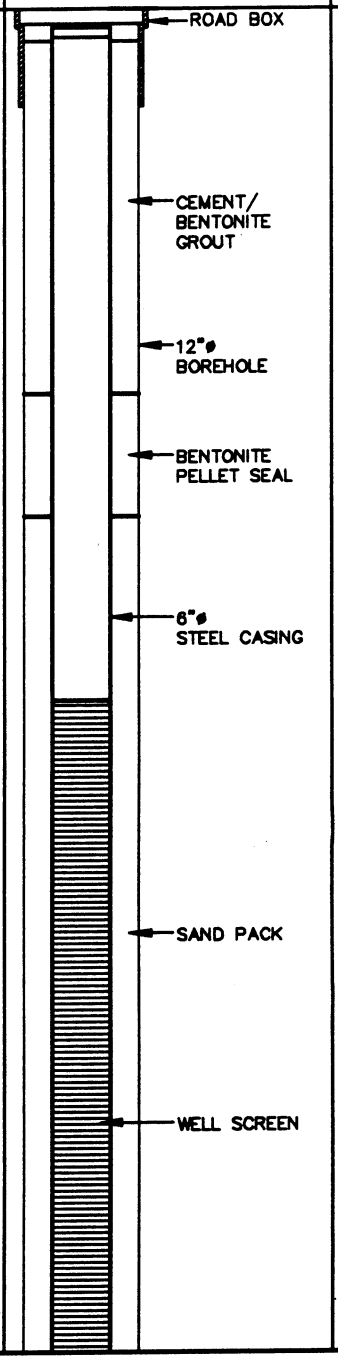
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-61)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: C-120
(Page 1 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
	REFERENCE POINT (Top of Riser) GROUND SURFACE	*12.99* *??.?*				
10.0	SP-SAND(NATIVE), trace to little fine gravel, trace silty sand lenses, fine grained, dark olive gray, wet	*-10.0*		1SS		26
20.0	SM-SAND, little silt, trace gravel, trace to little shell material, fine grained, dark olive gray, wet	*-20.0*		2SS		69
30.0	- little to some silt, trace to little decayed wood, trace gravel and shells, trace silt lenses, dense, dark olive gray to dark olive brown and gray			3SS		>100



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-61)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: C-120

DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
35.0						
37.5			12"ø BOREHOLE			
40.0	– little to some silt, trace fine gravel, trace wood, trace thin gray fine sandy silt interbeds, dark olive gray to dark dark brown gray			4SS	⊠	75
42.5			SAND PACK			
45.0						
47.5						
50.0	– little to some silt		WELL SCREEN	5SS	⊠	75
52.5						
55.0			6"ø STEEL CASING			
57.5						
60.0	– gray laminated silt and sandy silt interbeds			6SS	⊠	56
62.5						
65.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-61)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: C-120

DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
67.5						
70.0	– intebedded with silty fine sand and stiff laminated fine sandy silt			7SS		95
72.5			12"ø BOREHOLE			
75.0			SAND PACK			
77.5						
80.0	– fine sand with little to some silt, loose			8SS		50
82.5			WELL SCREEN			
85.0						
87.5			6"ø STEEL CASING			
90.0				9SS		85
92.5						
95.0						
97.5						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-61)

PROJECT NAME: EXTRACTION SYSTEM PILOT TESTING
PROJECT NO.: 1002-15
CLIENT: OXYCHEM-TACOMA
LOCATION: EAST OF SALT PAD

HOLE DESIGNATION: C-120 (Page 4 of 4)
DATE COMPLETED: FEBRUARY 9, 1994
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: A.P. KISIEL

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE
100.0	ML-SILT, some fine sand, very hard, cemented, interbedded with loose silty sand, olive gray, moist	-100.0	6"ø STEEL CASING	10SS		>100
102.5						
105.0			12"ø BOREHOLE			
107.5			WELL SCREEN			
110.0	SM-SAND, little to some silt, fine grained, dark olive gray, wet	-110.0		11SS		>100
112.5			SAND PACK			
115.0						
117.5						
120.0				12SS		>100
122.5						
	END OF HOLE @ 123.5 FT. BGS	-123.5				
125.0	NOTES: 1. Sample method consisted of jar driven split spoons.		SCREEN DETAILS: Screened Interval: 18.0 to 118.0' BGS Length -100.0' Diameter -6.0" Slot # 10 Material -TYPE 316 SCH 40 Stainless Steel Sand pack interval: 13.2 to 123.5' BGS Material -# 20/40 Mesh			
127.5						
130.0						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

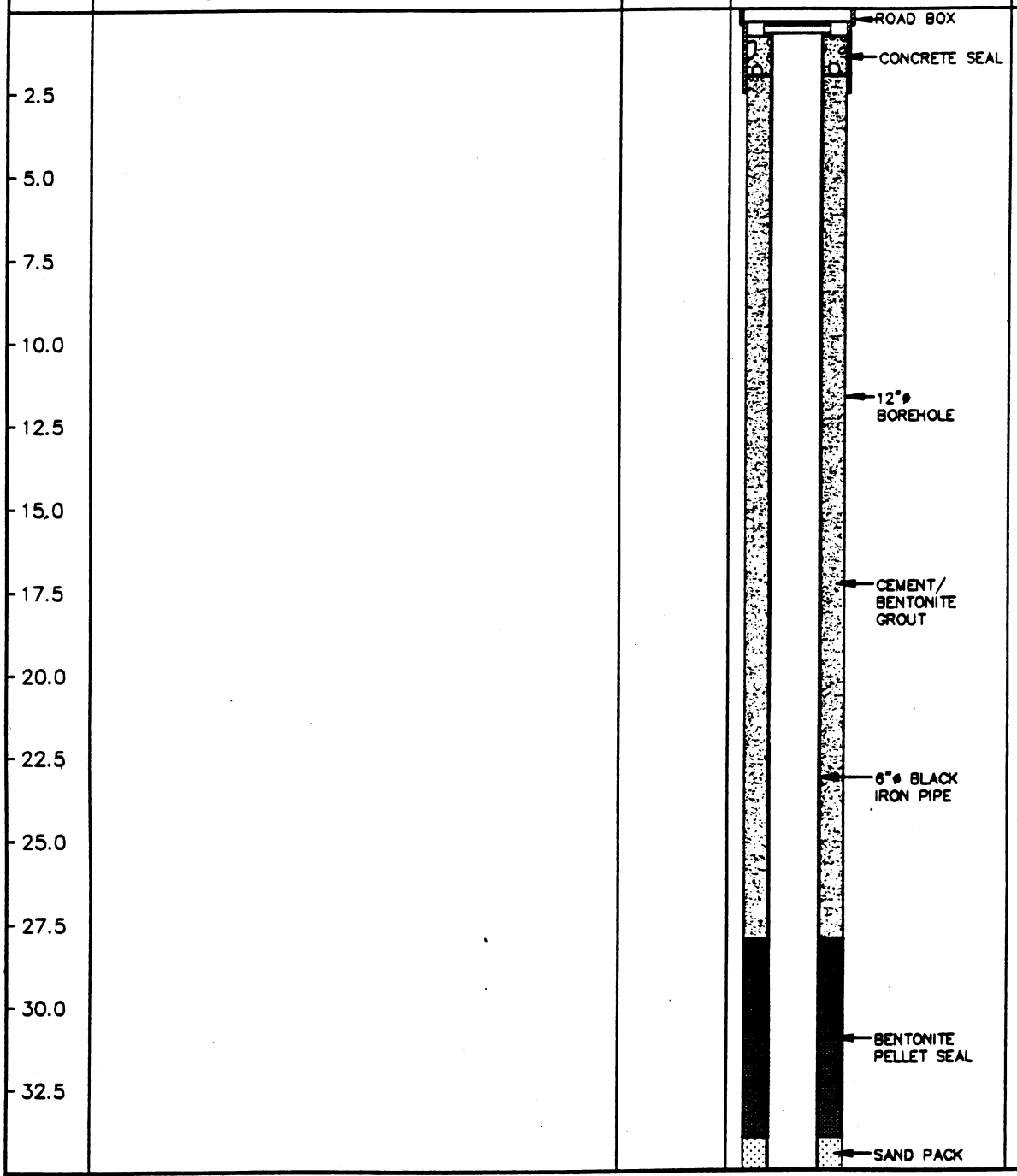
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-36)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002-10
CLIENT: OXYCHEM – TACOMA
LOCATION: WEST CORNER OF PLANT

HOLE DESIGNATION: EW-101-50 (Page 1 of 2)
DATE COMPLETED: JANUARY 11, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	10.76					
	GROUND SURFACE	11.0					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-36)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: WEST CORNER OF PLANT

HOLE DESIGNATION: EW–101–50 (Page 2 of 2)
DATE COMPLETED: JANUARY 11, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
35.0	SP–SAND, shell fragments, loose to medium dense, dark olive to dark gray with red, black and white grains, moist to wet	-24.0	12"ø BOREHOLE	1SS		24	
37.5							
40.0	– white and purple shell fragments		6"ø BLACK IRON PIPE	2SS		14	
	ML–SILT, dark gray to dark olive	-29.8					
42.5	SM/ML–SAND and SILT, fine to medium grained, dark gray to olive gray	-30.9					
45.0	– interbedded, loose, fine grained, moist		SAND PACK	3SS		4	
47.5							
50.0	– loose to medium dense, fine grained, dark gray to dark olive with red, black and white grains		WELL SCREEN	4SS		9	
52.5							
55.0	– medium dense		2"ø SPLIT SPOON	5SS		20	
57.5	END OF HOLE @ 57.0 FT. BGS NOTES: 1. Sample method consisted of jar driven split spoons.	-46.0	SCREEN DETAILS: Screened Interval: 45.0 to 55.0' BGS Length –10.0' Diameter –6.0" Slot # 10 Material –Stainless Steel Sand pack interval: 34.0 to 57.0' BGS Material –# 20–40 Sand				
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

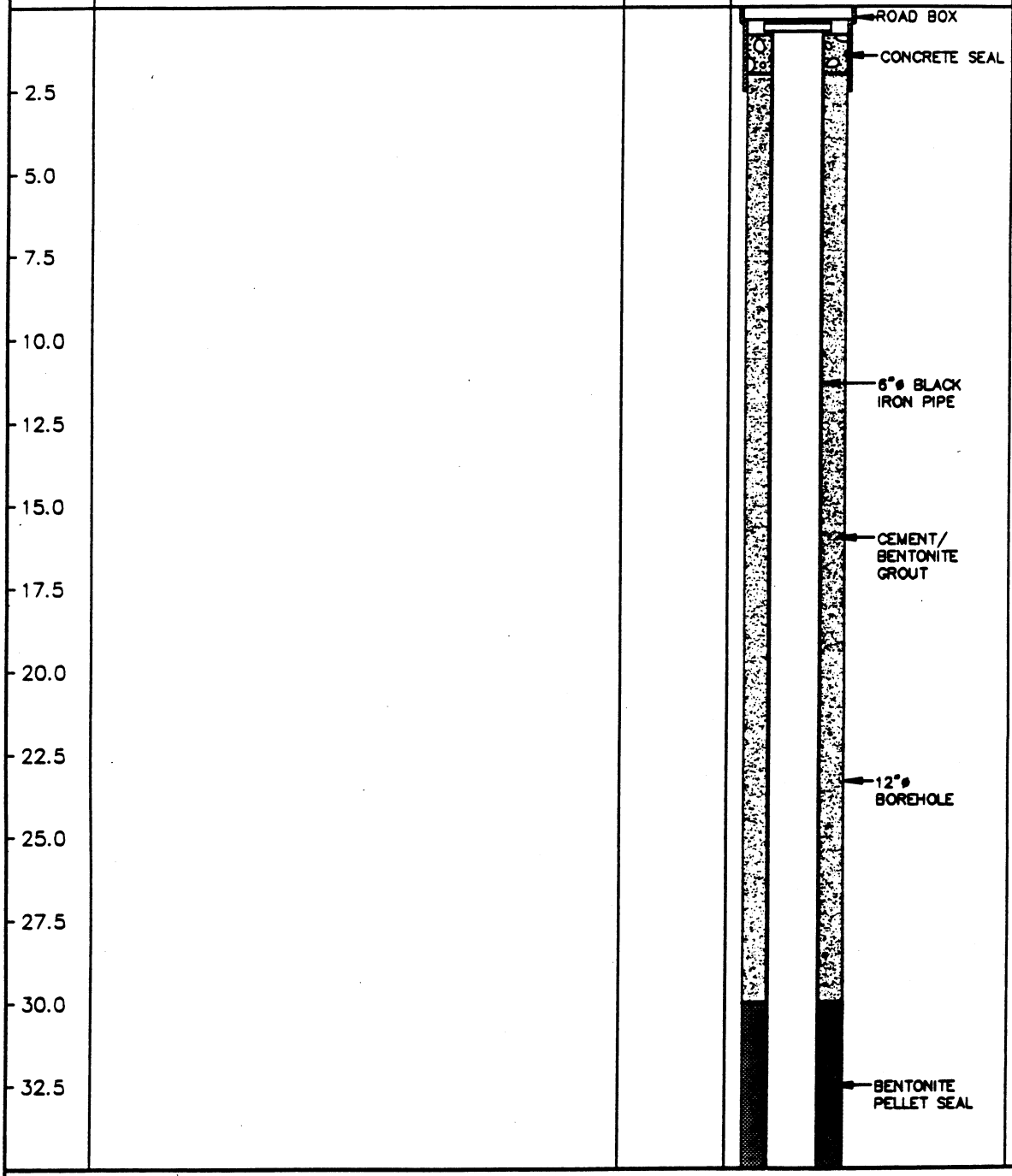
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-37)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: PORT OF TACOMA PROPERTY, NORTHWEST OF STORES

HOLE DESIGNATION: EW–133–50 (Page 1 of 2)
DATE COMPLETED: JANUARY 14, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	*10.33*					
	GROUND SURFACE	*10.6*					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

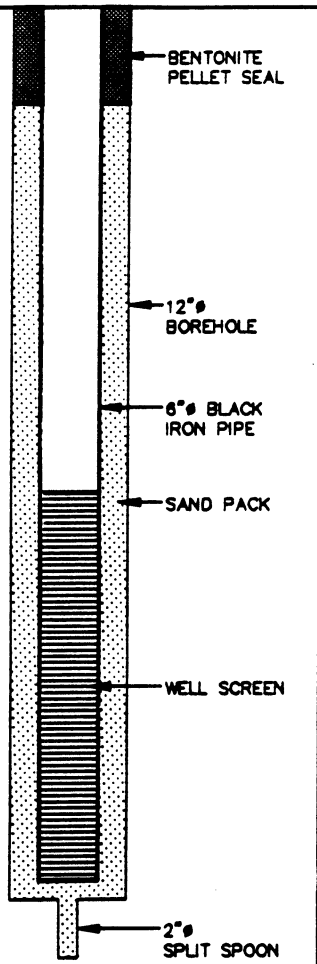
(L-37)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: PORT OF TACOMA PROPERTY, NORTHWEST OF STORES

HOLE DESIGNATION: EW–133–50 (Page 2 of 2)
DATE COMPLETED: JANUARY 14, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD
35.0		
	SM–SAND, trace to little silt, white shell fragments, medium dense, fine to medium grained, dark olive to dark gray with red, black and white grains, moist to wet	-24.4
37.5		
40.0		-29.4
	SW–SAND, trace silt lenses, trace wood, white shell fragments, dense, fine to medium grained, rounded to subrounded, dark olive to dark gray with red, black and white grains, moist, sulpher like odor	
42.5		
45.0		-34.4
	SM–SAND, some silt, dense, fine grained, subrounded to subangular, dark olive to dark gray with red black and white grains, dry to moist, chemical / sulpher like odor	
47.5		
50.0		-39.4
	SP–SAND, trace silt layers, medium dense, fine grained, poorly graded, subrounded, dark olive to dark gray with red, black and white grains, dry to moist, sulpher like odor – silt layer	
52.5		
55.0		-44.4
	SM–SAND, some silt, dense, fine grained, subrounded to subangular, dark olive to dark gray with red, black and white grains, dry to moist, sulpher like odor	-46.4
57.5	END OF HOLE @ 57.0 FT. BGS	
	NOTES: 1. Sample method consisted of jar driven split spoons.	
60.0		
62.5		
65.0		

MONITOR INSTALLATION



SCREEN DETAILS:
Screened Interval:
45.0 to 55.0' BGS
Length –10.0'
Diameter –6.0"
Slot # 10
Material –Stainless Steel
Sand pack interval:
35.0 to 57.0' BGS
Material –# 20–40 Sand

SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
1SS	X	50	
2SS	X	68	
3SS	X	43	
4SS	X	35	
5SS	X	25	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: OXYCHEM – TACOMA

PROJECT NO.: 1002–10

CLIENT: OXYCHEM – TACOMA

LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

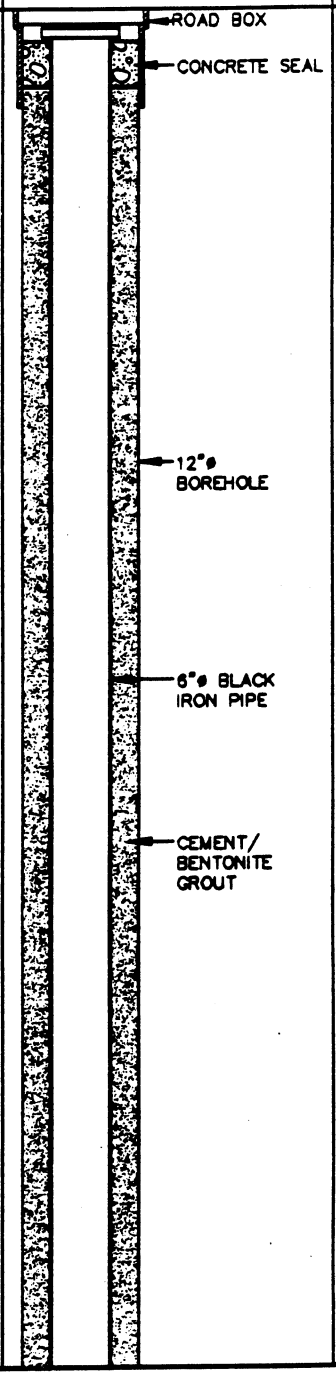
HOLE DESIGNATION: EW–138–145 (Page 1 of 6)

DATE COMPLETED: JANUARY 28, 1993

DRILLING METHOD: 12"ø CABLE TOOL

CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
	REFERENCE POINT (Top of Riser)	*10.98*					
	GROUND SURFACE	*11.2*					



2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
22.5
25.0
27.5
30.0
32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: EW–138–145 (Page 2 of 6)
DATE COMPLETED: JANUARY 28, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
35.0							
37.5							
40.0							
42.5			6"ø BLACK IRON PIPE				
45.0							
47.5							
50.0			CEMENT/ BENTONITE GROUT				
52.5							
55.0			12"ø BOREHOLE				
57.5							
60.0							
62.5							
65.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: EW–138–145
(Page 3 of 6)
DATE COMPLETED: JANUARY 28, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNU (ppm)
67.5							
70.0							
72.5							
75.0			6"ø BLACK IRON PIPE				
77.5							
80.0							
82.5			CEMENT/ BENTONITE GROUT				
85.0							
87.5			12"ø BOREHOLE				
90.0							
92.5							
95.0							
97.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: EW–138–145 (Page 4 of 6)
DATE COMPLETED: JANUARY 28, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
100.0							
102.5							
105.0			12"ø BOREHOLE				
107.5							
110.0			CEMENT/ BENTONITE GROUT				
112.5							
115.0	SW–SAND, loose to medium dense, medium to coarse grained, well graded, dark gray to dark olive with red black and white grains, moist to wet	–103.8	6"ø BLACK IRON PIPE	1SS		25	10–102
117.5							
120.0	SM/ML–SAND and SILT, trace silt, interbedded sand and silt seams, medium dense, fine grained, dark gray to dark olive with red, black and white grains, moist to wet	–108.8		2SS		33	0
122.5							
125.0	– no wood		BENTONITE PELLET SEAL				
	SP–SAND, some silt layers, loose to medium dense, fine to medium grained, dark gray to dark olive with red, black and white grains, wet	–114.8		3SS		17	20–70
127.5							
130.0	ML–SILT, some clay, soft, smooth, slightly plastic, moist	–118.8	SAND PACK	4SS		5	10–30

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ⧖ STATIC WATER LEVEL ⧗

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

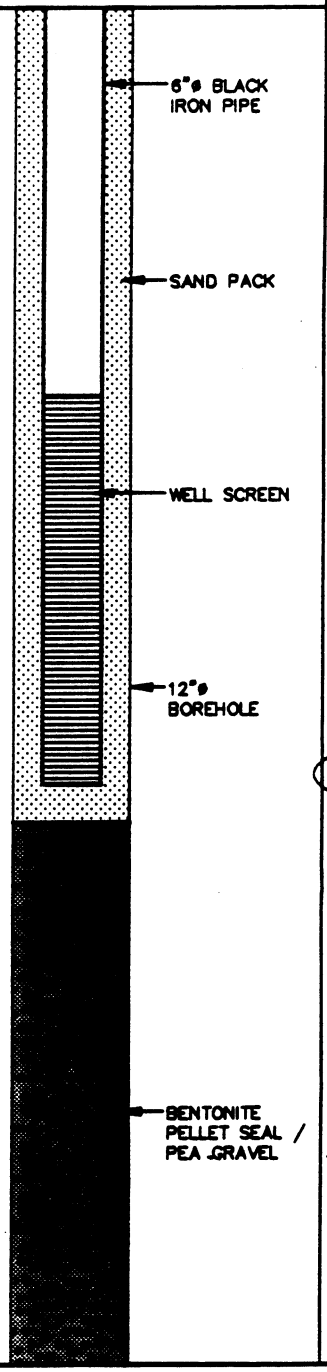
(L-38)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: EW–138–145 (Page 5 of 6)
DATE COMPLETED: JANUARY 28, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD
132.5	SW–SAND, well graded, medium grained, dark gray to dark olive	–120.3
135.0	SP–SAND, loose to medium dense, medium grained, poorly graded, dark gray to dark olive, moist	–123.8
137.5	ML–SILT, some clay, soft, smooth, dark olive to dark gray, moist	–124.8
	– siltstone, trace wood, red black and white grains, dry	
140.0	SM–SAND, some silt	–128.8
142.5		
	– siltstone, twig, dense	
145.0		
147.5		
	– charcoal, medium dense, medium grained, dark gray to dark olive, moist, chemical odor, sheen	
150.0		
152.5		
155.0	ML/CL–SILT and CLAY, soft to medium stiff, dark gray to olive, moist, chemical odor – sand layer, wood	–142.8
157.5		
	– no sand, no wood	
160.0		
162.5		

MONITOR INSTALLATION



SAMPLE

NUMBER	STATE	NVALUE	HNU (ppm)
5SS		18	7–35
6SS		47	7–20
7SS		57	20–45
8SS		12	>100
9SS		8	15–50
10SS		3	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-38)

PROJECT NAME: OXYCHEM – TACOMA
PROJECT NO.: 1002–10
CLIENT: OXYCHEM – TACOMA
LOCATION: 20' SOUTH OF BUILDING #9596 ON PORT OF TACOMA PROPERTY

HOLE DESIGNATION: EW–138–145 (Page 6 of 6)
DATE COMPLETED: JANUARY 28, 1993
DRILLING METHOD: 12"ø CABLE TOOL
CRA SUPERVISOR: J. SCHWALLER

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft NGVD	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
165.0	SM–SAND, some silt, loose, fine to medium grained, dark olive to dark gray, moist	-152.8	BENTONITE PELLET SEAL / PEA GRAVEL	11SS	X	8	0
167.5							
	– shells, dense, medium to coarse grained, moist to wet		12"ø BOREHOLE				
170.0	GP–GRAVEL(GLACIAL TILL), some coarse brown and tan sand, cobbles, dense, poorly graded, green to dark gray, moist to wet	-158.8		(12SS)	X	38	0
172.5							
	– trace clay, loose, tan, brown and gray, wet						
175.0				(13SS)	X	66	0
	END OF HOLE @ 175.5 FT. BGS	-164.3					
	NOTES: 1. Sample method consisted of jar driven split spoons.		SCREEN DETAILS: Screened Interval: 140.0 to 150.0' BGS Length –10.0' Diameter –6.0" Slot # 10 Material –Stainless Steel Sand pack interval: 129.0 to 151.0' BGS Material –# 20–40 Sand				
177.5							
180.0							
182.5							
185.0							
187.5							
190.0							
192.5							
195.0							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯) WATER FOUND ▽ STATIC WATER LEVEL ▼

Subtidal Transducers

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A1
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716516 EASTING: 1167210 GROUND SURFACE	-42.12					
	0-48.2' BGS - See Log from HYD-1 for Stratigraphy						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A1
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- 0-48.2' BGS - See Log from HYD-1 for Stratigraphy						
38							
40							
42							
44							
46							
48		-90.32					
	ML-SILT, dark gray, moist to wet	-90.62					
50	SM-SILTY SAND, loose, fine grained sand, gray, wet		SS1		0.9	6	16.3
			SS2		0.9	17	20.5
52	- 0.08' silt lense, dark gray, moist to wet @ 52.9 ft BGS		SS3		1.4	2	54.5
54	- 0.08' silt lense, dark gray, moist to wet @ 53.1 ft BGS - silt layer (ML), soft, dark gray, wet between 54.2 and 54.3 ft BGS		SS4		0.6	5	30.4
56							
	ML-SILT, soft, dark gray, wet	-99.32	SS5		1.4	7	32.6
58	SP-SAND, trace silt, compact, fine to medium grained sand, gray, moist to wet	-100.32	SS6		1.2	12	19.7
60	- trace wood debris below 61 ft BGS		SS7		1.5	13	147
62		-104.32					
	No Recovery		SS8		0.0	33	
64		-106.32					
	SP-SAND, trace silt, dense, fine to medium grained sand, gray, moist to wet		SS9		1.3	30	40
66	- very dense, poorly graded, trace red and white grains below 66.2 ft BGS						
	- increasing silt, very dense, blocky below 67 ft BGS	-108.82	SS10		2.0	59	75.9
68	ML-SILT, trace sand, soft, slight plasticity, fine to medium grained sand, dark gray, wet	-109.92 -110.32					
	SP-SAND, trace silt, very dense, fine to medium grained sand, poorly graded, dark gray with trace white and red grains, wet	-110.92	SS11		2.0	51	206

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A1
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT with SAND, soft, fine to medium grained, slight plasticity, dark gray, wet	-112.32					
	SP-SAND, trace silt, very dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-113.32	SS12		2.0	55	121
72	ML-SILT, trace sand, very soft, slight plasticity, fine to medium grained sand, wet, dark gray	-114.32					
	SP-SAND, trace silt, very dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet		SS13		2.0	54	12.8
74	ML-SILT, some sand, hard, slight plasticity, fine grained sand, dark gray, wet	-116.82	SS14		0.8		72.8
	- becoming firm/stiff below 73.6 ft BGS						
76	- very stiff below 74.2 ft BGS		SS15		1.2	51	242
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-119.32					
78	- 0.3' lense of sand and increased silt, very dense @ 75.2 ft BGS		SS16		1.3	65	133
	- 0.1' lense of sand with increased silt @ 76 ft BGS						
	SM-SILTY SAND, very dense, very fine to fine grained sand, poorly graded, dark gray, wet	-121.32					
80	- 0.1' sand with trace silt lense, fine to medium grained, poorly graded, dark gray with trace red and white grains, wet @ 77.5 ft BGS		SS17		2.0	5	37.3
	- 0.1' sand with trace silt lense, fine to medium grained, poorly graded, dark gray with trace red and white grains, wet @ 77.9 ft BGS	-123.32					
82	ML-SILT, trace sand, firm, slight plasticity, very fine grained sand, blocky, dark gray, wet		SS18		1.7	13	153
		-125.32					
84	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-125.92	SS19		2.0	12	708
	- 0.2' with silt @ 81.8 ft BGS						
86	- 0.3' silty sand lense, stiff, very fine grained, dark gray, wet @ 82.1 ft BGS		SS20		1.4	6	282
	ML-SILT, trace sand, stiff, slight plasticity, fine to medium grained sand, dark gray, wet						
88	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet		SS21		1.9	7	35.3
	- loose below 85.2 ft BGS						
	- very loose 89.2 ft BGS						
90	SM-SILTY SAND, loose, very fine to fine grained sand, poorly graded, dark gray, wet	-131.92	SS22		2.0	0	63.3
	- very loose 91.2 ft BGS						
92	- trace white fragments (shell?) 92.5 ft BGS		SS23		2.0	0	18.2
	- trace white fragments (shell?) 92.7 ft BGS	-135.32					
94	ML-SILT, trace sand, very soft, slight plasticity, very fine to fine grained sand, cohesive, dark gray, wet	-136.32	SS24		2.0	1	13.3
	SM-SILTY SAND, very loose, fine to medium grained sand, poorly graded, dark gray, wet	-137.32					
96	ML-SILT, trace sand, soft, slight plasticity, very fine grained, dark gray, wet	-137.92	SS25		1.4	20	13.2
	SP-SAND, trace silt, trace gravel, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet						
98	- medium to coarse grained, gray, no red or white grains below 96.5 ft BGS		SS26		1.6	21	6.6
	- compact, fine to medium grained, dark gray with trace red and white grains below 97.2 ft BGS						
100	- increase in medium white grains below 98.4 ft BGS		SS27		0.5	50	0.5
	- hard below 99.2 ft BGS						
	SP/GP-SAND and GRAVEL, trace silt, hard, fine to coarse grained sand, fine to coarse grained gravel, poorly graded, brown to medium brown	-143.32					
102			SS28		0.5	76	0.1
104			SS29		0.5	82	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A1
DATE COMPLETED: March 16, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			SS30		0.5	59	0.1
108			SS31		0.9	>50	0.1
110	Not Sampled	-151.22					
112							
114	END OF BOREHOLE @ 113.0ft BGS	-155.12					
116	Chemical analyses refer to both groundwater and sediment.						
118	BGS = Below Mudline						
120	Ground Surface = Mudline						
122	NR = Not Recorded						
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A2
DATE COMPLETED: April 5, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716666 EASTING: 1167402 GROUND SURFACE	-42.92					
	ML-SILT, trace sand, very loose, non-plastic, fine grained sand, dark gray, wet	-43.92	SS1		1.5	0	1.0
2	SM-SILTY SAND, very loose, fine grained, poorly graded, dark gray, wet	-44.92					
	SHELBY TUBE SAMPLE		SS2		2.0		NR
4	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet - becomes more fine grained below 5.2 ft BGS	-46.92	SS3		1.7	10	0.5
6			SS4		1.4	15	0.6
8	SM-SILTY SAND, loose, fine grained, poorly graded, dark gray, occasional red and white grains, wet	-50.92	SS5		1.8	5	0.4
10	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet	-52.92	SS6		1.0		0.5
12			SS7		2.0	10	0.4
	SM-SILTY SAND, loose, fine grained, poorly graded, dark gray, occasional red and white grains, wet	-55.32 -55.92					
14	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet - increase in silt content @ 13.6 ft BGS		SS8		1.5	9	0.6
16	- increase in silt content @ 15.3 ft BGS	-58.72	SS9		1.1	4	0.4
	ML-SILT with sand, stiff, very fine grained sand, slight plasticity, dark gray, wet - saturated below 17 ft BGS	-60.32					
18	SM-SILTY SAND, loose, fine to medium grained, poorly graded, dark gray, wet - decrease in grain size below 17.9 ft BGS		SS10		1.5	7	0.4
			SS11		0.4	5	0.0
20			SS12		2.0		NR
22	- 0.08' silt lense @ 21.5 ft BGS		SS13		0.8		1.6
			SS14		0.8	5	0.6
24	SP-SAND with silt, compact, fine grained, dark gray, wet	-67.32					
26			SS15		1.6	20	0.5
	- 0.1' silt lense @ 27 ft BGS						
28	- fine to medium grained, red and white grains present below 27.4 ft BGS		SS16		0.7	21	6.6
			SS17		0.6	16	15.4
30	- 0.5' silt lense with fine grained sand, rapid dilatancy 30.7 ft BGS	-73.32					
32	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/whitish grains, wet - increase in silt content @ 31.2 ft BGS		SS18		1.0	22	57.2
			SS19		0.0	16	
34	- trace wood debris, trace silt, red and whitish grains below 34.7 ft BGS	-77.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A2
DATE COMPLETED: April 5, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND with silt, compact, fine grained, dark gray, wet - 0.02' silt lense @ 35 ft BGS - dense, moist below 36.4 ft BGS - trace silt, grain size increases, red and white grains present below 36.6 ft BGS		SS20		0.9	20	194
38			SS21		0.6	40	287
40			SS22		0.0	24	NR
		-83.32					
	SM-SILTY SAND, compact, fine grained, moist to wet, dark gray	-83.82					
42	SP-SAND, trace silt, trace wood debris (at top of section), fine to medium grained, dark gray with red and white grains, moist	-84.52	SS23		1.3	17	52.6
44	SM-SILTY SAND, trace clay, fine grained, moist - 0.06' sand with silt lense @ 42.3 ft BGS - 0.02' dark organic lense @ 42.6 ft BGS		SS24		0.8	12	12.2
	- 0.06' sand with silt lense @ 42.7 ft BGS	-87.32					
46	- 0.02' dark organic lense @ 42.8 ft BGS - 0.02' dark organic lense @ 42.9 ft BGS				0.0		NR
	- 0.02' dark organic lense @ 43 ft BGS	-89.32					
	SHELBY TUBE SAMPLE		SS25		2.0	10	6.7
48	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray with trace red grains, wet						
		-92.32	SS26		1.7	8	6.9
50	ML-SILT, with clay, trace fine sands, firm, non-plastic, dark gray, very moist to wet						
		-93.32					
	SP-SAND, trace silt, loose, fine grained sand, poorly graded, dark gray with trace red and white grains, wet	-94.12	SS27		1.8	9	25.6
52	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray with trace red grains, wet	-95.32					
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray with trace red and white grains, wet		SS28		1.6	23	46.1
54	- 0.02' silt seam, with small roots, trace woody organics, dark gray @ 53.4 ft BGS - strong sulfur "rotten egg" odor @ 54.4 ft BGS						
56			SS29		1.2	16	35.6
		-99.92					
58	ML-SILT, trace sand, trace clay, non-plastic, fine grained sand, firm, dark gray, very moist to wet - firm, medium gray below 58.4 ft BGS		SS30		1.6	7	3.9
60			SS31		1.7	1	3.1
62			SS32		1.6	0	1.0
64			SS33		1.7	0	1.5
66			SS34		2.0	0	0.8
		-109.32					
	No Recovery		SS35		0.0	28	NR
68		-111.32					
	GM/SM-GRAVEL and SAND, with silt, dense, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, light gray, wet		SS36		1.0	45	0.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WW-A2

PROJECT NUMBER: 07843
DATE COMPLETED: April 5, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Rivers, M. Muffels, Z. Ferriera

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
		-113.32					
	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-113.92	SS37		1.5	40	0.1
72	GM/SM-GRAVEL and SAND, with silt, dense, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, light gray, wet	-115.32					
	SP-SAND, trace silt, trace gravel, dense, fine to coarse grained, poorly graded, dark gray, wet	-115.82	SS38		1.2	47	0.1
74	GM/SM-GRAVEL and SAND, with silt, dense, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, medium brown, wet	-117.32					
	SP-SAND, with gravel, trace silt, trace clay, fine grained gravel, fine to coarse grained sand, dense, poorly graded, medium brown, wet		SS39		1.8	46	0.4
76	GM-SANDY GRAVEL, trace silt, dense, well graded, gray, wet	-119.32	SS40		0.6	34	0.1
78	SP-SAND, compact, fine to medium grained, poorly graded, gray, wet	-121.32	SS41		1.4	25	0.0
80	GW/SW-GRAVEL and SAND, very dense, light brown/grayish, wet	-123.32	SS42		0.9	60	0.0
82	GPS-GRAVELLY SAND, trace silt, very dense, fine to medium grained sand, subangular to rounded gravel, gray, wet	-125.32	SS43		0.5	63	0.0
84			SS44		0.6	66	0.0
86			SS45		0.3	57	0.0
88			SS46		0.7	>50	0.0
90			SS47		0.1	>50	0.0
92	SP-SAND with gravel, trace silt, compact, fine to medium grained sand, poorly graded, rounded gravels, brown/gray, wet	-135.32	SS48		0.3	21	0.0
94	GPS-GRAVELLY SAND, trace silt, very dense, fine to medium grained sand, subangular to rounded gravel, gray, wet	-137.32	SS49		0.3	>50	0.0
96	SW-GRAVELLY SAND, trace silt, dense, well graded, sub-rounded gravel, brown/gray, greenish gray, and yellowish colors, moist	-139.32	SS50		0.2	>50	0.0
98			SS51		0.6	>50	0.0
100			SS52		0.6	92	0.0
102							
104	GM/SM-GRAVEL and SAND, with silt, very dense, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, medium brown, wet	-146.12	SS53		1.2	>78	0.0
	SM-SILTY SAND, with gravel, dense, fine to coarse grained, poorly graded,	-147.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A2
DATE COMPLETED: April 5, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	medium brown to greenish brown, wet, some rust-brown oxidation		SS54	X	1.6	39	NR
	Auger. Hard drilling @ 107' BML Not Sampled	-149.32					
108							
110							
	END OF BOREHOLE @ 110.5ft BGS	-153.42					
112	Chemical analyses refer to both groundwater and sediment.						
	BGS = Below Mudline						
114	Ground Surface = Mudline						
116	NR = Not Recorded						
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A3
DATE COMPLETED: May 8, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	8.68					
0	FILL, sand and gravel, massive, moist, brown-black						
2							
4			CS1		6.0		
6		3.18					
6	SP-SAND, trace silt, clay lenses, trace to with wood debris and vegetative matter, some quartz and feldspar grains, loose, medium grained sand, trace fine and trace coarse sand, stratified and bedded with 0.6'-0.8' beds, black and dark red and brown, red and black sand grains are from basalt, andesite, and tephra of Mt Rainier, wet						
8							
10							
10	- laminated silt layers, 0.16' thick @ 11 ft BGS		CS2		10.0		
12	- laminated silt layers, 0.16' thick @12.5 ft BGS						
14							
16							
18		-9.32					
18	ML-SILT, with clay and sand, shells (fossils) and vegetative matter throughout unit, soft, cohesive, low plasticity, occasionally stratified, generally massive, gray, wet to saturated						
20			CS3		10.0		
22		-12.82					
22	SP-SAND, trace silt, clay lenses, trace to with wood debris and vegetative matter, some quartz and feldspar grains, loose, medium grained sand, trace fine and trace coarse sand, stratified and bedded with 0.6'-0.8' beds, black and dark red and brown, red and black sand grains are from basalt, andesite, and tephra of Mt Rainier, wet						
24							
26		-17.32					
26	SW-SAND, with silt to silty, trace fossil fragments, loose, medium to coarse grained, massive, gray, wet to saturated, highly dilatant	-18.32					
28	SW-SAND grading into SW/GW gravel, with silt, no fossils, loose, massive, brown, oxidized matrix, sub-rounded clasts	-19.32					
28	ML/CL-SILT and CLAY, with sand and shells, trace gravel, massive, soft, no stratification, medium plasticity, very fine to fine grained sand, gray, moderately dilatant						
30							
30			CS4		8.0		
32							
34							
34		-25.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A3
DATE COMPLETED: May 8, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SW-SAND, with silt to silty, trace fossil fragments, loose, medium to coarse grained sand, massive, gray, wet to saturated, highly dilatant	-27.32					
	No Recovery						
38							
40							
			CS5		0.0		
42							
44							
46	SW/GW-SAND and GRAVEL, with silt, loose, massive, well graded, medium grained sand to cobble gravel, gray with dark brown, grading from SM with silt at top to SW/GW gravel and sand, sub-rounded to sub-angular at bottom	-37.32					
48							
	SM/GM-SAND and GRAVEL, with silt to silty, compact, well graded, fine grained sand to coarse gravel, occasional cobble, moist to wet, brown, mottled light gray and brown matrix (oxidized silt to coarse sand matrix)(competent matrix supported, diamict)	-40.32					
50							
			CS6		10.0		
52							
54							
56	No Recovery	-47.32					
58							
60							
			CS7		0.5		
62							
64							
66	SM/GM-SAND and GRAVEL, with silt, loose, well graded, medium grained sand, medium gravel, wet to saturated	-57.32					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A3
DATE COMPLETED: May 8, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			CS8		9.0		
74							
76	No Recovery	-67.32					
78							
80							
82			CS9		0.0		
84							
86							
88	SM-SAND with SILT, loose, well graded, trace fine to medium grained sand, wet, grading into coarse sand with fine gravel	-78.32					
90	GM/SM-SAND and GRAVEL, loose, medium grained sand to coarse gravel (up to cobble size), well graded, massive, dark brown, wet, non-oxidized, silt and sand content increasing with depth (coarsening upward)	-79.52					1.7
92	GP-GRAVEL with SAND, loose, poorly graded, fine to medium gravel, brown, wet, non-oxidized, elongated clasts-show lubrication	-83.32					1.9
94	GM/SM-GRAVEL and SAND, with silt, loose, massive, well-graded, medium to coarse grained sand, fine to medium gravel, occasional cobble with visible clast lubrication (no graded bedding), dark brown, wet, non-oxidized	-84.82	CS10		8.0		
96	No Recovery	-86.32					
98							5
100							
102	SW/SP-SAND, occasional cobbles, loose, massive, medium to coarse grained sand to fine gravel, well graded sand, dark brown/gray, wet, non-oxidized, top grading to poorly graded sand in bottom	-92.32					1.8
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A3
DATE COMPLETED: May 8, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108			CS11		10.0		3.1
110							
112							2.4
114							
116							3.3
118							1.8
120	SW-SAND with GRAVEL, compact, with silt, matrix competent, clast lubrication for elongated clasts, imbrication is sub-horizontal	-111.32	CS12		10.0		2.6
122							2.0
124							6.6
126	SM-SAND with SILT, trace gravel, loose to compact, brown/orange, stratified sand, medium grained, fine gravel, oxidized, sand intrusion textures, gray/green intrusion from above unit.	-117.32					
128			CS13				1.8
130							
132	SM/GM-SAND and GRAVEL, with silt, occasional cobbles, loose, fine grained sand to coarse gravel, bedded, variable gravel proportion in beds, moist to wet	-122.32					
134	- with clay below 134 ft BGS - highly oxidized layer of silt with clay possible, no vegetative matter evident, dry to moist @ 135 ft BGS						
136	END OF BOREHOLE @ 136.0ft BGS	-127.32					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

NORTHING: 716986
EASTING: 1167686

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.07					
0	FILL, gravel and sand, compact, well graded, medium to coarse grained sand, fine to medium gravel						0.0
2							3.0
4	- 1.0' sand and gravel fill, black below 5 ft BGS - moist below 5.5 ft BGS - wet below 6.0 ft BGS		CS01		10.0		47
6							6.32
8	ML/SM-SILT and SAND, very fine grained sand, compact, brown, moist, no odor	3.07					6.9
10							5.5
12	SW/GW-SAND and GRAVEL, loose, medium to coarse grained sand, fine to medium gravel, occasional cobble, well graded, brown, wet	-0.93	CS02		6.0		5.9
14							5.3
16	SM/ML-SAND and SILT, with gravel, compact fine to medium sand, fine to medium sub-rounded gravel, massive, well graded, moist to wet, possible lahar fragment (welded texture)	-4.93 -5.93					5.9
18	GW-GRAVEL with SAND, loose, coarse grained sand to medium, sub-rounded gravel, well graded, brown to black, moist	-6.93 -7.43					11.6
20	ML-SILT, loose to compact, slightly cohesive, low plasticity, massive, moderately dilatant, brown to tan, wet, no odor -top 0.16' oxidized, top 0.16' is mixture of upper gravel with silt matrix, possible lahar or old mud flat	-9.93					10.8
22	SM-SAND, trace to with silt, dense, medium grained sand, stratified, tan, moist ML-SILT with SAND, compact, very fine grained sand, wet, laminated	-10.93					
24	SM-SAND, trace to with silt, dense, medium grained sand, stratified, tan/orange, moist, oxidized GW/SW-GRAVEL and SAND, trace silt, compact, medium grained sand, coarse grained gravel, occasional rounded cobbles, sub-rounded gravel, massive, no bedding or internal stratification, brown with yellow orange oxidized portions, moist to wet, some dense fragments (clast supported diamict), may be lahar fragments	-11.93	001				9.1
26			CS03		20.0		0.3 0.5
28	SP-SAND, loose, coarse grained, massive, poorly graded, some stratification, brown, wet	-16.93					0.0 4.8
30	GW/SW-GRAVEL and SAND, trace silt, loose, compact in lenses, well graded, medium grained sand to coarse gravel, brown to gray with reddish and orange oxidized lenses, wet, no odor, clasts of andesite, reddish tuff, granodiorite, basalt, granite, and rhyolite	-18.43					14.2 8.6
32							29
34							5.7 21

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							23.7
							10.9
38							13.9
							28.2
40							23.5
							21.2
42							17.6
							7.5
44							10.0
							9.8
46	- 1.5' with sand @ 46 ft BGS		CS04		20.0		7.7
	- sandy @ 47.5 ft BGS		002				2.8
48							6.5
50							1.7
							1.1
52	- gravel and sand @ 52 ft BGS						2.8
							0.9
54							1.2
							0.7
56							2.5
							3.1
58							6.6
60	SP-SAND, loose, coarse grained, poorly graded, stratified brown, wet	-48.93					1.7
	- 0.3' red/brown layer @ 61 ft BGS						6.3
62	- 0.5' gray layer @ 62.5 ft BGS						7.4
64							
	SP/GP-SAND and GRAVEL, loose, coarse grained sand, fine gravel, moderately to poorly graded, massive, wet	-53.93					1.6
66			CS05		20.0		
							3.1
68	- grading into gravel and sand, loose below 68 ft BGS		003				0.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	- 0.5' gravel lense @ 71 ft BGS						6.9
72							17.9
74							2.1
76		-65.43					0.9
	GM/SM-SAND and GRAVEL, with silt, trace clay, compact to dense, well graded, massive, fine grained sand to coarse sub-rounded gravel, occasional cobble, brown-gray, wet, matrix supported diamict with silt, clay, and sand matrix, ~45% matrix, variable clast type basalt, andesite, gravel, granite, rhyolite						0.7
78	- 0.5' red/brown oxidized layer@ 77 ft BGS						1.5
80							2.3
			CS06		10.0		3.0
82	- 1.0' little matrix @ 82 ft BGS						4.5
							1.6
84	SP-SAND, dense, medium grained, stratified with silt lenses 0.1' thick, gray/brown, moist to wet	-72.93					1.2
	GW/SW-GRAVEL and SAND, trace silt, compact, massive, fine grained sand to coarse gravel, some sub-angular clasts, mostly sub-rounded, brown, wet, clast supported diamict	-74.13					
86							1.2
88	- sand and gravel between 88.5 and 89.5 ft BGS						3.7
	- gravel and sand below 89.5 ft BGS						0.8
90							0.9
							1.5
92	SP-SAND, trace fine gravel, loose, massive, coarse grained sand, brown to dark yellow (oxidized)	-80.43					
			CS07		16.0		0.0
94	- gravel lense between 94.0 and 94.2 ft BGS	-82.93					
	SW-SAND, trace gravel, loose, medium grained sand, some coarse grained sand, wet, brown						1.4
96	GW/SW-GRAVEL and SAND, with silt, trace clay, dense, fine grained sand to coarse gravel, occasional cobble, low plasticity, slightly cohesive, massive, brown, wet, clast supported diamict, crumbly texture, possible lahar, pinkish tuff or andesite clasts	-84.93					1.6
98			004				7.9
							2.2
100	SP-SAND, loose, medium to coarse grained, massive, moderately poorly graded, brown/gray with trace reddish color, wet	-88.93					3.3
	- SWG-SAND and GRAVEL, medium to coarse grained sand, fine to medium gravel, sub-rounded to sub-angular clasts						4.7
102	- saturated @ 102.5 ft BGS						1.7
	GW/SW-GRAVEL and SAND, loose, well graded, massive, medium grained sand to coarse gravel, occasional cobble, possible minor clast lubrication, sub-rounded	-92.43					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
106	clasts, wet						3.1
	SP-SAND, trace gravel, medium grained sand, fine gravel, moderately well graded, massive, brown/gray with some ocher, moist to wet	-95.93					0.2
108			CS08		16.0		0.0
110							0.2
	GW/SW-GRAVEL and SAND, loose to compact, well graded, medium grained sand to coarse gravel, occasional cobble, massive texture, some sub-angular, mostly sub-rounded to rounded clasts, wet, clast lubrication possible (but not obvious or well defined), sand and fine gravel matrix, clast supported diamict	-100.23					0.0
112							0.0
114	- trace silt between 112.5 and 115.0 ft BGS						0.0
116							0.2
118							3.6
120							4.9
122							3.3
124	- silty matrix between 123.5 and 124.5 ft BGS		CS09		15.0		6.3
126							8.5
	SP-SAND with GRAVEL, compact, massive, gravel in lenses, fine to medium grained gravel, moderately poorly graded, brown/gray with some black disseminated staining, wet	-115.43					6.9
128							0.9
	SM-SAND with SILT, compact, fine to medium grained sand, stratified (0.1-0.3' layers), oxidized @ top 0.16'	-117.93					1.3
130			005				0.1
	SW/GW-SAND and GRAVEL, loose to compact, massive, medium to coarse grained sand, sub-rounded fine to coarse gravel, occasional cobble	-119.93					59.6
132							29.7
	- 0.1' sand lense, wet, highly oxidized, lense cutting into underlying silt with clay @ 133.2 ft BGS	-122.23					5.2
134	ML-SILT, trace clay, dense, non-cohesive, laminated to stratified, gray to green, dry to moist						
136	- becoming clayey and gray @ 136 ft BGS						
	SW-SAND with GRAVEL, compact, massive, some stratification, medium to coarse grained sand, fine gravel, brown to red (oxidized)	-125.93					
	-conglomerate cobble clast @ 137.4' composed of a green sand and silt matrix and a medium sand and fine gravel clasts matrix of different lithologies	-126.33					
138	SM-SAND with SILT and GRAVEL, trace clay, loose, massive, fine to coarse		CS10		16.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-A4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
	grained sand, fine to medium gravel, well graded, brown, saturated, increasing gravel with depth						3.1
142							8.2
144							14.8
146	SW/GW-SAND and GRAVEL, compact, massive, medium to coarse grained sand, sub-rounded fine to coarse gravel, occasional cobble, well graded, massive, dark brown, wet	-134.93					9.7
148	SW-GRAVELLY SAND, trace silt, compact, fine to coarse grained sand, fine to medium gravel, well graded, massive, brown, wet	-136.93					9.9
150							1.7
152							3.5
154			CS11		14.0		6.1
156	- grades to gray, wet @ 156 ft BGS						7.0
158			006				3.6
160							3.3
162	END OF BOREHOLE @ 162.0ft BGS	-150.93					
164	BGS = Below Mudline Ground Surface = Mudline						
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B1
DATE COMPLETED: February 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

NORTHING: 716039
EASTING: 1167699

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-48.65					
0	0-7' BGS - See Log from 5106-3 for Stratigraphy						
2							
4							
6							
		-55.65					
8	SP-SAND, trace silt, loose, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet		SS1		1.2	9	256
10			SS2		2.0	6	399
		-59.45					
	SM/ML-SANDY SILT, loose, fine grained sand, dark gray, wet	-59.65					
12	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet - 0.02' silt lense @ 11.6 ft BGS		SS3		1.3	11	369
14	- 0.02' silt lense @ 11.8 ft BGS - fine grained, more silt @ 14.6 ft BGS		SS4		2.0	20	555
		-63.65					
16	Not Sampled (see stratigraphy for location 5106-3)						
		-65.65					
18	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet		SS5		2.0	31	160
		-67.15					
	ML-SILT, trace sand, compact, slight plasticity, dark gray, moist	-67.65					
20	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red grains, wet	-68.85	SS6		2.0	16	90
	SM/ML-SANDY SILT, compact, slight plasticity, fine grained sand, dark gray, moist	-69.65					
22	- 0.08' sand lense @ 20.6 ft BGS - 0.02' sand lense @ 20.8 ft BGS						
	Not Sampled (see stratigraphy for location 5106-3)						
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B1
DATE COMPLETED: February 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
	SP-SAND, trace silt, trace shells, very dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-99.65 -100.15					
52	SM/ML-SANDY SILT, very dense, slight plasticity, fine grained sand, dark gray, moist - 0.16' sand lense, trace silt @ 51.9 ft BGS	-100.75 -101.65	SS7		2.0	66	25
54	SM-SILTY SAND, very dense, fine grained, poorly graded, dark gray, wet SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet - 0.04' silt lense, very dense, organic, black @ 54.2 ft BGS - odor present @ 55 ft BGS		SS8		1.8	49	0
56			SS9		1.4	53	3.5
	- 0.16' silty sand lense, very dense, fine grained, moist @ 56.1 ft BGS	-105.65					
58	SP-SAND with SILT, very dense, fine grained sand, poorly graded, dark gray, moist - 0.24' silt with sand lense, very dense, dark gray, dry to moist @ 57.5 ft BGS	-107.65	SS10		1.3	61	5
60	- 0.16' silt with sand lense, very dense, dark gray, dry to moist @ 58.1 ft BGS ML-SILT, little fine grained sand, very dense, dark gray, dry to moist - 0.1' sand lense, fine grained, trace silt @ 59.4 ft BGS	-109.65	SS11		1.0	51	3.5
62	- 0.3' sand lense, fine grained, trace silt @ 59.6 ft BGS SP-SAND, trace silt, dense, fine grained sand, poorly graded, dark gray, moist - 0.2' silty sand lense, with wood debris @ 61.7 ft BGS		SS12		1.6	38	4.3
64	- sand becomes fine to medium grained below 61.9 ft BGS - 0.2' silt lense, little fine grained sand, very dense, dry to moist @ 63.6 ft BGS		SS13		1.0	44	6.0
	ML-SILT, little sand, very dense, fine grained sand, dark gray, dry to moist, strong odor	-113.65					
66			SS14		1.8	43	4.1
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, moist	-115.65					
68			SS15		1.8	17	3.1
	ML-SILT with SAND, fine grained sand, compact, slight plasticity, rapid dilatancy,	-117.65					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B1
DATE COMPLETED: February 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	dark gray		SS16		2.0	27	1
	- 0.1' clay lense, dark gray and brown, medium "stickiness" @ 69.5 ft BGS	-119.65					
72	- 0.3' sand with silt lense, fine grained, dark gray @ 69.6 ft BGS - 0.1' wood debris/organic lense @ 70.8 ft BGS SP-SAND with SILT, compact, poorly graded, fine grained sand, dark gray, moist to wet		SS17		1.2	27	1
74	- 0.3' silty sand lense, dark brown/black layers throughout below 71.5 ft BGS - organic lense @ 71.6 ft BGS		SS18		1.7	19	1.3
	- 0.2' silt lense @ 71.8 ft BGS	-123.65					
76	- 0.2' silty sand lense @ 72.1 ft BGS - wet below 73 ft BGS	-125.15	SS19		2.0	24	1.1
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, wet						
78	SP-SAND with SILT, compact, fine grained sand, poorly graded, dark gray, wet - 0.16' silt lense, with organics (wood) @ 78.3 ft BGS		SS20		1.5	11	NR
		-127.65					
80	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, wet - 0.16' sandy silt lense @ 80.3 ft BGS		SS21		1.8	12	0.3
		-130.15					
82	ML-SANDY SILT, trace woody organics, compact, non-plastic, fine grained sand, dark gray, wet		SS22		1.8	27	0.1
		-131.65					
84	ML-SILT with CLAY, very soft, low to non-plastic, dark gray, very moist to wet		SS23		1.5	1	0.1
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, wet	-132.95					
86	ML-SILT with CLAY, soft, low to non-plastic, medium gray, moist	-133.65	SS24			4	0
		-135.65					
88	SP-SAND, trace silts, trace shell fragments, loose, fine grained sand, poorly graded, dark gray, wet	-136.25	SS25		1.8	7	0.2
	ML-SILT, trace sand and clay, fine grained sand, firm, non-plastic, medium gray, moist	-137.15					
90	- with clay, low to nonplastic @ 88.2 ft BGS SP-SAND, trace silts, trace shell fragments, loose, fine grained sand, poorly graded, dark gray, wet		SS26		1.9	32	0.2
92	- dense, trace medium grained sand @ 89 ft BGS - compact, trace medium to coarse grained sand @ 91 ft BGS - with shells and woody organic material @ 92.4 ft BGS		SS27		1.7	21	0.3
94	- with fine gravels @ 94 ft BGS		SS28		1.5	18	0
		-143.65					
96	ML-SILT with CLAY, trace fine grained sand, very stiff, non-plastic, medium gray, moist		SS29		2.0	22	0.1
	- trace clays and fine grained sand @ 95.5 ft BGS	-145.15					
98	SP-SAND with SILT, trace shell fragments, compact, fine grained sand, poorly graded, dark gray, wet - trace silt, fine to medium grained sand, trace white grains @ 97 ft BGS		SS30		1.7	16	0
	- fine grained @ 97.4 ft BGS						
100	- 0.02' sandy silt lense @ 98 ft BGS - trace fine subrounded gravel @ 98.1 ft BGS		SS31		2.0	80	0
	- with white medium grains @ 99 ft BGS	-149.65					
102	END OF BOREHOLE @ 101.0ft BGS						
	BGS = Below Mudline						
104	Ground Surface = Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B2
DATE COMPLETED: April 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, J. Williams, G. Harrison

NORTHING: 716209
EASTING: 1167863

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-41.82					
0	ML-SILT, with sand, fine grained sand, very soft, slight plasticity, dark gray, saturated	-42.72	SS1		1.7	5	1.9
2	SP-SAND, trace silt, loose, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet to saturated	-43.82					
	SHELBY TUBE SAMPLE		SS2 / ST1		2.5		
4	SP-SAND, trace silt, fine grained sand, black with red grains, wet	-46.32	SS3			8	0.0
6	SHELBY TUBE SAMPLE	-47.82	SS4 /ST2		2.0		
8	Not Sampled	-49.82					
	SP-SAND, trace silt, fine grained sand, black with red grains, wet	-50.82					
10			SS5		2.0	14	8.5
12			SS6		2.0	9	59.9
			SS7		1.5		54.3
14			SS8		2.0	18	21.6
16	SM-SAND and SILT, fine grained sand, very dense, dark gray, wet	-57.12					
			SS9		1.0	6	58.8
18			SS10		2.0	9	12.1
20	SHELBY TUBE SAMPLE	-61.82	ST3		2.0		
22	SM-SAND and SILT, fine grained sand, very dense, dark gray, wet	-63.82	SS11		0.0	6	
24	SP-SAND, trace silt, medium grained sand, black with red grains, wet, dense	-65.82	SS12		1.6	15	7.5
	- 0.1' silt and fine sand lense, dark gray, dense @ 25.5 ft BGS						
26			SS13		0.1	17	
28			SS14		1.8	21	0.3
30							
	ML-SILT, trace sand, fine grained sand, dense, dark gray, wet	-72.82	SS15		1.8	10	0.3
32	SM-SILT and SAND, fine grained sand, dark gray, compact, wet	-73.82					
			SS16		0.8	21	170.1
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B2
DATE COMPLETED: April 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, J. Williams, G. Harrison

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36			SS17		0.4	16	25.9
			SS18		0.7	22	1.4
38			SS19		0.5	21	5.3
40			SS20		0.0	6	7.3
42	SM-SAND with SILT, fine grained sand, shards of rock/shell, dark gray, wet	-83.82	SS21		1.0	18	5.1
44	ML-SILT and SAND, fine grained sand, dark gray, wet	-85.82	SS22		0.7	9	37.4
46	SHELBY TUBE SAMPLE	-87.82			0.0		
48	SM-SAND with SILT, loose, fine grained sand, dark gray, wet	-89.82	SS23		2.0	9	5.2
50	- compact, poorly graded @ 50 ft BGS		SS24		1.5	23	37.5
52			SS25		2.0	3	4.5
54	ML-SILT with SAND, fine grained sand, very loose, non-plastic, dark gray, moist to wet	-94.82 -95.82	SS26		2.0	4	16.5
	SM-SAND with SILT, fine grained sand, dark gray, loose, wet	-96.32					
56	ML-SILT with SAND, fine grained sand, very loose, non-plastic, dark gray, moist to wet	-97.32	SS27		1.5	16	3.5
	SM-SAND with SILT, fine grained sand, dark gray, loose, wet	-97.82					
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, wet						
58	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, wet	-99.82	SS28		1.2	27	2.9
60	No Recovery	-101.82	SS29		0.0	29	
62	SM-SAND with SILT, dense, fine grained sand, poorly graded, dark gray, wet	-103.82	SS30		1.5	38	1.0
64	- compact @ 64 ft BGS - 0.16' silt seam @ 64.8 ft BGS		SS31		1.7	11	1.8
	ML-SILT, trace fine grained sand, soft, non-plastic, dark gray, moist	-107.02					
66	- increase to "with" sand, moist to wet @ 66 ft BGS		SS32		1.8	2	0.6
68			SS33		1.0	10	0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B2
DATE COMPLETED: April 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, J. Williams, G. Harrison

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	SM/ML-SAND and SILT, with woody debris, compact, fine grained sand, non-plastic, dark gray, wet	-112.42	SS34		2.0	23	0.0
		-113.12					
72	ML-SILT, trace sand, fine grained sand, soft, non-plastic, dark gray, moist		SS35		2.0	1	0.0
74	ML-SILT with CLAY, trace fine grained sand, very soft, slight plasticity, dark gray, very moist	-115.82	SS36				0.0
76	SHELBY TUBE SAMPLE	-117.82	SS37 / ST4		2.0		
78	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, moist to wet	-119.82	SS38		1.4	34	0.0
		-120.92					
80	GW-GRAVEL, trace fine to coarse grained sand, fine sub-angular to sub-rounded gravel, well graded, gray, wet	-121.82	SS39		0.0	25	0.0
	No Recovery						
82	GW-GRAVEL, trace fine to coarse grained sand, fine sub-angular to sub-rounded gravel, well graded, gray, wet	-123.82	SS40		0.6	47	0.0
84	SLOUGH (Washed sands and gravels)	-125.82	SS41		0.0	28	0.0
86	GW-GRAVEL, trace fine to coarse grained sand, fine sub-angular to sub-rounded gravel, well graded, gray, wet	-127.82	SS42		0.4	43	0.0
88	No Recovery	-129.82	SS43		0.0	9	
90			SS44		0.0	22	
92	GW-GRAVEL, trace sand, fine to coarse sand, fine sub-angular to sub-rounded gravel, well graded, gray, wet	-133.82	SS45		0.4	22	0.0
94	- sandy gravel @ 94 ft BGS		SS46		0.2	60	0.0
96	SW-SAND, trace silt, fine to coarse grained sand, poorly graded, very dense, gray with trace red and white grains, wet	-137.82	SS47		0.7	58	0.0
98	No Recovery	-139.82	SS48		0.0		
100	SW-GRAVELLY SAND, trace silt, fine to coarse grained sand, rounded to sub-rounded gravel, poorly graded, very dense, gray with trace red and white grains, wet	-141.82	SS49		0.2	>50	0.0
102	GW-SANDY GRAVEL, trace silt, dense, well graded, fine to coarse grained sand, angular to rounded gravel, gray, wet	-143.82	SS50		0.5	42	0.0
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B2
DATE COMPLETED: April 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels, J. Williams, G. Harrison

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			SS51		0.3	74	0.0
	No Recovery	-147.82					
			SS52		0.0	49	
108	Not Sampled	-149.82					
110							
	END OF BOREHOLE @ 110.5ft BGS	-152.32					
112	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
114	Ground Surface = Mudline						
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B3
DATE COMPLETED: May 9, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, G. Harrison, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716426 EASTING: 1168058 GROUND SURFACE	-4.42					
	0-92' BGS - See Log from 5106-26 for Stratigraphy						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WW-B3

PROJECT NUMBER: 07843
DATE COMPLETED: May 9, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: D. Rivers, G. Harrison, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- 0-92' BGS - See Log from 5106-26 for Stratigraphy						
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B3
DATE COMPLETED: May 9, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, G. Harrison, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	- 0-92' BGS - See Log from 5106-26 for Stratigraphy						
74							
76							
78							
80							
82							
84							
86							
88							
90							
92	SW-GRAVELLY SAND, with silt, very dense, hard, sub-rounded gravel	-96.42					
94							
96			SS1	X	1.0		
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B3
DATE COMPLETED: May 9, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, G. Harrison, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110							
112							
		-117.42					
114	No Recovery		SS2	X	0.0	40	0.8
		-119.42					
	Not Sampled						
116							
118							
120							
122							
124							
126							
128							
		-133.42					
130	GM-SANDY GRAVEL, with silt, very hard, fine to medium gravel, fine to medium grained sand, gray, wet		SS3	X	0.1	64	0.0
		-135.42					
132	No Recovery		SS4	X	0.0	109	
		-137.42					
	Not Sampled						
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B3
DATE COMPLETED: May 9, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, G. Harrison, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144	GM-SANDY GRAVEL, with silt, very hard, fine to coarse gravel, fine to coarse grained sand, poorly graded, gray, wet	-147.42	SS5	X	0.5	99	0.0
	END OF BOREHOLE @ 145.0ft BGS	-149.42					
146	Chemical analyses refer to both groundwater and sediment samples.						
148	BGS = Below Mudline						
	Ground Surface = Mudline						
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B4
DATE COMPLETED: May 1, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, D. Rivers, M. Muffels

NORTHING: 716622
EASTING: 1168110

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-2.12					
	Not Sampled						
2		-4.12					
	ML-SILT, some fine to medium grained sand, loose, dark gray, wet		SS1		2.0	6	0.0
4	- trace fine grained sand, dark gray to black @ 4 ft BGS		SS2		2.0	5	0.0
6			SS3		1.9	3	0.0
8	SP-SAND with SILT, with trace shells, loose, medium to fine grained sand, dark gray, wet	-10.12	SS4		1.9	3	0.1
10	SM-SILTY SAND, trace fine gravel, trace shell fragments, loose, fine grained sand, light gray to medium brown, wet	-12.12 -13.12	SS5		1.0	1	0.1
12	Not Sampled						
14	No Recovery	-15.12	SS6		0.0	19	
16	No Recovery	-17.12	SS7		0.0	18	
18	SM-SILTY SAND and GRAVEL, trace shell fragments, loose, fine grained sand, light gray to medium brown, wet	-19.12	SS8		0.4	57	
20	SP-SAND, some silt and gravel, trace shells, loose, fine grained sand, fine to coarse gravel, dark gray to brown, wet	-21.12	SS9		0.9	5	
22	ML-SILT with SAND and GRAVEL, loose, fine grained sand, fine to coarse gravel, dark gray to brown, wet - trace gravel, trace shells, firm, 0.3' silt lense @ 23 ft BGS	-23.12	SS10		0.4	3	
24			SS11		1.1	6	
26	SP-SAND, some gravel, trace shells, loose, fine grained sand, fine gravel, brown with trace white and orange grains, wet -trace wood fibers @ 25.5 ft BGS	-27.12	SS12		1.3	5	
28	SM-SILTY SAND, trace gravel, trace shell fragments, coarse to fine gravel, dark gray to black - increase in gravel content @ 29 ft BGS	-29.12	SS13		0.8	6	
30	- silt lense, firm with trace sand, fine to coarse gravel @ 29.6 ft BGS		SS14		1.3	7	
32			SS15		0.0	9	
34			SS16		0.0	19	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WW-B4

PROJECT NUMBER: 07843
DATE COMPLETED: May 1, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: G. Harrison, D. Rivers, M. Muffels

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	ML-GRAVELLY SILT, angular coarse gravel with orange oxidized fragments	-38.12	SS17		1.0	11	
			SS18		0.2	41	
38	SP-SAND, trace silt and gravel, compact, fine to coarse grained sand, fine sub-rounded gravel, poorly graded, medium gray, wet - increase in silt content, brown @ 39 ft BGS	-40.12	SS19		1.8	26	0.1
40	- increase in gravel content, gray @ 40 ft BGS		SS20		0.7	11	0.1
42	- dense @ 42 ft BGS		SS21		0.5	31	0.1
44	- with silt, brown, compact @ 44 ft BGS		SS22		0.1	21	0.1
46			SS23		0.3	21	0.1
48			SS24		0.3	14	0.1
50	No Recovery	-52.12	SS25		0.0	22	
52	SM-SILTY SAND with GRAVEL, fine to coarse sub-rounded gravel, fine to coarse sand, well graded, light brown to gray, wet to saturated	-54.12	SS26		0.9	21	0.6
54	SM-SILTY GRAVELLY SAND, dense, fine to coarse sub-angular to sub-rounded gravel, fine to coarse grained sand, gray, saturated - increase in silt @ 54.6 ft BGS	-56.12	SS27		0.7	39	0.1
56	ML-SANDY SILT, trace gravel, slight plasticity, hard, fine grained sub-rounded gravel, fine to medium grained sand, gray, wet - 0.2' gravelly sandy silt, saturated @ 56.4 ft BGS	-58.12	SS28		1.0	44	0.1
58	- 0.4' silt, trace fine grained sand, moist @ 56.6 ft BGS ML-SILT, trace sand, hard, slight plasticity, fine grained sand, blocky, dry to moist	-60.12	SS29		0.4	>50	3.0
60	ML-SILT with SAND and GRAVEL, very stiff, slight plasticity, fine to medium grained sand, fine to medium sub-rounded gravel, gray, wet	-62.12 -63.02	SS30		1.5	25	1.6
62	SM-SILTY SAND with GRAVEL, compact, poorly graded, fine to coarse grained sand, fine to coarse sub-rounded gravel, gray, wet - dense, brown @ 62 ft BGS		SS31		1.5	32	0.1
64	- compact @ 64 ft BGS		SS32		2.0	20	0.1
66	SM/ML-SILT and SAND, with gravel, trace clay, compact, non-plastic, poorly graded, fine to coarse grained sand, fine to coarse sub-rounded gravel, brown, wet	-68.12	SS33		1.8	19	0.0
68			SS34		2.0	18	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WW-B4

PROJECT NUMBER: 07843
DATE COMPLETED: May 1, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: G. Harrison, D. Rivers, M. Muffels

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
			SS35		2.0	22	0.0
72	GM-GRAVEL with SILT and SAND, compact, poorly graded, fine to coarse gravel, fine to coarse sand, brown, wet	-73.62	SS36		1.8	26	0.0
74	SP-GRAVELLY SAND, trace silt, compact, poorly graded, fine to coarse grained sand, fine to coarse sub-rounded gravel, brown, wet	-76.12	SS37		2.0	29	
76	GM-SILTY GRAVEL, trace sand, poorly graded, compact, fine to coarse gravel, fine to coarse grained sand, sub-rounded gravel, brown, wet	-77.12	SS38		2.0	34	0.0
78	SP-GRAVELLY SAND, trace silt, compact, poorly graded, fine to coarse grained sand, fine to coarse sub-rounded gravel, brown, wet	-78.12	SS39		1.5	40	0.0
80	GM-SILTY GRAVEL, trace sand, compact, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, sub-rounded gravel, brown, wet	-79.22	SS40		0.5	25	0.0
82	GM-GRAVEL with SILT and SAND, compact, poorly graded, fine to coarse gravel, fine to coarse grained sand, brown, wet	-80.12	SS41		0.5	40	0.0
84	GM-SILTY GRAVEL, trace sand, compact, fine to coarse sub-rounded gravel, fine to coarse sand, brown, wet	-82.12	SS42		0.0	10	
86	No Recovery	-86.12	SS43		1.0	31	0.0
88	SM/GM-SAND and GRAVEL, with silt, dense, poorly graded, fine to coarse sand, fine to coarse sub-rounded gravel, gray, wet	-87.12	SS44		0.5	53	0.0
90	SM/GM-SILTY SAND and GRAVEL, very dense, poorly graded, fine to coarse sand, fine to coarse sub-rounded gravel, brown, wet	-89.12	SS45		1.0	27	0.0
92	No Sample (Auger)	-94.12	SS46			>50	0.0
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-B4
DATE COMPLETED: May 1, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110							
112							
114							
	No Recovery	-117.12					
116			SS47	X	0.0	>50	
	No Sample (Auger)	-119.12					
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WW-B4

PROJECT NUMBER: 07843
DATE COMPLETED: May 1, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: G. Harrison, D. Rivers, M. Muffels

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
146	SM-SAND with SILT, trace fine gravel, compact, poorly graded, fine to coarse grained sand, dark gray, wet	-147.12	SS48	X	2.0	38	0.0
	ML/CL-SILT and CLAY, with organics, hard, low plasticity, dark brown to brown to medium gray, moist	-148.12					
148	END OF BOREHOLE @ 147.0ft BGS	-149.12					
150	Chemical analyses refer to both groundwater and sediment samples.						
152	BGS = Below Mudline						
154	Ground Surface = Mudline						
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C1
DATE COMPLETED: October 4, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair

NORTHING: 715547
EASTING: 1168219

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-46.79					
	ML-SILT, very loose, fine grained, dark gray, wet, mud-like	-47.19					
	SP-SAND with silt, loose, dark gray, wet		SS1		1.1		0.0
2	- increase in sand content below 2.6 ft BGS	-49.09					
	MH-SILT with sand, very loose, dark gray, wet		SS2		1.6	1	0.0
4	SM-SILTY SAND, very loose, fine grained, poorly graded, dark gray, wet	-50.79					
			SS3		0.9	1	0.0
6	MH-SILT, trace sand, very loose, dark gray, wet	-52.79					
	- sandy silt below 6.6 ft BGS		SS4		1.5	0	1.2
8	- trace shell fragments, rapid dilatancy below 8 ft BGS						
			SS5		1.3	0	0.0
	SM-SILTY SAND, very loose, dark gray, wet	-55.89					
10	MH-SILT, trace sand, very loose, dark gray, wet, rapid dilatancy	-56.79					
			SS6		1.9	0	4.3
12							
			SS7		1.8	10	3.1
		-60.29					
14	SM-SILTY SAND, loose, fine grained, dark gray, moist to wet	-60.79					
	MH-SILT, trace sand, compact, dark gray, wet, rapid dilatancy		SS8		1.9	7	0.0
	- trace wood debris below 15.3 ft BGS	-61.99					
16	- 0.02' silt lense @ 15.4 ft BGS						
	- 0.02' silt lense @ 15.5 ft BGS						
	SP-SAND, trace silt, fine to medium grained, red/gray/black grains, wet		SS9		2.0	17	0.0
18	- 0.02' silt lense @ 15.7 ft BGS						
	- 0.1' @ 18.7 ft BGS		SS10		1.7	14	0.0
20	SP-SAND, trace silt, compact, fine to medium grained, brown/grey, moist to wet	-66.79					
			SS11		1.5	20	2.6
22	ML-SILT, trace fine sand, soft, grey, wet	-68.79					
			SS12		1.7	10	0.6
	SM-SILTY SAND, compact, grey, moist to wet	-70.19					
24	- 0.1' fine grained sand lense, trace silt @ 25.1 ft BGS		SS13		1.6	6	0.3
26	SP-SAND, trace silt, compact, fine to medium grained, grey, wet	-72.79					
	MH-SILT with SAND, compact, dark grey, wet, rapid dilatancy	-73.69	SS14		1.7	10	0.2
28	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, wet	-74.79					
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark grey with red grains, wet	-75.09	SS15		1.3	22	1.5
30	- 0.01' silt lense, trace sand @ 30.6 ft BGS						
	- 0.07' silt lense, trace sand @ 30.9 ft BGS		SS16		2.0	13	3.3
32	- 0.05' silt lense, trace sand @ 31.5 ft BGS						
	- 0.85' silty sand lense @ 31.9 ft BGS	-79.49	SS17		2.0	20	3.8
	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, wet	-80.39					
34	- 0.01' silt lense @ 33.4 ft BGS						
	- 0.01' silt lense @ 33.5 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C1
DATE COMPLETED: October 4, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark grey with red grains, wet	-82.19	SS18		1.8	23	2.2
	- 0.13' silty sand lense @ 34.1 ft BGS	-82.79					
	SM-SILTY SAND, compact, fine grained, poorly graded, grey, wet		SS19		1.8	29	5.5
38	SP-SAND, with silt, compact, fine to medium grained, poorly graded, dark grey with red grains, wet						
	- trace shell fragments below 38 ft BGS		SS20		0.7	27	6.5
40	- dense below 40 ft BGS		SS21		2.0	37	16.5
42	- compact below 42 ft BGS		SS22		1.9	23	10.2
44	- 0.85' silt lense with trace sand @ 43.7 ft BGS - 0.85' sand lense with trace silt @ 43.8 ft BGS - trace silt below 44 ft BGS		(SS23)		2.0	33	10.4
	SM/MH-SILTY SAND, compact, fine grained, poorly graded, dark grey, wet	-92.29 -92.79					
46	END OF BOREHOLE @ 46.0ft BGS						
48	Refusal at 83.5 ft. BGS.						
	Groundwater sampling continued at 10-foot intervals to a depth of 83.5 ft. BGS.						
50	Chemical analyses refer to groundwater.						
52	BGS = Below Mudline						
	Ground Surface = Mudline						
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS23)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C2
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

NORTHING: 715730
EASTING: 1168386

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-38.44					
	ML-SILT, very loose, very wet	-38.64					
	SP-SAND with SILT, loose, fine grained sand, dark gray, wet, thin layers of silt throughout						
2	- trace silt, shell fragments, wood debris, fine to medium grained, red/whitish grains @ 1.4 ft BGS		SS1 001		2.0	0	0.5
	- 0.04' silt lense @ 1.6 ft BGS						
4	- wet below 3 ft BGS		SS2		0.6	5	0.8
	- 0.08' silt lense @ 5 ft BGS						
6	- wood debris @ 5.5 ft BGS		SS3 002		1.5	3	0.7
8	- compact @ 8 ft BGS						
	- increase in silt content, thin silt layers throughout, fine grained sand below 8.4 ft BGS		SS4		1.5	10	0.5
10							
	- 0.8' section with thin silt layers throughout @ 10.9 ft BGS		SS5 003		1.7	8	0.5
12							
14	- 0.04' silt lense @ 13.9 ft BGS		SS6		1.2	6	0.5
	- 0.04' silt lense @ 14.0 ft BGS						
	- 0.08' silt lense @ 15.5 ft BGS						
16	- wood debris, 0.2' section with thin silt layers throughout @ 15.7 ft BGS		SS7		1.6	8	0.8
	- wood debris, 0.3' section with thin silt layers throughout @ 16.2 ft BGS						
	- 0.3' section with this silt layers throughout @ 16.3 ft BGS						
18			SS8		0.4	7	0.5
20	- no more wood debris below 20 ft BGS						
			SS9		2.4	12	4.3
22	- 0.04' silt lense @ 22 ft BGS						
	- 0.08' silt lense @ 22.2 ft BGS						
24			004 SS10		0.9	14	8.8
	- fine to medium grained, shell fragments @ 25 ft BGS						
26	- thin organic lense, dark brown/black @ 26.5 ft BGS		SS11		1.7	11	6.4
28	- moist, no shell fragments @ 28 ft BGS						
	- 0.04' silt lense, followed by a thin, dark organic lense, wood debris @ 28.1 ft BGS		SS12		0.5	19	2.2
30							
			SS13		0.5	11	2.3
32							
	No Recovery	-71.44					
34			SS14		0.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C2
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, compact, fine grained sand, dark gray with red/whitish grains, moist	-73.44					
	SM-SILTY SAND, trace wood debris, compact, fine grained sand, poorly graded, dark gray, saturated	-74.94	SS15		2.0	19	2.4
38	SP-SAND, trace silt, compact, fine grained sand, dark gray with red/whitish grains, moist	-76.44					
	SM-SILTY SAND, compact, poorly graded, fine grained sand, dark gray, saturated	-77.19	SS16		1.5	9	3.1
40							
			SS17		2.0	12	6.8
42							
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, saturated	-81.44					
44			SS18		2.0	10	136
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, saturated	-83.44					
46							
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, saturated	-84.94	SS19		2.5	13	18.5
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, saturated	-85.44					
48	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, saturated	-86.44	005 SS20		1.8	19	23.8
50	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, saturated	-88.44					
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, saturated	-89.44					
52	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, saturated	-89.94	SS21		2.0	17	22.8
	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, saturated	-91.44					
54			SS22		0.5	22	323
56							
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray / medium gray banding, saturated	-94.69	SS23		2.5	15	33.5
58	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, saturated	-96.44					
	- 0.12' silt seam, medium gray, saturated @ 59 ft BGS		SS24		1.8	9	21.8
60	- 0.16' silt seam, medium / light gray banded, saturated @ 59.5 ft BGS						
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark gray, saturated	-99.44	SS25		2.0	29	800
62							
64			SS26		2.0	14	22
	SP-SAND, trace silt, trace wood debris, compact, fine grained sand, poorly graded, dark gray, saturated	-103.44					
66			SS27		1.5	22	174
68	- no more wood debris, trace silt below 68 ft BGS						
	- sand with silt, increase in silt @ 69.4 ft BGS		SS28		1.8	38	NR

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C2
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white sand grains, wet	-108.44					
72			SS29		2.4	26	0.0
74	- 0.04' sand with silt lense @ 74.3 ft BGS - 0.04' sand with silt lense @ 74.5 ft BGS		SS30		1.9	23	0.0
76	- 0.2' silty fine sand lense @ 75.7 ft BGS - 0.02' silty fine sand lense @ 76.2 ft BGS		SS31		2.8	21	0.0
		-116.04					
78	ML-SILT with SAND, very fine grained sand, slight plasticity, very stiff, dark gray, wet	-116.44					
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray with trace red and white sand grains, wet	-117.14	006 SS32		2.0	19	0.0
80	ML-SILT with SAND, slight plasticity, very fine grained sand, very stiff, dark gray, wet	-118.44					
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white sand grains, wet	-119.04	SS33		3.0	12	0.0
82	ML-SILT with SAND, trace shell fragments, slight plasticity, very fine grained sand, soft to stiff, dark gray, wet to saturated	-120.84					
84	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained sand, poorly graded, dark gray with trace red and white sand grains, wet - 0.2' silt with sand lense, very soft @ 83.3 ft BGS		SS34		1.7	20	0.0
86	- 0.05' silt with sand lense, very stiff, with dark brown organic "clump" @ 83.8 ft BGS - 0.02' organic lense, light brown @ 84.3 ft BGS - increase in red and white grained content @ 85 ft BGS		SS35		3.0	24	0.0
88	- 0.04' organic lense, dark and light brown material @ 86.1 ft BGS - 0.16' silt lense @ 86.6 ft BGS	-126.44	SS36		2.0	34	0.0
	- 0.08' clay trace sand lense, green, fine grained sand @ 87.4 ft BGS	-127.94					
90	- 0.08' gravel lense @ 87.5 ft BGS	-128.44					
	SP-GRAVELLY SAND, trace silt, occasional shell fragments, dense, poorly graded sand, well-graded gravel, dark gray with trace red and white sand grains, wet		SS37		3.0	23	0.0
92	ML-SILT with SAND, very stiff, slight plasticity, fine grained sand, dark gray, wet - 0.02' sand lenses @ 89.6 & 89.9 ft BGS						
	SP-SAND, trace silt, occasional shell fragments, compact, poorly graded, fine to medium grained sand, dark gray with trace red and white grains, wet	-131.44					
94	- 0.4' silt lense, dark gray, trace fine grained sand @ 91.6 ft BGS		SS38		1.9	6	0.0
	- increase in silt content @ 92.5 ft BGS	-133.44					
96	SM-SILTY SAND, trace shell fragments, compact, poorly graded, fine to medium grained sand, dark gray, wet - 0.5' silt and sand lense @ 94 ft BGS		SS39		0.6	8	0.0
98	ML-SILT with SAND, firm, very fine to fine grained sand, plastic, dark gray	-136.44					
	SM-SILTY SAND, trace gravel, trace shell fragments, loose, poorly graded to well graded, fine to medium grained sand, dark gray, wet		SS40		2.0	28	0.0
100	- 0.24' gravelly sand with silt lense @ 98.3 ft BGS - becomes gravelly silty sand below 99.3 ft BGS	-138.44					
	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark gray with trace red and white grains, wet	-139.54	SS41		1.4	33	0.0
102	SP-GRAVELLY SILTY SAND, well graded, light gray/green/dark gray, wet						
		-141.44					
	SM-SILTY SAND with GRAVEL, dense, medium to coarse grained sand,	-141.94					
104	sub-rounded gravel, dark green gray, moist	-142.24	SS42		1.0	40	0.0
	SP-SAND with SILT, medium grained, dark green/gray						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C2
DATE COMPLETED: March 28, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	GM-SILTY SANDY GRAVEL, dense, coarse gravel, medium to coarse grained sand, well graded, dark green/gray, moist		SS43		0.9	55	0.0
108			007 SS44		0.2	95	0.0
110	END OF BOREHOLE @ 110.0ft BGS	-148.44					
112	Chemical analyses refer to both groundwater and sediment sampling.						
114	BGS = Below Mudline						
116	Ground Surface = Mudline						
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C3
DATE COMPLETED: April 3, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	10.23					
	Not Sampled						
2		7.73					
	SP-SAND and GRAVEL, poorly graded, dense, gray, dry - 0.2' wood fibers, moist, brown @ 3.0 ft BGS - 1.3' medium grained sand with red and white grains, moist @ 3.2 ft BGS		SS1		1.5	35	
4		5.73					
	SP-SAND with GRAVEL, trace silt, compact, medium to coarse angular gravel, poorly graded, grayish-brown, moist		SS2		1.0	12	
6		3.73					
	No Recovery		SS3		0.0	19	
8		1.73					
	SP-SAND with GRAVEL, trace silt, compact, medium to coarse angular gravel, poorly graded, grayish-brown, moist		SS4		0.8	12	
10	- wet @ 10.5 ft BGS		SS5		0.8	4	
12	- dark brown to black, trace wood fibers, loose @ 12.5 ft BGS		SS6		1.0	4	
14	- loose with white grains, medium to fine grained @ 14.5 ft BGS		SS7		0.8	6	0.8
16			SS8		0.3	7	0.3
18	- very loose @ 18 ft BGS		SS9		0.1	1	1
		-9.27					
20	SM-SILTY SAND, fine grained, black, wet, loose		SS10		1.0	6	0.1
	- with red grains, compact @ 21 ft BGS						
22			SS11		0.4	13	0.1
		-12.27					
	Not Sampled	-12.77					
	SHELBY TUBE SAMPLE		(001)				
24		-14.77					
	SM-SILTY SAND, compact, fine grained sand, black with red and white grains, wet						
26	- 0.5' silt lense @ 26 ft BGS		SS12		1.3	21	0.2
		-16.77					
	SM-SILTY SAND, loose, medium to coarse grained, black with red and white grains, wet		SS13		1.0	6	0.2
28	- 0.02' bright red sand seam @ 28.7 ft BGS						
	- increase in silt content, loose between 29.5' and 30' BGS		SS14		1.2	6	0.2
30	- 0.04' silt seam, very loose between 30' and 32' BGS						
			SS15		0.7	0	0.2
32	- trace shell fragments, very loose @ 32 ft BGS						
			SS16		0.8	3	0.2
	- no shell fragments, dense @ 33.5 ft BGS	-23.27					
34	GM-SAND and GRAVEL, compact, angular gravel, coarse grained sand, poorly graded, dark brown to black with red and white grains, wet		SS17		0.6	32	0.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C3
DATE COMPLETED: April 3, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- sub-rounded gravel with trace shell fragments, compact @ 35 ft BGS		SS18		1.2	18	0.2
	GM-SAND and GRAVEL, compact, medium to coarse grained sand, sub-rounded gravel, poorly graded, dark brown to black with red and white grains, wet	-26.77					
38			SS19		0.4	17	0.2
			SS20		0.4	20	0.2
40	SP-SAND, trace gravel, compact, coarse grained sand, dark brown, sub-rounded, silty gravel from 40' to 40.5' BML (fine grained, rounded)	-29.77					
			SS21		1.5	29	0.3
42	- 0.4' silty gravel seam, fine grained, rounded @ 42 ft BGS						
			SS22		0.4	20	0.2
	GM-SAND and GRAVEL, compact, medium to coarse grained sand, sub-rounded gravel, poorly graded, dark brown to black with red and white grains, wet	-33.27					
44			SS23		1.0	27	0.3
	- 0.5' silty gravel seam, fine grained, rounded @ 45 ft BGS						
46			SS24		0.7	28	0.6
	GM-SAND and GRAVEL, compact, medium to coarse grained sand, fine sub-rounded gravel, poorly graded, dark brown to black with red and white grains, wet	-36.27					
			SS25		1.0	18	0.4
48	- 0.08' silty gravel seam, fine grained, rounded 47 ft BGS						
			(SS26)		1.0	22	0.3
50	GM-GRAVEL and SAND, with silt, dense, fine gravel, medium grained sand, poorly graded, dark brown with red and white grains, wet	-39.77					
			SS27		1.5	35	1.3
52	SM-SAND and GRAVEL, compact, fine grained sand, fine gravel, poorly graded, medium brown with red and black grains, wet	-41.77					
			SS28		0.4	28	1.1
	- 0.4' gravel and sand with silt, fine grained gravel, medium grained sand, dense, poorly graded, wet, dark brown with red and white grains @ 53.5 ft BGS		SS29		0.9	57	0.4
54	- no gravel below 54.9 ft BGS						
	- 0.4' gravel and sand with silt, fine grained gravel, medium grained sand, dense, poorly graded, wet, dark brown with red and white grains @ 55 ft BGS						
56			SS30		1.3	15	0.5
		-46.77					
	GM-GRAVEL and SAND, with silt, dense, fine gravel, medium grained sand, poorly graded, dark brown with red and white grains, wet	-47.12	SS31		0.8	24	0.0
58	SM-SAND, some silt, compact, medium to fine grained sand, medium brown with black grains, wet	-48.27					
			SS32		0.9	40	0.0
	GM-GRAVEL and SAND, with silt, fine gravel, medium grained sand, dense, poorly graded, dark brown with red and white grains, wet						
60	- 0.3' sand, medium to fine grained, silty, wet, brown, no gravel @ 60.9 ft BGS		SS33			31	
	- 0.4' gravelly sand, fine gravel, medium sand, trace silt, wet @ 61.2 ft BGS						
62	SP/SM-SAND with SILT, dense, medium grained sand, poorly graded, brown, wet	-51.77					
			SS34		0.1	32	0.0
	- with white grains @ 63.5 ft BGS						
64			SS35		1.5	26	0.0
	- gravelly sand, with some silt, very dense @ 65 ft BGS						
66	- no gravel, medium to fine grained @ 66 ft BGS		SS36		2.0	54	0.1
	- coarse grained gravel and silt @ 66.4 ft BGS						
	- coarse grained sand and fine grained gravel @ 67 ft BGS						
68		-57.57	SS37		2.0	68	0.3
	GM-GRAVEL with SILT, coarse gravel	-58.27					
	SP/SM-SAND with SILT, some gravel, medium grained sand, fine to coarse gravel, poorly graded, brown, wet		SS38		1.4	66	0.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS26)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C3
DATE COMPLETED: April 3, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
			SS39		0.9	50	0.2
72	GM-GRAVEL with SILT and SAND, coarse to fine gravel, poorly graded, angular to sub-angular gravel, coarse to medium grained sand, wet	-61.87	SS40		2.0	38	0.3
74			SS41		1.3	28	0.3
	SP-SAND and GRAVEL, very dense, poorly graded, brown with black grains, wet	-64.77					
76	- 0.8' sand and silt, brown, wet, dense @ 75.7 ft BGS		SS42		2.0	75	1.2
	- 0.5' coarse gravel, medium to fine grained sand, silt, wet, brown, very dense, poorly graded @ 76.5 ft BGS	-66.77					
78	SP/SM-SAND with SILT, dense, medium grained sand, poorly graded, dark brown with black grains, wet		SS43		1.5	72	0.6
	- 0.72' coarse gravel, medium to fine grained sand, silt, wet, brown, very dense, poorly graded @ 77.8 ft BGS		SS44		1.5	39	0.4
80		-69.77					
	SW-SAND, little silt, trace gravel, medium grained sand, brown to gray	-69.94					
	GM-GRAVEL, some silt, sub-angular to sub-rounded, medium grained sand, gray		SS45		2.0		
82	SP-SAND, little silt, medium to coarse grained sand, dark brown to dark gray, wet	-71.77					
	- 0.5' gravel, sub-angular to sub-rounded, some silt and sand, brown @ 83 ft BGS		SS46		2.0	46	
84	- no coarse grained sand below 83 ft BGS		SS47		2.0	46	
	- 0.5' gravel, sub-angular to sub-rounded, some silt, medium to coarse sand, wet @ 84.5 ft BGS	-74.77					
86	GM-GRAVEL, some silt, sub-angular to sub-rounded gravel, medium grained sand, dark brown to gray, wet		SS48		0.9	50	
			SS49		1.0	52	
88					0.8		
90			SS50		0.6	57	
			SS51		0.7	48	
92			SS52		0.5	43	
94			SS53		0.5	68	
96	- increase in gravel size below 96 ft BGS		SS54			78	
98			SS55			47	
100		-89.77					
	GW/GM-GRAVEL and SAND, trace silt, very dense, medium to fine sub-rounded to angular gravel, coarse to medium grained sand, well to moderately well graded, brown to tan, wet, no odor		SS56		0.5		3.0
102	- (Till), trace clay, dense, fine to coarse sand, fine to medium gravel, light gray matrix present, moist, till-like texture @ 101 ft BGS		SS57		0.6		0.2
		-92.77					
104	GM/SM-SAND and GRAVEL, trace to with silt, dense, medium to fine gravel, medium to coarse grained sand, well graded, till-like texture, brown, moist to wet, no odor		SS58		0.8	35	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS41)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C3
DATE COMPLETED: April 3, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	- wet below 106.5 ft BGS		SS59			44	0.0
			SS60		1.1	46	0.0
108			SS61		1.2	47	0.0
110	- compact, fine to coarse gravel, sub-rounded to sub-angular gravel, wet @ 110 ft BGS		SS62		0.5	27	0.2
112							
114	SM-SAND, trace silt, trace gravel, compact, medium grained sand, poorly graded, massive, medium sub-rounded gravel, brown to yellow, moist	-103.77	SS63		0.7	28	0.2
	SM-SAND, trace silt, trace to with gravel, medium, sub-angular gravel, trace coarse gravel	-104.77					
116							
118							
120	GM-GRAVEL with SAND and SILT, trace clay, dense, clast supported, silty, brown to gray, wet, slightly cohesive matrix between gravel clasts	-109.27	SS64		0.2	63	0.0
122	- gravel and sand in mud, fragmented @ 122 ft BGS						
124							
	SP-SAND, compact, coarse grained, massive, dark brown, wet	-114.77					
126	GM-GRAVEL with SAND and SILT, dense, fine to coarse sub-rounded to sub-angular gravel, medium to coarse grained sand, well graded, dark brown, wet, clast supported with silt in matrix	-115.77	SS65		21.0	35	0.0
128	- fractured basalt fragment in spoon @ 128 ft BGS		SS66		0.8	77	0.0
130							
	- green clast, black and dark brown colored gravel @ 131 ft BGS						
132			SS67		0.2	44	3.7
134	- 0.5' sand lense @ 134 ft BGS						
136			SS68		0.4	60	3.3
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C3
DATE COMPLETED: April 3, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: G. Harrison, B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	ML-SILT, trace sand, trace clay, very fine grained sand, slightly cohesive, dense, low plasticity, laminated (1mm<laminae<10mm), alternating light and dark gray-green, moist, gravel clast possible, dropstone	-129.77	SS69		0.4		0.0
144							
146	ML/SM-SILT and SAND, dense, very fine to fine grained sand, some stratification ~0.08' thick, no defined beds, moist	-134.77	SS70		1.0		2.3
148							
150	SM-SAND, trace to with silt, dense to very dense, fine to medium grained sand, poorly graded to moderately graded, stratified, green and yellow coloration in stratified layers (0.08-0.16' layers) and brown, moist to wet	-139.77	SS71				2.5
152							
154							
156	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, brown, moist to wet	-144.77	SS72		0.6		0.0
158	SM/SP-SAND with SILT, dense, very fine grained sand, poorly graded, massive, possible fine stratification, gray, moist to wet	-147.77	SS73		0.5		2.2
160	- 0.2' gravel lense @ 161 ft BGS		SS74		1.0	>150	2.1
162	ML/SM-SILT and SAND, very fine grained sand, dense, poorly graded, laminated, gray, moist to wet	-151.77	SS75		0.5	>100	0.0
164	- 0.5' gravel lense @ 163 ft BGS ML-SILT with CLAY, stiff, cohesive, low to medium plasticity, laminated, moist	-153.77					
166			SS76		0.2		0.0
168	END OF BOREHOLE @ 167.0ft BGS BGS = Below Mudline	-156.77					
170	Ground Surface = Mudline						
172	Chemical analyses refer to both groundwater and sediment samples. NR = Not Recorded						
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

NORTHING: 715923
EASTING: 1168605

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-24.72					
	No Recovery - wood debris in shoe		SS1		0.0	5	NR
2	SHELBY TUBE SAMPLE	-26.72	ST2				NR
4	No Recovery	-28.72	SS3		0.0	0	NR
6	ML-SILT with CLAY, very soft, trace fine grained sand, slight plasticity, dark gray, very moist to wet	-30.72	SS4		1.0	0	2.1
8	SP-SAND, some wood debris, trace silt, loose, fine grained, poorly graded, dark gray, wet,	-32.72	SS5		0.8	4	0.1
10	- auger sank from 10 ft to 11 ft BGS in loose/soft sediment						
12			SS6		0.8	5	0.1
14	SM-SAND with SILT, with wood debris, trace shell fragments, loose, fine grained, trace medium grained, poorly graded, dark gray, wet	-37.72	SS7			6	0.2
16	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, trace red and white grains, wet	-39.72	SS6		1.5	3	0.0
18	SM-SAND with SILT, loose, fine grained, poorly graded, dark gray, wet	-41.72	SS7		1.0	7	0.1
20	SM/ML-SAND and SILT, very loose, fine grained, non-plastic, dark gray, wet	-43.72	SS8		1.8	1	0.1
22	No Recovery (lost cutting shoe in split spoon)	-45.72	SS9			2	NR
24	SM-SAND with SILT, compact, fine grained, poorly graded, dark gray, wet	-47.72	SS10			30	0.1
26			SS11		1.5	4	0.0
	No Sample (Auger)	-51.72					
28	ML-SILT with SAND, very loose, fine grained, non-plastic, dark gray, wet	-52.32	SS14		2.0	4	0.1
30	SM-SILTY SAND, very loose, fine grained, poorly graded, dark gray, wet	-54.32	SS15		1.0	2	0.0
32	Not Sampled	-56.32					
34	SM-SILTY SAND, loose, fine grained, poorly graded, dark gray, wet	-58.72	SS16		1.3	7	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, poorly graded, very loose, fine to medium grained, gray with red grains, wet	-60.32					
	SM-SILTY SAND, very loose, fine grained, poorly graded, dark gray, wet	-61.42	SS17		1.5	0	0.0
38	Not Sampled	-62.32					
40	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, gray, wet	-64.32					
	- fine sand with some silt (becoming more silty), dark gray below 41 ft BGS		SS18		2.0	9	0.3
42	SM-SILTY SAND, loose, fine grained, dark gray, wet	-66.32	SS19		1.0	8	0.3
44	ML-SILT with SAND, very loose, fine grained, cohesive, dark gray, wet	-68.32	SS20		0.8	8	NR
46	SM-SILTY SAND, loose, fine grained, dark gray, wet	-70.72	SS21		1.5	3	NR
	ML-SILT with SAND, very loose, fine grained, cohesive, dark gray, wet	-72.32					
48	SM-SAND with SILT, loose, fine grained, dark gray, wet	-72.92	SS22		1.0	1	NR
50	- silty, saturated below 49.6 ft BGS		SS23		2.0	10	0.4
52	- with silt, wet below 51.6 ft BGS		SS24		0.9	2	0.3
54	- silty sand below 53.6 ft BGS	-78.92	SS25		1.2	0	0.3
	ML-SILT with SAND, very soft, fine grained, slightly cohesive, dark gray, wet						
56	- trace sand below 55.6 ft BGS		SS26		0.8	3	0.3
58			SS27		1.6	1	0.3
60	- 0.5 ' sandy silt lense @ 59.6 ft BGS		SS28		2.0	3	0.3
62			SS29		1.0	3	NR
	SHELBY TUBE SAMPLE	-87.32					
64			(ST30)		2.0		NR
	ML-SILT with SAND, very soft, fine grained, slightly cohesive, dark gray, wet	-89.32					
66	- trace sand below 65.1 ft BGS - 0.02' sand lense @ 65.1 ft BGS - sand content increasing below 66.6 ft BGS		SS31		20.0	6	0.0
68	- with sand, fine to medium grained below 67.2 ft BGS - 0.1' sand lense @ 67.2 ft BGS		SS32		2.0	3	0.0
	- sandy silt below 68.2 ft BGS	-93.12					
	SM-SILTY SAND, trace shell fragments, compact, fine to medium grained, poorly	-94.42	SS33		1.3	17	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (ST30)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	graded, dark gray, wet						
	SP-SAND, trace silt, compact, fine to medium grained, poorly sorted, dark gray, trace red and white grains, wet						
72		-96.52	SS34		1.4	62	0.0
	SPG-GRAVELLY SAND, trace silt, dense, fine to coarse grained sand, rounded to sub-rounded gravel, gray, wet	-97.72					
74	GW-GRAVEL with SAND, very dense, fine to coarse grained, sub-rounded to sub-angular, well graded, light to dark gray, wet		SS35			40	0.0
		-99.32					
	No Sample (Auger)						
76							
78							
80							
82							
84							
86							
88							
90							
	GM-GRAVEL with SAND, with SILT, very dense, fine to coarse grained, sub-rounded, poorly graded, gray, wet	-115.32					
92			SS36		1.0	58	0.0
	SM/GM-SILTY SAND and GRAVEL, dense, fine to coarse grained, sub-rounded gravels, poorly graded, medium brown to medium gray, wet	-117.32					
94			SS37		1.4	39	0.0
96			SS38			37	0.0
	No Sample (Auger)	-121.32					
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-C4
DATE COMPLETED: April 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers, M. Muffels

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
	SM-SAND with SILT, dense, fine to coarse grained, poorly graded, brown, wet	-131.32	SS39	X	1.0	47	NR
108		-133.32					
	No Sample (Auger)						
110							
112							
	SP-GRAVELLY SAND, trace silt, compact, fine to coarse grained, fine sub-rounded gravel, poorly graded, gray, wet	-137.32	SS40	X	0.8	22	NR
114		-139.32					
	No Sample (Auger)						
116							
118							
120							
122							
124							
	No Recovery	-150.32	SS41	X	0.0	>50	0.0
126							
	END OF BOREHOLE @ 127.6ft BGS	-152.32					
128							
	Chemcial analyses refer to both groundwater and sediment samples.						
130							
	BGS = Below Mudline						
132							
	Ground Surface = Mudline						
	NR = Not Recorded						
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS41)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-D1
DATE COMPLETED: February 21, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716264 EASTING: 1167626 GROUND SURFACE	-42.32					
	ML-SILT, trace sand, very soft, fine grained, wet - increase in sand content below 0.2 ft BGS		SS1		0.3	0	0.0
2		-44.32					
	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray with red/white grains, wet - 0.1' silty sand lense @ 2.6 ft BGS		SS2		1.7	5	0.2
4	- 0.01' silt lenses approximately 0.05' apart between 3.2 ft and 3.5 ft BGS - trace wood debris below 5 ft BGS						
6			SS3		2.0	6	0.0
8			SS4		3.0	0	0.0
10	- 0.1' silt lense @ 9.8 ft BGS	-52.32					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet		SS5		0.5	12	232
12	- trace wood debris below 12.8 ft BGS - increase in silt content; 0.02' silt lense below 12.9 ft BGS		SS6		1.6	9	600
14	- 0.02' silt lense @ 12.95 ft BGS - 0.02' silt lense @ 13.05 ft BGS						
	- 0.25' silt lense @ 13.1 ft BGS	-57.32					
16	SM-SAND with SILT, compact, fine to medium grained, dark gray, poorly graded, moist	-58.82	SS7		1.7	14	232
18	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/white grains, moist		SS8		0.3	1.4	537
20		-62.32					
	SHELBY TUBE SAMPLE - 0.02' silt lense @ 20.5 ft BGS		SS9		20.0		1.3
22		-64.32					
	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/white grains, moist		SS10		0.4	8	85
24	- trace shell fragments below 25 ft BGS						
26			SS11		1.1	26	16
	- no shell fragments below 27 ft BGS						
28			SS12		2.5	17	678
	- 0.04' silt lense @ 29 ft BGS	-71.12					
30	ML-SILT, trace to with sand, compact, fine grained, slight plasticity, dark gray, moist	-72.32					
	SP-SAND, trace silt, compact, fine to medium grained, poor gradation, dark gray, trace red/white grains, wet	-73.72	SS13		1.7	30	255
32	- medium grained below 30.4 ft BGS	-74.32					
	ML-SILT, trace sand, compact, fine grained, slight plasticity, dark gray, moist						
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray with red/white grains, wet		SS14		2.5	19	510
34	- 0.02' dark organic lense @ 32.8 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-D1
DATE COMPLETED: February 21, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	- 0.2' silt lense, stratified silt layers @ 33 ft BGS	-77.82					
36	- 0.2' silt lense, stratified silt layers @ 33.3 ft BGS - 0.02' silt lense @ 33.6 ft BGS		SS15		1.1	18	523
	- 0.02' silt lense @ 33.7 ft BGS	-79.72					
38	- 0.2' silt lense @ 34.4 ft BGS SM-SILTY SAND, compact, fine grained, dark gray, wet		SS16		1.1	13	643
	- layer of organics and medium grained white sand @ 37.3 ft BGS						
40	- 0.02' silt lense @ 37.7 ft BGS						
	SP-SAND with SILT, compact, fine grained, dark gray with red/white grains, wet	-83.12	SS17		1.0	19	719
	SM-SILTY SAND, trace organics (layer at top of unit), compact, fine grained, dark gray, moist	-84.32					
42	SP-SAND, trace silt, compact, fine grained, dark gray, moist						
	- 0.2' silty sand lense @ 43.3 ft BGS		SS18		1.8	30	910
44	- thin organics layer on top of a 0.1' silty sand lense @ 43.5 ft BGS						
46	- increase in silt content below 45.7 ft BGS		SS19		0.9	14	331
		-89.32					
48	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/white grains, wet, strong odor		SS20		1.5	21	357
50							
			SSW21		2.0	29	51.8
52							
	- 0.1' layer of white opaque viscous liquid, strong odor, low PID readings @ 53 ft BGS		SS22		2.6	16	203
54							
56			SS23		0.9	12	121
58	- fine grained below 58.4 ft BGS		SS24		1.9	12	622
60	- medium grained below 60 ft BGS		SS25		2.0	23	126
		-103.72					
	SM/ML-SANDY SILT, compact, slight plasticity, dark gray, moist	-104.02					
62	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-104.32					
	SP-SAND, trace silt, dense, medium grained, poorly graded, dark gray, trace red/white grains, wet		SS26		3.0	42	280
64	- 0.2' sandy silt lense @ 63.8 ft BGS						
		-106.92					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, very moist	-107.32					
	SP-SAND, trace silt, trace shell fragments, dense, fine to medium grained, poor	-107.52					
66	gradation, dark gray, trace white and red grains, wet	-107.82	SS27		1.2	42	194
	ML-SILT with SAND, fine grained, slight plasticity, dark gray, moist	-108.22					
	SP-SAND, trace silt, dense, fine to medium grained, poor gradation, dark gray,	-109.32					
68	trace white and red grains, wet	-110.32					
	ML-SILT, trace sand, very fine grained, slight plasticity, dark gray, moist		SS28		3.0	18	8.5
	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained, poor						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-D1
DATE COMPLETED: February 21, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	gradation, dark gray, trace white and red grains, wet	-112.32					
	ML-SILT, trace sand, very fine grained, slight plasticity, dark gray, moist		SS29		1.9	6	24.4
72	SP-SAND, trace silt, loose, fine grained, poor gradation, dark gray, trace white and red grains, wet	-114.32					
	- 0.04' coarse organic fragments @ 71 ft BGS						
	No Recovery		SS30		0.0	25	NR
74							
	SP-SAND, trace silt, very loose, fine grained, poor gradation, dark gray, trace red and white grains, wet	-117.32					
76			SS31		2.0	4	22.2
	SP-SAND, trace silt, loose, fine to medium grained, poor gradation, dark gray, trace red and white grains, wet	-119.32					
78							
	ML-SILT, trace sand, loose, very fine to medium grained, slight plasticity, dark gray, wet	-120.82	SS32		3.0	8	20.9
	SP-SAND, trace silt, loose, very fine to fine grained, poor gradation, dark gray, wet	-121.82					
80	SP-SAND, trace silt, loose, fine to medium grained, poor gradation, dark gray, trace white and red grains, wet	-122.32	SS33		2.0	34	0.0
	- very fine to fine grained, no white or red grains @ 80.9 ft BGS						
82	ML-SILT with SAND, slight plasticity, dark gray, wet	-124.32					
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, wet	-125.22					
	ML-SILT with SAND, slight plasticity, dark gray, wet	-125.42	SS34		3.0	8	0.0
84	SP-SAND with SILT, loose, fine grained, poorly graded, dark gray, wet	-126.62					
	SP-SAND, trace silt, very loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet	-127.32					
86	SP-SAND with SILT, very loose, fine grained, poorly graded, dark gray, wet	-127.52	SS35		2.0	5	0.0
	ML-SILT, trace sand, slight plasticity, dark gray, wet	-127.72					
	SP-SAND with SILT, very loose, fine grained, poorly graded, dark gray, wet	-128.52					
88	SP-SAND, trace SILT, very loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet	-129.32	SS36		3.0	3	0.6
	ML-SILT, trace sand, slight plasticity, dark gray, wet	-131.22					
90	SP-SAND, trace silt, very loose, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet	-132.22	SS37		2.0	6	0.0
92	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray, red and white grains, wet	-134.32					
			SS38		2.2	8	0.2
94							
96			SS39		2.0	14	0.0
	ML-SILT with SAND, compact, fine grained, non-plastic, dark gray, wet	-139.12					
	SP-SAND, trace silt, trace shell fragments, very dense, fine to medium grained, poorly graded, dark gray, red and white grains, wet	-139.32					
98	ML-SILT with SAND, fine grained, very dense, non-plastic, dark gray, wet	-140.12	SS40		2.8	64	NR
	GP/GM-GRAVEL with SAND, with SILT, very dense, fine to coarse grained sand, fine sub-rounded gravel, poorly graded, brown to yellow brown, wet	-141.32					
100							
			SS41		1.5	80	0.0
102							
	SPG-GRAVELLY SAND with SILT, very dense, fine to coarse grained, fine sub-rounded gravel, poorly graded, brown, wet	-145.32					
104		-146.82	SS42		1.5	55	NR

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WW-D1
DATE COMPLETED: February 21, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	END OF BOREHOLE @ 104.5ft BGS BGS = Below Mudline Ground Surface = Mudline			X			
108							
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

Upland Borings

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-1-96
DATE COMPLETED: MARCH 28, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.3					
	GP-GRAVEL (FILL), some fine to coarse grained sand, trace silt, angular, brown and gray, little black staining (asphalt)			1SS		46	51.0 (30.7)
2.5	SP-SAND, little fine grained sand and shells, medium grained; dark brown, dry to moist	9.1	8" Ø BOREHOLE	2SS		16	2.1 (5.1)
5.0	- wet			3SS		4	12.1 (4.1)
7.5				4SS		7	2.8 (2.3)
	- little angular gravel, trace wood, coarse grained			5SS		6	7.1 (4.2)
10.0	SP-SAND, some shells, little fine and coarse grained sand, medium grained, black with red grains, wet	1.3	CEMENT/ BENTONITE GROUT	6SS		9	1.3 (5.3)
12.5				7SS		5	0.7 (21.2)
15.0				8SS		>50	0 (14.5)
	ML-SILT, dense, dark gray	-4.0					
	SP-SAND, little coarse grained sand, trace silt, medium grained, black with red grains, wet	-4.2 -5.1		9SS		42	0 (43.9)
17.5	SM-SAND (NATIVE), some silt, trace vegetation, very dense, fine grained, dark olive, wet	-6.7					
20.0	END OF HOLE @ 18.0ft BGS						
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (12.3) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-02)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-2-96
DATE COMPLETED: MARCH 27, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.8					
2.5	GP-GRAVEL (FILL), some fine to coarse grained sand, angular, gray to brown, dry		8" Ø BOREHOLE	1SS		49	4.0 (13.4)
				2SS		80	3.7 (NM)
5.0	SP-SAND, some rounded gravel, some fine grained sand, trace silt, medium grained, dark brown, dry	7.8		3SS		8	2.0 (55.0)
7.5	SP/GP-SAND and GRAVEL, trace silt, medium grained sand, angular to rounded gravel, dark brown, moist	4.8		4SS		68	1.3 (17.5)
10.0	- wet - very dense		CEMENT/ BENTONITE GROUT	5SS		28	0.8 (5.6)
				6SS		36	0.1 (6.1)
12.5	GP-GRAVEL, some medium to coarse grained sand, concrete, angular, dark gray to black, wet	.3 -.4		7SS		11	0 (14.6)
	SP-SAND, trace vegetation, medium grained, dark gray to black, red grains, wet	-1.4 -2.2					
15.0	SP-SAND, some silt, dense, fine grained, dark gray to dark olive, wet	-3.3		8SS		34	0 (13.9)
	SP-SAND, little fine grained sand, medium grained, dark gray to black, red grains, wet	-4.7					
17.5	SM-SAND, little to some silt, alternating silt layers, dense, fine grained, dark brown to dark olive, wet	-6.2		9SS		19	0 (11.4)
20.0	SM/ML-SAND and SILT (NATIVE), little vegetation and wood (whole), dense, fine grained sand, dark brown to dark olive, wet						
22.5	END OF HOLE @ 18.0ft BGS						
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-3-96
DATE COMPLETED: MARCH 27, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.4					
2.5	SP/GP-SAND and GRAVEL (FILL), trace silt, medium grained sand, rounded gravel, tan to brown, dry	9.1	8" Ø BOREHOLE	1SS		52	0 (9.4)
	SP-SAND, trace silt, trace gravel, medium grained, brown with red grains, moist - little rounded gravel			2SS		14	0 (12.5)
5.0				3SS		3	0 (9.5)
7.5	SP-SAND, some angular to rounded gravel, little tan-orange slag, trace shells, hard, fine grained, black, wet	4.9		4SS		8	0 (6.6)
10.0	GP-GRAVEL and BRICK, some tan orange granular material, some fine grained sand and silt, very hard, red, tan, black, wet, creosote odor	2.4 1.2	CEMENT/ BENTONITE GROUT	5SS		>50	0 (18.9)
12.5	SP-SAND, trace silt, fine to medium grained, black with red grains, wet - little vegetation, medium grained - little wood			6SS		13	0 (14.4)
15.0				7SS		6	0 (15.9)
17.5	SILT LAYER (NATIVE)	-5.0		8SS		50	0 (21.5)
20.0	SP-SAND, some silt, shell fragments, very dense, fine grained, dark olive, wet END OF HOLE @ 19.0ft BGS	-6.6 -7.6		9SS		>50	0 (23.1)
				10SS		>50	0 (17.7)
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-4-96
DATE COMPLETED: MARCH 26, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.3					
	GP-GRAVEL (FILL), some coarse grained sand, angular to rounded, gray to tan, dry	*10.1*		1SS		>37	0.3
	SP-SAND, little gravel, medium grained, brown, dry	*9.8*					
-2.5	TAN SLAG and RED BRICK	*9.3*	← 8" Ø BOREHOLE	2SS		29	1.0
	SP-SAND, little rounded gravel, medium grained, dark brown, dry						
-5.0	- some gravel, little brick, trace shells			3SS		15	0.3
	- no gravel, wood in shoe, wet			4SS		12	0
-7.5							
				5SS		-	0
-10.0							
	- wood, creosote odor		← CEMENT/ BENTONITE GROUT	6SS		16	0.1
-12.5	SP-SAND, little silt, trace wood, medium grained, dark brown, red grains, wet	*-.7*		7SS		31	0
-15.0	SP-SAND (NATIVE), little shells, alternating silt layers, fine grained, dark olive, wet	*-3.7*		8SS		22	0
	END OF HOLE @ 15.5ft BGS	*-4.2*					
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-05)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-5-96
DATE COMPLETED: MARCH 26, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.2					
	SP-SAND (FILL), some rounded gravel, medium grained, brown, dry	10.7		1SS		46	0.8 (1.9)
	GP-GRAVEL, some medium to coarse grained sand, rounded to angular, tan, dry	9.2					
2.5	SP-SAND, some gravel, medium grained, brown, dry		8" Ø BOREHOLE	2SS		16	0 (NM)
	- gravel	7.2					
5.0	SP-SAND, little gravel, trace shells and brick, medium grained, dark brown, dry to moist			3SS		8	0.3 (0.1)
	- some gravel	4.7		4SS		15	0.2 (0.6)
7.5	GP-GRAVEL, some fine to medium grained sand, orange tinted slag, black, wet	3.2					
	SP-SAND, some fine grained sand, little silt, few shells, medium grained, black, wet			5SS		1	0.1 (0.4)
10.0	SP-SAND (NATIVE), some alternating silt layers, shell fragments, medium grained, red grains, black, wet	1.2	CEMENT/ BENTONITE GROUT	6SS		-	0 (0)
12.5	- no silt layers			7SS		-	0 (0)
	END OF HOLE @ 14.0ft BGS	-2.8					
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.3) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-6-96
DATE COMPLETED: MARCH 25, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.8					
2.5	SP/GP-SAND and GRAVEL (FILL), trace silt, medium to coarse grained sand, angular to rounded gravel, dark brown to gray, dry		8" Ø BOREHOLE	1SS		33	3.0
				2SS		40	3.0
5.0		6.8		3SS		16	2.5
	SP-SAND, little angular gravel, fine grained, dark gray to black, dry - red brick fragments, gray fibrous material and gray granular material, becoming moist			4SS		28	6.3
7.5		2.8					
	SP-SAND, little gray slag and red brick fragments, fine grained, black, moist			5SS		48	10.0
10.0		.5					
	SP-SAND, little silt, fine grained, orange brown, moist	.6	CEMENT/ BENTONITE GROUT	6SS		>50	1.8
	GP-GRAVEL, some coarse grained sand, angular, gray, dry	.3					
12.5				7SS		>100	0.3
	SP-SAND, trace silt, fine grained, black, moist - white slag material, wet	-3.2					
15.0	GP-GRAVEL, some fine to coarse grained sand, angular, black, wet			8SS		>100	0.2
				9SS		>70	1.2
17.5							
		-8.2		10SS		>50	0.8
	SP-SAND (NATIVE), trace silt, shell fragments, fine grained, black, wet	-8.7					
20.0	END OF HOLE @ 19.5ft BGS						
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-07)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-7-96
DATE COMPLETED: MARCH 25, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.8					
	SP-SAND (FILL), some gravel, trace silt, fine to medium grained, brown, dry	10.3		1SS		-	0.2
-2.5	GP-GRAVEL, some medium to coarse grained sand, angular, gray, dry	8.8		2SS		-	1.4
	SW-SAND, some rounded gravel, little silt, fine to coarse grained, brown, dry	6.8	8" Ø BOREHOLE				
-5.0	- obstruction, moved rig and redrilled			3SS		36	3.1
	GP-GRAVEL, some coarse grained sand, angular, gray, dry	4.8					
-7.5	SP-SAND, red brick, tan slag-like material, fine to medium grained, dark gray to black, dry to moist	2.8		4SS		23	NM
	GP/SP-GRAVEL and SAND, some wood, tan, wet	2.3		5SS		36	4.2
-10.0	SP-SAND, some silt, wood piling, fine grained, black, dry	.8					
	Mixture of angular GRAVEL, WOOD and RED BRICK, black, wet	-1.3	BENTONITE CHIPS	6SS		16	1.2
-12.5	SP-SAND, some silt, some wood, trace electric wires, fine grained, black, wet			7SS		>50	1.2
-15.0				8SS		>61	0.2
	WOOD, little fine to medium grained sand, piece of black PVC tubing, black, wet	-5.3		9SS		>50	1.2
-17.5	WOOD (NATIVE), some fine grained sand, little silt, black, wet	-7.3		10SS		>100	0.2
-20.0	END OF HOLE @ 20.0ft BGS	-9.3					
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-08)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-8-96
DATE COMPLETED: MARCH 28, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.2					
	GP-GRAVEL (FILL), some fine to coarse grained sand, angular to rounded, gray, dry	11.0		1SS		17	4.5 (17.0)
-2.5	SP-SAND, some red brick, some tan slag-like material, fine to coarse grained, dark brown, some black staining, dry to moist - hard		← 8" Ø BOREHOLE	2SS		60	1.3 (27.3)
-5.0		6.0		3SS		9	0 (28.1)
	GP/SP-GRAVEL and SAND, trace brick, soft, angular gravel, medium to coarse grained sand, orange brown to dark brown, wet	4.9		4SS		10	48.5 (78.3)
-7.5	SP/SM-SAND and SILT, some gray slag-like material, some gray fabric material, soft, orange brown to dark brown, some black staining, wet, moderate chemical odor			5SS		-	2.7 (52.3)
-10.0	- electric wire insulation - wood	1.2	← CEMENT/ BENTONITE GROUT	6SS		24	5.1 (44.0)
-12.5	SP-SAND and WOOD, medium grained, dark brown, black staining, wet, creosote odor			7SS		66	4.8 (43.8)
	SP-SAND, little silt, trace plastic, medium grained, dark black, wet, mild creosote odor	-2.0		8SS		21	4.6 (19.5)
-15.0	- some vegetation, no plastic			9SS		97	1.9 (92.2)
-17.5	SP-SAND, little silt, fine grained, black, wet	-6.2		10SS		32	NM (34.2)
	SP-SAND (NATIVE), some silt and shells, fine grained, dark gray to olive gray, wet	-7.0					
-20.0	END OF HOLE @ 20.0ft BGS	-8.8					
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-9-96
DATE COMPLETED: MARCH 29, 1996
DRILLING METHOD: 2 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	12.0					
	No Recovery			1SS		-	
-2.5	SP-SAND (FILL), some light gray slag-like material, trace red brick, fine to medium grained, brown to black, dry	10.0	4" Ø BOREHOLE	2SS		-	6.0 (204.0)
-5.0	SP/GP-SAND and GRAVEL, some silt, some red brick, fine to medium grained sand, black staining, red-brown to dark gray, very moist	7.6		3SS		-	2.6 (27.1)
-7.5	- wet			4SS		-	5.1 (72.0)
-10.0	SP/GP-SAND and GRAVEL, some silt, fine grained, dark brown, wet	2.0	CEMENT/ BENTONITE GROUT	5SS		-	0.9 (49.4)
	- wood, spoon refusal	1.0		6SS		-	
-12.5	END OF HOLE @ 11.0ft BGS	1.0					
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

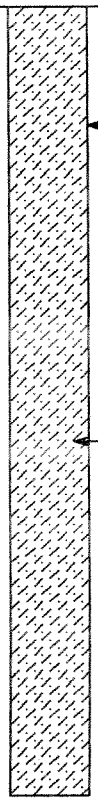
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-10-96
DATE COMPLETED: MARCH 26, 1996
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	11.1					
-2.5	GP/SP-GRAVEL and SAND SUB-BASE (FILL), trace silt, brown and gray, dry			1SS		>65	0
				2SS		61	0
-5.0	SP-SAND, some gray slag material, medium grained, little black staining, brown, dry to moist	6.9		3SS		48	1.2
	PUTTY-LIKE MATERIAL, gray, moist	5.1					
-7.5	SLAG, gray and pink	4.7 4.3		4SS		61	0.3
	SP-SAND, some wood, medium grained, brown, moist - sheet metal in tip of spoon - cobble, wet			5SS		>50	0.1
-10.0				6SS		>100	0
-12.5	SP-SAND, few shell fragments, medium grained, black, wet	-.9		7SS		>50	0.1
	- wood	-2.9					
-15.0	WOOD, some medium grained sand, black, wet	-4.9		8SS		>100	0.1
	SW-SAND, little shell fragments, trace silt and wood, medium to coarse grained, black, wet	-5.2		9SS		50	0.1
-17.5	SP-SAND (NATIVE), some silt, fine grained, dense, black, wet			10SS		38	0
-20.0	END OF HOLE @ 20.0ft BGS	-8.9					
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-11-96
DATE COMPLETED: MARCH 29, 1996
DRILLING METHOD: 2 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.4					
	GP-GRAVEL (FILL), trace vegetation, gray, dry	*10.2*					
	SP-SAND, little gravel, medium grained, dark brown, dry			1SS			1.6 (1.7)
-2.5	- few shells		← 4" Ø BOREHOLE	2SS			1.5 (13.3)
-5.0							
	- large gravel - concrete			3SS			0 (16.0)
-7.5	SP-SAND, little coarse grained sand and gravel, few shells, medium grained, orange-brown, wet	*2.9*					
			← BENTONITE CHIPS	4SS			0 (NM)
-10.0	GP/SP-GRAVEL and SAND, little silt, medium grained, dark brown, wet	*.4*					
	- black			5SS			0 (64.5)
-12.5	- spoon and auger refusal	*-1.6*					
	END OF HOLE @ 12.0ft BGS						
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-12-96
DATE COMPLETED: APRIL 1, 1996
DRILLING METHOD: 2" Ø SPLIT SPOON
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.4					
	GP/SP-GRAVEL and SAND (FILL), little silt, fine grained sand, brown, dry			1SS		-	(9.0)
	- grout, gray						
2.5	- gypsum or soft grout, blue gray		2" Ø BOREHOLE	2SS		-	(17.1)
5.0				3SS		-	(9.0)
		3.6		4SS		-	(12.2)
7.5	SW-SAND, fine to coarse grained, orange-tan, moist						
		2.1	BENTONITE CHIPS	5SS		-	(13.1)
	SP-SAND, some silt, little gravel, fine grained, dark gray, wet						
10.0		.4		6SS		-	(5.4)
	SP-SAND, trace silt and shells, medium grained, dark brown to dark gray with red grains, wet						
12.5				7SS		-	(33.2)
	- spoon refusal	-3.6					
15.0	END OF HOLE @ 14.0ft BGS						
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-13-96
DATE COMPLETED: APRIL 1, 1996
DRILLING METHOD: 2" Ø SPLIT SPOON
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.9					
	GP-GRAVEL (FILL), some sand, little silt, angular, gray and brown, dry	10.7	2" Ø BOREHOLE				
	GROUT or GYPSUM MATERIAL, soft, gray, moist	10.2	BENTONITE CHIPS	1SS		-	(3.1)
-2.5	SP-SAND, some gravel, trace silt, medium grained, dark brown, moist	8.8		2SS		-	
	- spoon refusal						
-5.0	END OF HOLE @ 2.1ft BGS						
-7.5							
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-14-96
DATE COMPLETED: APRIL 1, 1996
DRILLING METHOD: 2" Ø SPLIT SPOON
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.8					
	SP-SAND and GRAY SLUDGE-LIKE MATERIAL, little gravel, trace silt, medium grained, dry to moist		2" Ø BOREHOLE	1SS		-	(4.3)
-2.5				2SS		-	(NM)
		6.5	BENTONITE CHIPS	3SS		-	(15.2)
-5.0	GP-GRAVEL, little sand, gray, dry	6.3					
	SP-SAND, little gravel, trace silt, medium grained, dark brown, moist	5.9					
	- spoon refusal						
-7.5	END OF HOLE @ 4.9ft BGS						
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 7842
CLIENT: OXYCHEM
LOCATION: AS PER PLAN

HOLE DESIGNATION: BH-15-96
DATE COMPLETED: APRIL 1, 1996
DRILLING METHOD: 2" Ø SPLIT SPOON
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	10.6					
	GP/SP-GRAVEL and SAND (FILL), little silt, angular gravel, medium grained sand, gray and brown, dry		2" Ø BOREHOLE	1SS		-	(7.0)
-2.5				2SS		-	(4.8)
	SP-SAND, some gravel, medium grained, dark gray to dark olive, moist	6.6		3SS		-	(2.9)
-5.0			BENTONITE CHIPS				
	GP-GRAVEL, some sand and wood, angular, tan to dark olive, moist to wet	4.6		4SS		-	(17.0)
-7.5	- spoon refusal	3.1					
	END OF HOLE @ 7.5ft BGS						
-10.0							
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
CHEMICAL ANALYSIS ⬭ (10.2) HEADSPACE READING

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-19

HOLE DESIGNATION: BHPH-1
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
2.5							
5.0			BENTONITE GROUT				
7.5							
10.0							
12.5							
15.0			6" Ø BOREHOLE				
	SP-SAND, some silt and silt layers, fine grained sand, dark gray to black, wet	-16.0		1SS			
17.5							
	SP-SAND (NATIVE), some silt, little shell fragments, hard, fine to medium grained sand, black, moist	-19.0		2SS			
20.0							
22.5							
	ML-SILT, hard, gray, dry to moist	-23.0		3SS			
25.0		-25.0					
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-19

HOLE DESIGNATION: BHPH-1
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			BENTONITE GROUT				
-40.0							
	SP-SAND, some silt, fine grained, dark gray, wet	-41.0		4SS			
-42.5							
-45.0				5SS			
	ML-SILT, little fine sand, hard, gray, moist	-46.5					
-47.5			6" Ø BOREHOLE	6SS			
-50.0	END OF HOLE @ 50.0ft BGS	-50.0					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-21

HOLE DESIGNATION: BHPH-2
DATE COMPLETED: OCTOBER 14, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
2.5							
5.0			BENTONITE GROUT				
7.5							
10.0							
12.5							
15.0			6" Ø BOREHOLE				
	SP-SAND (NATIVE), some silt, fine grained sand, dark gray, wet, moderate chemical odor	-16.0					
17.5	ML-SILT, layered, dense, dark gray, very moist	-17.6		1SS			
	SP-SAND, little silt and shell fragments, fine to medium grained sand, black, wet	-18.2					
20.0				2SS			
22.5				3SS			
25.0		-25.0					
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-21

HOLE DESIGNATION: BHPH-2
DATE COMPLETED: OCTOBER 14, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			BENTONITE GROUT				
-40.0							
	SP-SAND, some silt and silt layers, fine grained sand, dark gray to black, wet	-41.0		4SS			
-42.5							
-45.0				5SS			
	ML-SILT, dense, gray, moist	-46.5					
-47.5			6" Ø BOREHOLE	6SS			
-50.0	END OF HOLE @ 50.0ft BGS	-50.0					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-22

HOLE DESIGNATION: BHPH-3
DATE COMPLETED: OCTOBER 14, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
2.5							
5.0			BENTONITE GROUT				
7.5							
10.0							
12.5							
15.0			6" Ø BOREHOLE				
	SP-SAND, some silt and silt layers, fine grained sand, dark gray, moist to wet	-16.0		1SS			
17.5							
	SP-SAND (NATIVE), little silt and shell fragments, medium to coarse grained sand, black, wet	-19.0		2SS			
20.0							
22.5				3SS			
25.0		-25.0					
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ADJACENT TO MW-22

HOLE DESIGNATION: BHPH-3
DATE COMPLETED: OCTOBER 14, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BENTONITE GROUT				
40.0							
	SP-SAND, some silt, fine to medium grained sand, black, wet	-41.0		4SS			
42.5							
45.0				5SS			
	ML-SILT, some fine sand, hard, dark gray, moist	-47.0					
47.5			6" Ø BOREHOLE	6SS			
50.0	END OF HOLE @ 50.0ft BGS	-50.0					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

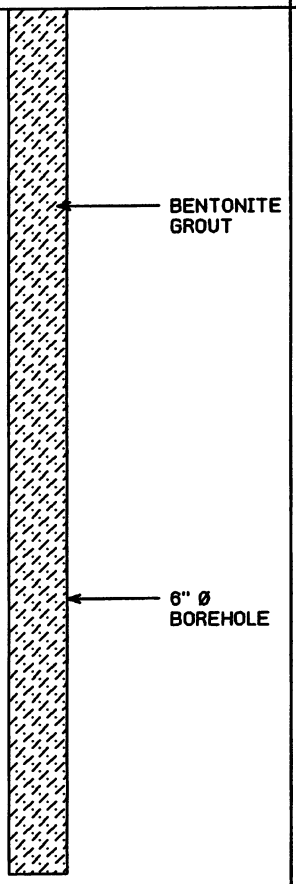
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(WL-135)
Page 1 of 1

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: SOUTHEAST CORNER OF SALT PAD

HOLE DESIGNATION: BHPH-4
DATE COMPLETED: OCTOBER 14, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
15.0	SP-SAND, some silt, fine grained sand, dark gray to black, wet	-16.0		1SS			
17.5	SP-SAND, little silt, medium to coarse grained sand, black, wet, sheen, strong chemical odor, dark brown NAPL observed	-18.0		2SS			
20.0	END OF HOLE @ 22.0ft BGS	-22.0					



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: PRI PROPERTY BETWEEN MW-13 AND MW-14

HOLE DESIGNATION: BHPH-5
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
2.5							
5.0			BENTONITE GROUT				
7.5							
10.0							
12.5							
15.0			6" Ø BOREHOLE				
		-16.0					
17.5	SM-SAND, some silt, little shell fragments, soft, fine grained sand, gray, wet, moderate hydrocarbon odor			1SS			
20.0							
		-20.5		2SS			
	SP-SAND, little silt, fine to medium grained sand, black, wet, hydrocarbon odor						
		-22.0					
22.5	ML/SM-SILT and SAND, dense, fine grained sand, gray, wet			3SS			
25.0		-25.0					
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽ STATIC WATER LEVEL ⊽

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: PRI PROPERTY BETWEEN MW-13 AND MW-14

HOLE DESIGNATION: BHPH-5
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
37.5			BENTONITE GROUT				
40.0							
	SP-SAND, little silt, fine to medium grained sand, black, wet	-41.0		4SS			
42.5							
45.0				5SS			
47.5			6" Ø BOREHOLE	6SS			
50.0	END OF HOLE @ 50.0ft BGS	-50.0					
52.5							
55.0							
57.5							
60.0							
62.5							
65.0							
67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN BHPH-2 AND BHPH-4

HOLE DESIGNATION: BHPH-6
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.0					
-2.5							
-5.0			BENTONITE GROUT				
-7.5							
-10.0							
-12.5							
-15.0			6" Ø BOREHOLE				
	SP-SAND, some silt, fine grained, dark gray, wet, moderate chemical odor	-16.0		1SS			
-17.5							
	SP-SAND (NATIVE), little silt, few shells, loose, medium grained sand, gray	-19.0		2SS			
-20.0							
-22.5				3SS			
-25.0		-25.0					
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: OXYCHEM - TACOMA
PROJECT NUMBER: 1002-10
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: MIDWAY BETWEEN BHPH-2 AND BHPH-4

HOLE DESIGNATION: BHPH-6
DATE COMPLETED: OCTOBER 15, 1997
DRILLING METHOD: STRATA PROBE
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
-37.5			BENTONITE GROUT				
-40.0							
	SP-SAND, some silt, dense, fine grained sand, dark gray, wet	-41.0		4SS			
-42.5							
-45.0				5SS			
-47.5			6" Ø BOREHOLE	6SS			
-50.0	END OF HOLE @ 50.0ft BGS	-50.0					
-52.5							
-55.0							
-57.5							
-60.0							
-62.5							
-65.0							
-67.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-1
DATE COMPLETED: June 1, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Hunton

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.10	001 SS1		2.0		0.0
	SP-SAND, loose, fine to medium grained, light gray with red and white grains, moist						
2	- compact below 2 ft BGS						
			002 SS2		4.0		3.4
4	- trace shells, light gray to dark gray, moist to wet below 4 ft BGS						
	- trace shells below 5 ft BGS						
6	- trace shells, dark gray, wet, brittle below 6 ft BGS						
			003 SS3		4.0		10.6
8							
10	Not Sampled	1.60					
12	SM-SAND with SILT, compact, fine to medium grained sand, light gray with red and white grains, wet	-0.40					
			SS4		4.0		27
14	- silt lense, wood debris @ 14.9 ft BGS	-3.40					
	ML-SILT, compact, gray, dry	-3.80					
16	SP-SAND, trace silt, compact, fine to medium grained sand, dark gray, wet						
	- wood debris below 16 ft BGS						
	- wood debris below 16.5 ft BGS		SS5		4.0		NR
18	- wood debris below 16.8 ft BGS						
	END OF BOREHOLE @ 19.0ft BGS	-7.40					
20	Ground surface elevation is estimated.						
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-24' BGS - See Log from CH-2 for Stratigraphy						
14	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated, partially cemented	-2.40	004 SS1		6.0		0.0
			005 SS2		5.0		0.0
			006 SS3		5.0		0.1
22	- trace shell fragments, dense below 22 ft BGS		007 SS4		5.0		0.3
			008 SS5		5.0		0.1
			009 SS6		5.0		0.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40			010 SS7		5.0		0.0
42	ML-SILT with fine SAND, compact, non-plastic, medium gray, saturated	-30.40					
44			011 SS8		5.0		0.1
46							
48	SM/ML-SAND and SILT, compact to dense, fine sand, non-plastic, poorly graded, dark gray brown, saturated	-35.90	012 SS9		5.0		0.0
50	- cobble below 50 ft BGS						
52							
54			SS10		5.0		0.0
56							
58	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark gray brown, trace red and white grains, saturated	-46.40					
60			SS11		5.0		0.0
62							
64			SS12		5.0		0.0
66							
68	- 0.8' silty sand seam @ 68 ft BGS		SS13		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74			SS14		5.0		0.0
76							
		-65.40					
78	Not Sampled						
80							
82		-70.40					
	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark gray brown, trace red and white grains, saturated						
84			SS15		5.0		0.0
86							
		-75.40					
88	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated						
		-78.40	SS16		5.0		0.0
90	ML-SAND and SILT, trace shell fragments, compact, fine grained, non-plastic, dark brown gray, saturated						
92							
94			SS17		5.0		0.0
96							
98							
100			SS18		5.0		0.0
		-88.90					
102	SP-SAND, trace shell fragments, trace silt, compact, fine grained, poorly graded, medium gray, trace red and white grains, saturated						
		-90.40					
104	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
		-95.40					
108	ML-SANDY SILT, compact, fine sand, non-plastic, medium gray, saturated						
			SS19		5.0		0.0
110							
112							
114			SS20		5.0		0.0
116							
	- trace clay below 117 ft BGS						
118							
			SS21		5.0		0.0
120		-108.40					
	SP-GRAVELLY SAND, compact, fine to coarse grained, poorly graded, green-grey, saturated						
122							
124			SS22		5.0		0.0
126							
		-115.40					
128	ML-SANDY SILT, trace clay, trace gravel, compact, fine grained sand, grey-green, dry to humid						
		-117.40	SS23		4.0		
130	ML/SM/GM-GRAVELLY, SANDY SILT, trace clay, dense, fine to coarse grained, poorly graded, green-grey, dry						
132							
		-121.40	SS24		4.0		
134	SP-GRAVELLY, SILTY SAND, trace clay, fine to coarse grained, green-grey, saturated						
136							
		-125.40					
138	ML-SANDY SILT, trace clay, very dense, fine to medium grained, grey-green, dry, well graded silt with sand lenses						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS25		6.0		
144	SP-SAND, trace to some silt, trace gravel, compact to dense, fine to medium grained, poorly to medium graded sand, dry to humid, brown-grey	-131.40					
146							
148			SS26		9.0		
150							
152	ML-GRAVELLY, SANDY SILT, dense to very dense, poorly graded, brown-grey, dry, similar to till	-140.40					
154			SS27		4.0		
156	GP-SANDY GRAVEL, loose to compact, medium to coarse grained, poorly graded, saturated	-144.40					
158							
160							
162							
164							
166			SS28		11.0		
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176	GP/SP-GRAVELLY, SILTY SAND, dense, fine to coarse grained, poorly graded, green-grey, dry to humid, similar to till	-163.40	SS29		2.0		
178	SP/SM-GRAVELLY SAND, trace clay, loose, medium to coarse grained, green-grey, moist to saturated, becoming a gravelly, silty sand	-165.40	SS30		5.0		
180							
182	SM-GRAVELLY, SILTY SAND, dense, poorly sorted, green to brown, humid	-170.40	SS31		5.0		
184							
186							
188	ML-SANDY SILT, trace clay, very dense, fine grained, varied gravel sizes, green-grey, dry, becoming gravelly, possible till	-175.40	SS32		5.0		
190							
192	- trace organic matter (wood) below 193 ft BGS						
194			SS33		5.0		
196	GPS-GRAVELLY, SILTY SAND, dense, fine grained, brown, moist, becoming trace clay, trace gravel, dry	-183.40					
198	TILL-GRAVELLY, SILTY SAND, compact, fine to coarse grained, poorly sorted, grey, green tint, moist	-185.40	SS34		5.0		0.0
200	- cobble (0.3') @ 200 ft BGS						
202							
204			SS35		5.0		0.0
206							
208	- becoming brown grey, trace clay below 207 ft BGS		SS36		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
212	- gravelly sandy silt, trace clay, compact, fine to medium grained sand, grey, moist below 212 ft BGS						
214			SS37		5.0		0.0
216							
218	SP-GRAVELLY SAND, trace silt, loose to compact, fine to medium grained, dark brown, moist to saturated, quartz and feldspar grains	-205.40					
220			SS38		5.0		0.0
222							
224			SS39		5.0		0.0
226							
228	- grey, saturated below 229 ft BGS						
230			SS40		5.0		0.0
232							
234			SS41		5.0		0.0
236	GM-SILTY GRAVEL, trace sand, loose, poorly sorted, grey, saturated	-225.40					
238							
240			SS42		5.0		0.0
242	GP-SANDY GRAVEL, trace silt, loose, poorly sorted, grey, saturated	-230.40					
244			SS43		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
246							
	SP-SAND, trace silt, loose, medium grained, brown, saturated	-235.40					
248							
250			SS44		5.0		0.0
252							
254			SS45		5.0		0.0
256							
258							
260			SS46		5.0		0.0
262							
264			SS47		5.0		0.0
266							
268							
270			SS48		5.0		0.0
272							
274			SS49		5.0		0.0
276	- fine to medium grained, green, moist below 277 ft BGS						
278			SS50		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2(2)
DATE COMPLETED: August 2, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
282							
284			SS51		5.0		0.0
286							
288							
290			SS52		5.0		0.0
292	SP-SAND, trace to some gravel, trace silt, loose, fine to coarse grained, poorly sorted, moist to saturated	-280.40					
294			SS53		5.0		0.0
296							
	END OF BOREHOLE @ 297.0ft BGS	-285.40					
298	Ground surface elevation is estimated.						
300							
302							
304							
306							
308							
310							
312							
314							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-2
DATE COMPLETED: June 1, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30	001 SS1				0.0
	SM/GM-SAND and GRAVEL with SILT, compact, fine to coarse grained sand and gravel, poorly graded, brown, moist	10.30					
2	SP-SAND, trace silt, trace fine gravel, compact, fine grained, trace medium to coarse grained, poorly graded, dark brown with trace white and red grains, moist						
			002 SS2				0.0
4							
6	- saturated below 6 ft BGS						
8							
10	- medium brown below 9.75 ft BGS						
12	SM-SILTY SAND, compact, fine grained sand with trace medium to coarse grained sand, poorly graded, gray, very moist to saturated	-0.40	003 SS3				0.2
14	Not Sampled	-2.40					
16							
18							
20							
22	END OF BOREHOLE @ 22.0ft BGS	-10.40					
	Ground surface elevation is estimated.						
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-3
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Rotosonic/Direct Push
FIELD PERSONNEL: D. Rivers, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT/FILL		SS1				45
2	SP-SAND, trace fine gravel, trace shell fragments, loose, dark gray, red and white grains	10.00					
4			SS2		4.0		2.2
6	SP-SAND, trace silt, trace shell fragments, loose, dark gray, red and white grains, wet	5.60	004				
8			SS3		4.0		8.8
10	Not Sampled	1.60					
12							
14			005 SS4		5.0		2.1
16							
18			006 SS5		5.0		2.8
20	SP-SAND, trace shells, compact, poorly graded, fine grained, dark gray, red and white grains, moist, odor, cemented sands	-8.40					
22							
24	SP-SAND, trace silt, dense, fine grained, trace medium grained, poorly graded, gray, trace red and white grains, saturated, partially cemented	-12.40	007 SS6		5.0		3.4
26							
28	- 0.8' silty sand seam @ 28 ft BGS		008 SS7		5.0		4.5
30							
32							
34			009 SS8		5.0		5.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-3
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Rotosonic/Direct Push
FIELD PERSONNEL: D. Rivers, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38			010 SS9		5.0		3.8
40							
42							
44	SM-SILTY SAND, dense, fine grained, poorly graded, gray, saturated, partially cemented	-32.40	011 SS10		5.0		3.1
46							
48							
50			012 SS11		5.0		2.5
52	Not Sampled	-40.40					
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-3
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Rotosonic/Direct Push
FIELD PERSONNEL: D. Rivers, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	ML-SANDY SILT, compact, fine grained sand, non-plastic, poorly graded, gray, saturated	-60.40					
74			SS12		5.0		2.1
76		-65.40					
78	Not Sampled						
80							
82							
84							
86							
88							
90							
92							
94							
96							
98	SM-SILTY SAND, trace shell fragments, trace woody fragments, compact, fine grained, poorly graded, dark gray, saturated, sulfur/organic-like odor	-85.40					
100			SS13		5.0		2.0
102	Not Sampled	-90.40					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-3
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Rotosonic/Direct Push
FIELD PERSONNEL: D. Rivers, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110							
112							
114							
116							
118	SP-SAND, trace silt, dense, fine grained, trace medium grained, poorly graded, gray, trace red and white grains, saturated, partially cemented	-105.40	SS14		5.0		1.5
120							
122							
124	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, saturated, trace shell fragments, sulfur/organic-like odor, trace woody fragments	-111.40	SS15		5.0		1.5
126							
128	END OF BOREHOLE @ 127.0ft BGS Ground surface elevation is estimated.	-115.40					
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-4(2)
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	[Advanced by Geoprobe on 5/31/06] See Log for CH-4						
10	SP-SAND, trace silt, very dense, fine grained, poorly graded, medium gray, saturated, partially cemented	1.60	003 SS1		5.0		0.8
			004 SS2		5.0		0.9
			005 SS3		5.0		2.5
			006 SS4		5.0		2.1
			007 SS5		5.0		8.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-4(2)
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38			008 SS6		5.0		11.2
40							
42			009 SS7		5.0		13.2
44							
46							
48	ML-SANDY SILT, very dense, fine sand, non-plastic, poorly graded, medium gray, saturated, partially cemented	-36.40	010 SS8		5.0		14.6
50			011 SS9		2.0		12.5
52	Not Sampled	-40.40					
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-4(2)
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98	SP-SAND, trace silt, dense, fine grained, trace medium to coarse grained, poorly graded, dark gray, trace red and white grains, saturated	-85.40	SS10	X	5.0		7.5
100							
102	Not Sampled	-90.40					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-4(2)
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110							
112							
114							
116							
		-105.40					
118	ML-SILT, trace fine sand, compact, non-plastic, gray, saturated						
120	- with fine to coarse sand and fine to coarse gravel below 120 ft BGS		SS11		5.0		6.2
		-110.40					
122	SM/GM-SAND and GRAVEL with SILT, compact, fine to coarse sand and fine to coarse gravel, poorly graded, green-gray, saturated						
124			SS12		5.0		3.5
		-114.40					
126	CL-CLAY with SILT, with SAND, with gravel, stiff, fine grained sand, coarse grained gravel, low plasticity, gray-green, moist						
		-115.40					
128	END OF BOREHOLE @ 127.0ft BGS						
	Ground surface elevation is estimated.						
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-4
DATE COMPLETED: May 31, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT/FILL		SS1		1.0		0.0
2	SP-SAND, trace gravel pieces, loose, fine to medium grained, poorly graded, gray/brown, red and white grains	9.60					
4	- red mineral pigment @ 3.5 ft BGS		SS2		4.0		0.0
6	- no gravel below 6 ft BGS						
8			SS3		4.0		0.0
10	Not Sampled	1.60					
12							
14			SS4		2.0		628
16	END OF BOREHOLE @ 16.0ft BGS	-4.40					
18	Ground surface elevation is estimated.						
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: CH-5
DATE COMPLETED: June 8, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	CONCRETE	11.00				
	SP-SANDS, trace silt, compact, fine grained, trace medium to coarse grained, poorly graded, white to light gray, some areas of sand partially cemented		SS1		1.5	
2						
4			SS2		3.0	
6						
			SS3		2.0	
8	- gray, saturated below 8 ft BGS					
10						
	END OF BOREHOLE @ 11.0ft BGS	0.60				
12	Ground surface elevation is estimated.					
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-1
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.68					
	Not Sampled						
8	SM -SILTY SAND, compact, fine to medium grained, slightly plastic, slightly cohesive, dark gray, wet	3.18	SS1		1.0	14	1.7
	Not Sampled	2.18					
10	SM -SILTY SAND, wood debris	1.68	SS2		1.0	9	2.7
12	Not Sampled	-0.32					
	SM -SILTY SAND, wood debris	-0.82	SS3		0.3	15	NR
14	Not Sampled	-2.82					
16							
	SM -SILTY SAND, wood debris	-5.32	SS4		0.3	11	2.3
18	Not Sampled	-7.32					
20	SP-SAND, trace silt, trace shell, trace wood debris, very loose, fine to medium grained, dark gray, trace red grains, wet	-7.82	001 SS5		1.0	2	1.6
22	Not Sampled	-9.82					
24	SP-SAND, trace silt, trace shell, trace wood debris, very loose, fine to medium grained, dark gray, trace red grains, wet	-12.82	002 SS6		1.4	48	60.3
26	ML-SILT, trace sand, trace shell debris, hard, non-plastic, slightly cohesive, gray, moist, slight odor	-14.32 -14.82					
28	Not Sampled						
30							
32	ML-SILT, trace sand, trace shell debris, stiff, non-plastic, slightly cohesive, gray, moist, slight odor	-19.82	003 SS7		1.5	17	70.5
34	SP-SAND, trace silt, trace shell debris, fine to medium grained, non-plastic, non-cohesive, dark grey, with red flecks, wet, dilatant	-21.32 -21.82					
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-1
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
	SP-SAND, trace silt, trace shell debris, fine to medium grained, non-plastic, non-cohesive, dark grey, with red flecks, moist to wet, not dilatant	-24.82	004 SS8	X	2.0	47	13.1
38	- silt seam, fine grained, interbedded @ 38 ft BGS						
	Not Sampled	-26.82					
40							
	SP-SAND, trace silt, trace shell debris, compact, fine to medium grained, non-plastic, dark grey, with red flecks, moist to wet, dilatant	-29.82	005 SS9	X	2.0	11	19.8
42	- 0.02' thick silt veneer, light grey, moist @ 43 ft BGS						
	Not Sampled	-31.82					
44							
46							
	SP-SAND, trace silt, trace shell debris, fine to medium grained, non-plastic, non-cohesive, dark grey, with red flecks, wet, dilatant	-34.82	006 SS10	X	2.0	18	24.9
		-35.82					
48	SM-SILTY SAND, compact, fine grained, non-plastic, slightly cohesive, light grey, moist	-36.82					
	Not Sampled						
50							
	SM-SILTY SAND, compact, fine grained, non-plastic, slightly cohesive, light grey, moist	-39.82	007 SS11	X	1.5	20	59.8
52		-40.32					
	ML-SILT with SAND, trace clay, very stiff, slightly plastic, slightly cohesive, grey, moist to wet	-41.82					
54	Not Sampled						
56							
	ML-SANDY SILT, trace clay, very stiff, slightly plastic, slightly cohesive, grey, wet, dilatant	-44.82	008 SS12	X	2.0	5	13.7
58	- very fine grained, moist to wet below 57 ft BGS						
	- 0.04' thick fine to coarse sand veneer, dark grey @ 57.2 ft BGS	-46.82					
	- moist to wet below 58 ft BGS						
60	- 0.04' thick sand veneer, dark @ 58.3 ft BGS						
	Not Sampled						
62	ML-SILT with SAND, trace clay, very stiff, slightly plastic, slightly cohesive, grey, moist to wet	-49.82	009 SS13	X	2.0	25	4.6
	- soft below 62.5 ft BGS	-51.82					
64	Not Sampled						
66							
	ML-SANDY SILT, trace clay, very stiff, slightly plastic, slightly cohesive, grey, moist to wet, very dilatant	-54.82	010 SS14	X	2.0	16	10.9
68	- little sand, moist to wet, not dilatant below 67 ft BGS						
	Not Sampled	-56.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-1
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SP-SAND, some silt, compact, fine to medium grained, moist to wet, dark grey, slightly dilatant, sulfur odor - moist below 73 ft BGS	-59.82	011 SS15		2.0	16	76.1
74	Not Sampled	-61.82					
76	SP-SAND, some silt, compact, fine to medium grained, dark grey, wet, very dilatant, sulfur odor	-64.82	012 SS16		1.5	26	91.6
78	- with silt, moist to wet below 77.5 ft BGS						
80	Not Sampled	-66.82					
82	SP-SAND, trace silt, compact, fine to medium grained, dark grey, wet to moist	-69.82 -70.32	013 SS17		1.0	4	10.4
	ML-SILT, with fine sand, fine grained, slightly plastic, slightly cohesive, dark grey, wet, 4" seam	-70.62					
84	SP-SAND, trace silt, compact, fine to medium grained, dark grey, wet to moist - trace to little silt, wet below 83 ft BGS	-71.82					
86	Not Sampled	-74.82					
88	SP-SAND, trace silt, compact, fine to medium grained, dark grey, wet to moist - some silt, very loose, moist to wet below 88 ft BGS	-76.82	014 SS18		2.0	4	11.7
90	Not Sampled	-79.82					
92	SP-SAND, trace silt, compact, fine to medium grained, dark grey, moist - with silt, fine grained below 93.2 ft BGS	-81.82	015 SS19		1.0	20	112
94	Not Sampled	-84.82					
96	SP-SAND, trace silt, trace wood debris, compact, fine to medium grained, dark grey, wet		016 SS20		2.0	25	130
98	- with silt, moist below 97.5 ft BGS	-86.82					
100	Not Sampled	-89.82					
102	SP-SAND, trace silt, compact, fine to medium grained, dark grey, wet, dilatant	-90.32	017 SS21		1.5	19	17.5
	ML-SILT, with sand, very stiff, slightly plastic, slightly cohesive, dark grey, wet - moist below 102.5 ft BGS	-91.32					
104	SP-SAND, trace to little silt, compact, fine to medium grained, non-plastic, non-cohesive, dark grey, moist	-91.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-1
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	Not Sampled						
	SP-SAND, trace silt, compact, fine to medium grained, non-plastic, non-cohesive, dark grey, moist	-94.82	018 SS22		2.0	18	2.0
108	Not Sampled	-96.82					
110							
112	SP-SAND, trace silt, compact, fine to medium grained, non-plastic, non-cohesive, light grey, moist, silt "pockets"	-99.82	019 SS23		2.0	16	236
114	Not Sampled	-101.82					
116							
118	SP-SAND, trace silt, compact, fine to medium grained, non-plastic, non-cohesive, light grey, moist to wet - 0.02' thick silt veneer @ 118 ft BGS	-104.82	020 SS24		2.0	12	151
	Not Sampled	-106.82					
120							
122	SP-SAND, trace silt, compact, fine to medium grained, non-plastic, non-cohesive, light grey, moist to wet - silt "pockets," dry @ 122.5 ft BGS	-109.82	021 SS25		2.0	51	96.4
124	- ML-SILT, trace sand, hard, fine to coarse grained, brittle, slightly cohesive, dark grey, trace oxidation	-111.82					
	Not Sampled						
126							
	SW-SAND, dense, fine to coarse grained, dark grey, moist	-114.82					
	SP-SAND, trace silt, dense, fine to medium grained, dark grey, moist to wet	-115.32	022 SS26		2.0	46	22
128	Not Sampled	-116.82					
130							
132	SP-SAND, trace silt, dense, fine to medium grained, dark grey, moist to wet - 0.5' silt lense @ 132.5 ft BGS	-119.82	023 SS27		2.0	105	6
	Not Sampled	-121.82					
134							
136	SP-SAND, trace silt, dense, fine to medium grained, dark grey, moist to wet - trace to little silt, fine grained, slightly dilatant below 137.2 ft BGS	-124.82	024 SS28		2.0	13	NR
138	Not Sampled	-126.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-1
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	SP-SAND, trace to little silt, dense, fine grained, dark grey, moist to wet, slightly dilatant	-129.82	025 SS29		2.0	12	4
	- fine to medium grained sand, moist below 142 ft BGS						
144	- silt lense @ 143.2 ft BGS	-131.82					
	Not Sampled						
146							
	SP-SAND, trace to little silt, dense, fine to medium grained, dark grey, moist, slightly dilatant	-134.82	026 SS30		1.8	46	1.2
148							
	ML-SILT, trace fine sand, hard, slightly cohesive, dark grey, moist	-136.32 -136.82					
	Not Sampled						
150							
	ML-SILT, trace fine sand, hard, slightly cohesive, dark grey, moist	-139.82					
152			027 SS31		2.0	32	NR
	SP-SAND, trace to little silt, dense, fine grained, dark grey, moist	-140.82 -141.82					
154	END OF BOREHOLE @ 153.5ft BGS						
	NR = Not Recorded						
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-2
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.68					
	Not Sampled						
10	FILL, medium to large grained sand, large angular gravel, moist	1.68	SS1	X	1.5		
		0.18					
12	Not Sampled						
16	FILL, minor silt, wood debris, medium angular rocks, moist to wet	-3.32	SS2	X	1.5	12	1240
		-5.32					
18	Not Sampled						
20	SP-SAND, trace silt, very loose, medium grained, dark gray, wet ▽	-8.32	001 SS3	X	1.5	6	179
		-10.32					
22	Not Sampled						
26	SP-SAND, trace silt, medium density, fine to medium grained, dark gray, moist	-13.32	002 SS4	X	2.0	29	71
		-15.32					
28	Not Sampled						
30	SP-SAND, trace silt, very loose, medium grained, dark gray, wet	-18.32	003 SS5	X	1.5	24	85.2
	- silt lense, moist to wet, some wood debris @ 31.5 ft BGS						
32	Not Sampled	-20.32					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-2
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	ML-SILT, trace sand, stiff, fine grained, slightly plastic, dark gray, moist to wet	-23.32	004 SS6		2.0	10	7.5
	SP-SAND, trace silt, some woody debris, very loose, fine to medium grained, dark gray, moist	-24.82 -25.32					
38	Not Sampled						
40	ML-SILT, trace sand, stiff, fine grained, slightly plastic, dark grey, moist to wet	-28.32	005 SS7		2.0	15	12.5
	SP-SAND, trace sand, trace silt, loose, fine to medium grained, dark grey, moist	-29.82 -30.32					
42	Not Sampled						
44							
46	SP-SAND, trace silt, loose, fine to medium grained, dark grey, moist	-33.32	006 SS8		2.0	11	15
	Not Sampled	-35.32					
48							
50	SP-SAND, trace silt, loose, fine to medium grained, dark grey, moist	-38.32	007 SS9		2.0	22	34.5
52	Not Sampled	-40.32					
54							
56	SP-SAND, trace silt, loose, fine to medium grained, dark grey, moist	-43.32	008 SS10		3.0	15	19.5
	Not Sampled	-45.32					
58							
60	ML-SILT, trace sand, very stiff, fine grained, dark grey, moist	-48.32	009 SS11		1.8	22	
	SP-SAND, fine to medium grained, medium density, dark grey, moist	-49.82 -50.32					
62	Not Sampled						
64							
66	ML-SILT, trace sand, very stiff, fine grained, dark grey, moist	-53.32	010 SS12		1.8	24	280
	SP-SAND, trace silt, medium density, dark grey, moist	-54.82 -55.32					
68	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-2
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace silt, dense, medium to coarse grained, dark grey, moist	-58.32	011 SS13		2.0	42	
72	Not Sampled	-60.32					
74							
76	SP-SAND, trace silt, trace organics, loose, fine to medium grained, dark grey with red grains, moist to wet	-63.32	012 SS14		2.0	9	78.8
	Not Sampled	-65.32					
78							
80	SP-SAND, trace silt, white shell fragments, medium density, dark grey, moist	-68.32	013 SS15		2.0	13	21.7
	SM/ML-SANDY SILT/SILTY SAND, stiff, fine grained, non-plastic, slightly cohesive, dark grey, moist, slightly dilatant	-69.32					
82	Not Sampled	-70.32					
84							
86	SP-SAND, some silt, trace white shells, compact, fine to medium grained fragments, trace red grains, wet, slightly dilatant	-73.32	014 SS16		1.0	13	7.6
	Not Sampled	-75.32					
88							
90	SP-SAND, some silt, compact, fine to medium grained, trace red grains, moist to wet, slightly dilatant, no shell fragments	-78.32	015/016 SS17		1.5	18	15.7
92	Not Sampled	-80.32					
94							
96	SP-SAND, some silt, white shell fragments, compact, fine to medium grained, trace red grains, moist, slightly dilatant - 0.05' silt veneers, fine grained, slightly plastic, slightly cohesive, dry, no shell fragments @ 96 ft BGS	-83.32	017 SS18		2.0	27	16.1
	Not Sampled	-85.32					
98							
100	SP-SAND, some silt, compact, slightly plastic, slightly cohesive, fine grained, dry	-88.32	018 SS19		2.0	35	
	ML-SILT, trace clay, trace sand, hard, fine grained, slightly plastic, slightly cohesive, grey, moist	-89.32					
102	Not Sampled	-90.32					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-2
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	ML-SILT, trace clay, trace sand, fine grained, hard, slightly plastic, slightly cohesive, grey, moist - fine to medium grained sand veneers below 106.5 ft BGS	-93.32	019 SS20		1.5	31	
	Not Sampled	-95.32					
108							
110	ML-SILT, trace clay, trace sand, hard, fine to medium grained, slightly plastic, slightly cohesive, grey, moist - brittle below 111 ft BGS	-98.32	020 SS21		1.5	66	
112	- with sand, dark grey, moist, not brittle below 111.5 ft BGS	-100.32					
	Not Sampled						
114							
	SM-SILTY SAND, compact, fine grained, slightly plastic, slightly cohesive, dark grey, wet, dilatant	-103.32					
116		-104.32	021 SS22		2.0	41	0.3
	ML-SILT, trace sand, trace clay, hard, fine grained, slightly plastic, slightly cohesive, grey, moist - with sand below 116.8 ft BGS	-105.32					
118	Not Sampled						
120	SM-SILTY SAND, dense, fine grained, slightly plastic, slightly cohesive, dark grey, wet - fine to medium grained sand, moist below 121 ft BGS	-108.32	022 SS23		1.5	50	
122	Not Sampled	-110.32					
124							
	ML-SILT, trace sand, trace clay, very dense, fine grained, slightly plastic, slightly cohesive, dark grey, moist	-113.32	023 SS24		1.8	62	
126	- 0.02' fine to medium grained sand seam, with fine sand, moist @ 126 ft BGS						
	Not Sampled	-115.32					
128							
130	ML-SILT, trace sand, trace clay, soft, fine to coarse grained, slightly plastic, dark grey, wet - trace to little fine sand, stiff, medium to coarse grained, moist below 131 ft BGS	-118.32	024 SS25		2.0	16	31
132	Not Sampled	-120.32					
134							
	ML-SILT, with sand, trace clay, soft, non-plastic, slightly cohesive, dark grey, wet	-123.32					
136		-124.32	025 SS26		2.0	21	15.7
	SM-SILTY SAND, fine grained, non-plastic, non-cohesive, moist, dark grey - with silt, fine to medium grained below 136.8 ft BGS	-125.32					
138	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-2
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	SM-SILTY SAND, slightly plastic, slightly cohesive, dark grey, wet - moist below 140.5 ft BGS	-128.32	026 SS27		2.0	21	4.1
	Not Sampled	-130.32					
144							
	ML-SILT, with sand, trace clay, firm, slightly plastic, slightly cohesive, dark grey, moist to wet	-133.32	027 SS28		2.0	38	4.3
146	SM-SILTY SAND, fine grained, non-plastic, non-cohesive, moist	-134.82					
	Not Sampled	-135.32					
148							
150	SW-SAND, some wood fibers throughout, compact to soft, fine to medium grained, non-plastic, non-cohesive, well graded, dark grey with white and red grains, moist	-138.32	028 SS29		1.5	21	0
152	END OF BOREHOLE @ 152.0ft BGS	-140.32					
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-3
DATE COMPLETED: October 24, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levings, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.68					
	Not Sampled						
10	GM-GRAVEL, concrete and asphalt chunks, non-plastic, non-cohesive, dark gray, wet	1.68	001 SS1		0.5	28	
12	FILL, rock and fill fragments (0.25" to 1" diameter)	-0.32	SS2		0.8	10	
14	- brittle fill material, granular, consolidated, non-plastic, non-cohesive, light yellow, wet, partially weathered below 13.75 ft BGS	-2.32					
	Not Sampled						
20	FILL, sand, trace silt, trace gravel, fine to coarse grained, rounded gravel, multi-colored, wet	-8.32	002 SS3		1.0	24	0.3
		-9.32					
22	SP-SAND, trace to little silt, trace shell debris, fine to medium grained, dark gray with red and white grains, moist	-10.32					
	Not Sampled						
26	ML-SILT, trace sand, soft, fine grained, slightly plastic, slightly cohesive, gray, moist, interbedded	-13.32	003 SS4		1.0	3	0.0
	Not Sampled	-15.32					
30	SP-SAND, trace silt, trace shell debris, fine to medium grained, dark gray with red grains, moist to wet	-18.32	004 SS5		1.0	13	0.0
32	Not Sampled	-20.32					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-3
DATE COMPLETED: October 24, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levings, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace to little silt, trace shell fragments, dark gray with red grains, moist to wet	-23.32	005 SS6		1.5	9	1.8
	ML-SILT, trace sand, fine grained, slightly plastic, slightly cohesive, gray, moist	-24.32					
38	- interbedded 0.025' thick sand veneers, moist to wet below 36.5 ft BGS Not Sampled	-25.32					
40	SP-SAND, trace silt, trace shell debris, fine to medium grained, dark grey with red flecks, wet	-28.32	006 SS7		1.5	16	12.1
	- 0.2' silt seam, slightly plastic, slightly cohesive, grey, moist to wet @ 41 ft BGS						
42	Not Sampled	-30.32					
44							
46	SP-SAND, trace silt, fine to medium grained, dark grey, red grains, moist to wet	-33.32	007 SS8		1.5	25	4.7
	ML-SILT, with sand, fine grained, slightly plastic, slightly cohesive, grey, moist	-34.82					
48	Not Sampled	-35.32					
50	SP-SAND, trace silt, fine to medium grained, dark grey with red grains, moist to wet	-38.32	008 SS9		1.5	14	1.5
	SM-SILTY SAND, fine grained, slightly cohesive, dark grey, moist	-39.82					
52	Not Sampled	-40.32					
54							
56	SM-SILTY SAND, fine grained, slightly cohesive, dark grey with red grains, wet	-43.32	009 SS10		2.0	21	1.6
	ML-SILT, with sand, fine grained, slightly plastic, slightly cohesive, dark grey, moist	-44.32					
58	Not Sampled	-45.32					
60	SP-SAND, trace to little silt, fine to medium grained, dark grey, trace red grains, moist to wet	-48.32	010 SS11		1.5	17	2.5
	ML-SILT, with sand, fine grained, slightly plastic, slightly cohesive, grey, moist	-49.82					
62	Not Sampled	-50.32					
64							
66	SM-SILTY SAND, fine to medium grained, dark grey, trace red grains, moist to wet	-53.32	011 SS12		1.4	26	0.9
	Not Sampled	-55.32					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-3
DATE COMPLETED: October 24, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levings, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SM-SILTY SAND, fine to medium grained, dark grey, trace red grains, wet	-58.32	012 SS13		1.0	11	
72	Not Sampled	-60.32					
74							
76	SM-SILTY SAND, trace to little silt, fine to medium grained, dark grey, trace red grains, moist to wet	-63.32	013 SS14		1.2	15	0.0
	Not Sampled	-65.32					
78							
80	SM-SILTY SAND, trace shell debris, fine to medium grained, dark grey, trace red grains, moist to wet	-68.32	014 SS15		1.0	18	0.0
	- 0.5" silt seam, trace fine sand, soft, grey, very wet @ 81 ft BGS						
82	Not Sampled	-70.32					
84							
	SM-SILTY SAND, fine to medium grained, dark grey with red grains, wet	-73.32	015 SS16		2.0	39	0.0
86	ML-SILT, trace to little fine sand, slightly plastic, slightly cohesive, grey, moist	-74.32					
	Not Sampled	-75.32					
88							
90	SP-SAND, trace to little silt, fine to medium grained, dark grey, moist	-78.32	016 SS17		2.0	26	1.9
92	- increasing silt content below 91.8 ft BGS						
	Not Recorded	-80.32					
94							
	ML-SILT, trace to little sand, slightly plastic, slightly cohesive, grey, moist to wet	-83.32	017/018 SS18		1.5	19	2.5
96	- wet, sloppy, possible product present below 95.3 ft BGS						
	- moist to wet below 95.5 ft BGs						
	- moist below 96 ft BGs	-85.32					
98	Not Sampled						
100	ML-SILT, trace to little sand, hard, slightly plastic, slightly cohesive, grey, moist	-88.32	019 SS19		2.0	68	1.5
102	Not Sampled	-90.32					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-3
DATE COMPLETED: October 24, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levings, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	ML-SILT, trace to little sand, soft, slightly plastic, slightly cohesive, grey, wet - hard, moist below 106 ft BGS	-93.32	020 SS20		2.0	36	
	Not Sampled	-95.32					
108							
110	ML-SILT, trace to little sand, hard, slightly plastic, slightly cohesive, grey, moist	-98.32	021 SS21		2.0	60	
	SP-SAND, trace silt, very hard, very fine grained, grey, moist to dry	-99.82 -100.32					
112	Not Sampled						
114							
116	SP-SAND, trace silt, very hard, very fine grained, grey, moist to dry	-103.32	022 SS22		2.0	21	
	Not Sampled	-105.32					
118							
120	SP-SAND, trace silt, more dense, very fine grained, grey, moist to dry	-108.32	023 SS23		2.0	42	
122	Not Sampled	-110.32					
124							
126	SP-SAND, trace silt, loose, very fine grained, grey, moist to dry - wet below 126 ft BGS	-113.32	024 SS24		2.0	3	1.3
	ML-SILT, trace to little sand, soft, fine grained, slightly plastic, slightly cohesive, dark grey, moist	-114.62 -115.32					
128	Not Sampled						
130	ML-SILT, with sand, trace gravel, soft, fine grained, slightly plastic, slightly cohesive, dark grey, wet - little sand, soft, wet below 131 ft BGs	-118.32	025 SS25			9	3.2
132	Not Sampled	-120.32					
134							
136	SP-SAND, trace to little silt, fine to medium grained, dark grey, moist - moist to wet below 137 ft BGS	-123.32	026 SS26		2.0	20	
	Not Sampled	-125.32					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: EA-3
DATE COMPLETED: October 24, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levings, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace to little silt, fine to medium grained, dark grey, wet, slightly dilatant	-128.32	027 SS27		2.0	0	
	ML-SILT, trace to little fine sand, slightly plastic, slightly cohesive, brown, moist	-129.82					
142	Not Sampled	-130.32					
144							
	SP-SAND, trace silt, dense, dark grey, moist to wet	-133.32					
146	- moist below 145.5 ft BGS		028 SS28		2.0	23	
	Not Sampled	-135.32					
148							
	SP-SAND, trace silt, stiff, dark grey, red grains, moist to wet	-138.32	029 SS29		2.0	15	1.0
150							
152	Not Sampled	-140.32					
154							
	SP-SAND, trace silt, stiff, dark grey, moist to wet	-143.32					
156	- shell debris below 156.5 ft BGS		030 SS30		2.0	13	1.0
	Not Sampled	-145.32					
158							
160	SP-SAND, trace silt, stiff, dark grey, moist to wet	-148.32	031 SS31		2.0	15	0.9
162	ML-SILT with SAND, sand content decreasing (to little sand) with depth, fine grained, slightly plastic, slightly cohesive, dark grey, moist	-150.12 -150.32					
	END OF BOREHOLE @ 162.0ft BGS						
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-1
DATE COMPLETED: June 14, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, sand, 0.25"Ø gravel pieces, trace shell fragments at depth, medium grained sand, brown, no odor - broken rock between 2.0 and 2.7 ft BGS		GP1		2.2		0
	FILL, rubber debris	8.40					
4	SP-SAND, 0.25 to 1"Ø gravel pieces, medium grained sand, brown, no odor	7.60					
6	FILL, process slag, black/blue, no odor, dry	5.60	GP2		2.4		0
	FILL, sand, medium grained, brown with clumps of peach and gray process sludge, no odor	5.50 4.10					
8	PEA GRAVEL, trace sand, multicolored, wet, no odor	3.60					
	SP-SAND, 10-20% 0.5"Ø rounded gravel pieces, trace shell fragments at depth, medium grained, brown, no odor	2.80 2.30					
10	GRAVEL, 1"Ø, angular, wet		GP3		1.8		0
	PEA GRAVEL, trace sand, increasing angular gravel and sand with depth, rounded, 0.25"Ø, wet	1.00 0.30					
12	CONCRETE, crushed	-0.40					
	SP-SAND, some concrete debris, some gravel, medium grained sand, brown, dry to wet, no odor						
14	SP/GW-SAND and PEA GRAVEL, 50% of each, medium grained sand, brown, wet -1.5"Ø cobble between 12.3 and 12.4 ft BGS		GP4		3.2		0
	ML-SILT, some clay, gray, slightly moist	-3.70					
16	- 10-20% pea gravel, some 0.5"Ø gravel, silt seams, wet below 16 ft BGS	-4.80					
	SP-SAND, some silt and clay, shell fragments, grey	-5.80					
18	SP-SAND, medium grained, a few silt seams (<1"), brown, no odor - no silt seams below 18.9 ft BGS		GP5		3.2		
20							
22			GP6		3.4		0
	CL/ML-SILT and CLAY, increasing sand and shell fragments with depth, brownish-grey, damp	-11.30					
24	- trace silt between 24.0 and 24.2 ft BGS	-12.60	GP7		2.0		
	ML-SILT, trace clay, trace sand and shell fragments, brownish-black, damp to moist	-13.20 -13.40					
26	SM-SANDY SILT, shell fragments, brown, wet						
	END OF BOREHOLE @ 25.0ft BGS						
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-2
DATE COMPLETED: June 14, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT, crushed						
	FILL, gravelly sand, medium grained sand, rounded to angular gravel, brown, dry to wet	10.60	GP1		1.9		0
4	- grades to some gravel, angular below 4.0 ft BGS						
	FILL, fibrous processed material with some oxidation and high temperature material (black), black/gray (no odor)	6.70	GP2		1.3		0
8							
10			GP3		1.5		4.2
	- gravel layer (~6"), coarse grained (rock fragments), gray, dry @ 11.5 ft BGS						
12	- some sand, some gravel below 12.0 ft BGS						
14			GP4		2.3		0
	ML-SILT, trace clay, trace shells, trace organic materials, dry to moist	-3.40					
16	SP-SAND, trace silt	-4.40					
18			GP5		3.1		0
20							
22			GP6		3.3		0
	- some organic material, black between 23.0 and 24.0 ft BGS						
24							
	ML-SILT, trace clay, trace shell fragments, trace organics (black), moist	-12.90	GP7		2.4		0
26	END OF BOREHOLE @ 26.0ft BGS	-14.40					
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-3
DATE COMPLETED: June 7, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Pietraszek-Polovich, M. Pauly

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand with gravel, medium grained sand, fine gravel, dark brown, dry						
	- coal layer, black between 1.5 and 1.8 ft BGS						
2	- fine to medium grained sand, dry to moist below 1.8 ft BGS		GP1		2.4		0
	- some oxidation between 3.4 and 4.0 ft BGS						
4	- sand, some fine gravel, light brown, odor detected between 4.2 and 4.6 ft BGS						
6			GP2		2.0		7.5
	- coal/burnt wood, black, odor from 7.0 to 8.0 ft BGS						
	- rock encountered @ 7.6 ft BGS						
8	- silty clay, soft, dark brown to black, no odor detected between 7.8 and 8.0 ft BGS	3.60					
	FILL, gravel and sand, some clay, moist						
10	- coal/shale material, trace sand, trace clay, black, slight odor detected between 10.0 and 12.0 ft BGS		GP3		3.1		0
12							
	- gravel and sand, saturated below 12.8 ft BGS						
	CL-CLAY, very soft, dark gray/black, moist	-1.60					
14	SP-SAND, medium grained, dark brown, dry to wet	-2.30	GP4		4.0		0
16	- fine to medium grained below 16.0 ft BGS						
18			GP5		2.8		0
	- black below 19.5 ft BGS						
20							
			GP6		2.8		0
22							
			GP7		2.6		0
24	CL-SILTY CLAY, hard, dark gray, dry to moist	-12.40					
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-4
DATE COMPLETED: June 14, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Pietraszek-Polovich, M. Pauly

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	FILL, sand and gravel, fine to medium grained sand, gray, dry - brown below 1 ft BGS						
2	FILL, gravel with sand, gray, dry	9.80	GP1		2.8		0
	FILL, sand, fine to medium grained, black, dry - brown between 3.5 and 4.0 ft BGS	9.20					
4	- sand and gravel, dark brown, dry to moist below 4.8 ft BGS - some silt, contains large cobbles, dark black below 5.0 ft BGS	6.00					
6	FILL, fibrous material, light blue to white, moist, no odor		GP2		1.5		0
8	FILL, graphite, black, moist, layered, grains visible, no odor	3.60					
10	- coal layer between 10.0 and 10.3 ft BGS - large cobble between @ 10.7 and 10.8 ft BGS	0.80	GP3		2.0		0
12	FILL, sand, medium to fine grained, moist - black, saturated below 12.0 ft BGS						
14			GP4		4.0		0
	CL-SILTY CLAY, oxidized organics, dark gray, dry to moist	-3.40					
16	SP-SAND, medium to fine grained, dark gray, moist	-4.40					
18			GP5		2.9		0
20							
22	CL-SILTY CLAY, gray, dry to moist, no odor	-9.90					
24	SP-SAND, contains shell fragments, dark gray	-12.90					
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-5
DATE COMPLETED: June 14, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Pietraszek-Polovich, M. Pauly

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand and gravel, medium grained sand, gray to black/brown, dry to moist, no odor						
2			GP1		2.3		0
	- yellowish white sand fragments that appear processed present from 3.0 to 3.5 ft BGS						
4	- angular gravel, dry below 3.5 ft BGS - gravel to 1"Ø below 4.0 ft BGS - silty sand, moist between 5.5 and 8.0 ft BGS						
6			GP2		1.2		0
			▽				
8							
10	- gray fibrous material, oxidized, from 9.5 to 10.2 ft BGS		GP3		2.0		0
	- gravel with sand, black, moist below 11.1 ft BGS						
12	FILL, silty sand with gravel, coarse angular gravel, brown, wet, strong organic odor	-0.40					
	CL-SILTY CLAY, trace sand, soft, black, malleable, strong organic odor detected	-1.40					
14			GP4		3.0		0
16	- trace silt, moist, no odor below 16.3 ft BGS						
18	SP-SILTY SAND, medium to coarse grained, brown, moist	-5.90	GP5		2.9		
20							
	- coarse sand, trace silt, trace clay (gray clumps) between 21.0 and 21.5 ft BGS						
22			GP6		2.9		0
	CL-SILTY, SANDY CLAY, shell fragments, dark gray, moist, no odor	-11.40					
24			GP7		1.9		0
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-6
DATE COMPLETED: May 31, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	CONCRETE	10.90					
	FILL, sand, fine grained, light brown to black and brown		001		4.0		0
2		8.40	002				0
	FILL, concrete and asphalt	7.60					
4	FILL, sand, some silt, black to brown	6.80					
	FILL, debris, orange granular material and fine white material with gray mottled grains and red and black sand and silt		003		3.3		0
6							
8	SM/MH-SILTY SAND, fine grained sand, brown to black, saturated ▽	3.60			2.5		
10							
12	SW-GRAVELLY SAND, fine to medium grained sand, brown to black, saturated	-0.40	004		4.0		0
14							
16							
18			005		3.2		0
20	- some red sand grains between 20 and 24 ft BGS						
22					3.0		
24			006				0
	GW-GRAVEL, wood debris	-12.90			1.0		
26	END OF BOREHOLE @ 25.0ft BGS	-13.40					
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-7
DATE COMPLETED: May 31, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	ASPHALT	10.60	001				0
2	FILL, sand, fine to medium grained, brown, dry	9.60			3.0		
	FILL, fibrous debris, brown, some concrete and black sand, moist		002				0
4	- sand - concrete debris with sand and fibrous material						
	- sand rust colored from 5.6 ft to 8.7 ft BGS		003		2.5		0
6							
8			004				0
	FILL, sandy silt, black, saturated	2.90					
10	- sand, brown, dry from 10.3 ft to 10.4 ft BGS - becoming saturated @ 10.4 ft BGS ▽				3.3		
12			005				0
14	- concrete from 14.3 ft to 14.7 ft BGS				3.3		
	SM-SILTY SAND, black with white mottling from 14.7 ft to 14.8 ft BGS, saturated	-3.10					
16	- sand becoming black and brown @ 16 ft BGS		006				0
	- slight odor @ 17.7 ft BGS		007		4.0		0
18	- MH-SILT	-6.40					
	SM-SILTY SAND, medium to fine grained sand, brown and black						
20		-8.40					
	No Recovery				0.0		
22							
	SW-SAND, medium to coarse grained, brown	-11.40					
24	- sand black from 24.7 ft to 25 ft BGS		008		2.0		0
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-8
DATE COMPLETED: June 1, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	CONCRETE	10.80					
	FILL, silt, red and brown, with white fibrous material		001		2.5		0
	FILL, silt, red and black, moist	7.60					
	FILL, concrete	7.30					
	FILL, silt, red and black, dry	7.10			2.7		0
	- with concrete debris from 8 to 10.2 ft BGS						
	- moist from 9.7 ft to 10.2 ft BGS						
	FILL, silty sand, black, saturated	1.40	002		3.2		0 0
	FILL, silt, brown and black, dry, with sweet odor	-0.40					
	FILL, gravel with silt and sand, black, saturated	-1.70	003		4.0		0
	SW-SAND, medium grained, with red grains	-3.60					
	MH-SILT	-4.50					
	SW-SAND, medium grained, with red grains	-5.20			3.0		
			004, 005				0
			006		3.8		0
	MH-SILT	-11.20					
	END OF BOREHOLE @ 24.0ft BGS	-12.40					
	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-9
DATE COMPLETED: June 1, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	CONCRETE, gravel sub-base	10.60					
	FILL, sand, medium grained, black, moist	9.60	001		3.0		27.1
2	FILL, gravel, debris, white and brown powder	9.40					
	FILL, sand, brown						
4	- gravel and sand from 4 to 4.5 ft BGS						
	FILL, silt, black with some red coloring, moist	7.10					
	FILL, silty sand, brown and black, some white and red grains, saturated	6.40	002		2.0		
6							
8	- sand brown to gray with white grains from 8 to 8.5 ft BGS						
	FILL, gravel and sand, gray	3.10					
10	FILL, silty sand, dark brown	1.60			2.5		
12	FILL, gravel, some sand	-0.40					
	SW-SILTY SAND, gray	-1.40					
14			003		4.0		0
16							
18					4.0		
			004				0
20			005, 006				0
	MH-CLAYEY SILT, with shell fragments	-9.20			2.0		
22							
	END OF BOREHOLE @ 23.0ft BGS	-11.40					
24	Ground surface elevation is estimated.						
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-10
DATE COMPLETED: June 2, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Not Sampled						
	FILL	10.60					
2	SW-SAND, medium grained, brown, dry	10.10					
					3.5		
4			001				0
	- moist @ 5.5 ft BGS						
6			002				0
	- saturated @ 7 ft BGS ▽				3.0		
8							
10					4.0		
12							
14			003				0
					4.0		
16	MH-CLAYEY SILT	-3.90					
	SW-SAND, brown, saturated	-5.40					
18					2.0		
20							
					3.0		
22			004				0
	MH-CLAYEY SILT, with shell fragments	-11.10					
		-11.40					
24	SW-SAND, brown, saturated	-11.90					
	MH-CLAYEY SILT, with some sand		005		2.0		0
		-13.40					
26	END OF BOREHOLE @ 25.0ft BGS						
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-11
DATE COMPLETED: June 2, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sub-base	10.60					
2	FILL, sand, medium grained, brown with rust colored mottling, dry		001		3.5		0
4	- includes debris consisting of fibrous material and coal-like material from 4 ft to 5 ft BGS						
	FILL, granular substance, white and yellow, moist	6.60	002		2.0		0
6							
8	FILL, gravel and sand, orange and yellow, moist	3.60					
	FILL, debris consisting of rock fragments, fibrous material, wood and sand, black, moist	2.80	003		3.0		0
10							
12	FILL, gravel, orange, brown and white	-0.40					
	FILL, debris with some silt and sand	-1.10					
14			004		3.0		0
16	FILL, gravel, white and orange	-4.40					
	SW-SAND, gray with red grains	-4.70					
18					2.5		
20			005				0
	MH-SILT	-9.40					
22	SW-SAND, gray with red grains	-9.70			2.5		
	MH-SILT	-10.80					
	SW-SILTY SAND, gray, saturated	-11.40 ▽					
24			006		2.0		0
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-12
DATE COMPLETED: June 2, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	ASPHALT, gravel sub-base	10.60					
2	FILL, sand, brown		001		3.0		0
4	- includes gravel from 4 ft to 5.7 ft BGS						
6	FILL, wood debris with creosote odor	5.90					
	SW-SAND, brown, moist	5.60	002		3.0		0
8	- sand becomes saturated and contains red grains from 8 ft to 14 ft BGS ▽						
10					4.0		
12							
14	- becomes silty sand from 14 ft to 23.5 ft BGS - sheen observed from 14.5 ft to 14.6 ft BGS		003		4.0		0
16							
18					4.0		
			004				0
20							
22					2.5		
24	MH-SANDY SILT	-11.90	005		2.0		0
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-18
DATE COMPLETED: August 1, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND with GRAVEL, subangular gravel, poorly graded, loose, dry		SS1		2.0		0.0
2	- trace gravel, compact, fine to medium grained sand, subangular gravel, red and white grains, light brown		001				0.0
4	- moist below 4 ft BGS		SS2		3.5		
			002				0.0
6	- dark brown below 6 ft BGS						
8			SS3		3.5		
	- wood debris @ 9 ft BGS		003				0.0
10	- trace silt, dark gray, trace shells, saturated @ 10 ft BGS						
12			SS4		3.5		
	- 0.04' light tan silt lense @ 12.5 ft BGS - 0.04' light tan silt lense @ 13 ft BGS		004				0.0
14	- 0.08' dark gray sandy silt lense @ 13.5 ft BGS - 0.04' silt lense @ 14.7 ft BGS - 0.16' silt lense @ 15 ft BGS						
16			SS5		4.0		0.0
	- 0.08' silt lense @ 17 ft BGS						
		-5.90					
18	ML-SILT, trace sand, compact, poorly graded, non-plastic, fine grained sand, dark gray	-6.40					
	SM-SILTY SAND, trace wood debris, compact, fine to medium grained sand, poorly graded, dark gray with red and white grains, saturated		005				0.0
20			SS6		4.0		
22		-10.40					
	SP-SAND, loose, fine to coarse grained, poorly graded, saturated, dark gray, red and white grains, trace shells						
24			SS7		3.0		
			006				0.0
26		-14.40					
	END OF BOREHOLE @ 26.0ft BGS						
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-19
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	CONCRETE	11.10					
	FILL, asphalt/gravel to sand, compact, fine to medium grained sand, dark brown with red and white grains, poorly graded				2.0		0.0
2							
	- grayish powder @ 3 ft BGS		001				0.0
4					3.5		
	- moist below 5 ft BGS		002				0.0
6	- saturated below 6 ft BGS - subangular gravel, grayish powder @ 6.5 ft BGS						
8	- trace silt between 8 and 10 ft BGS				3.5		
			003				0.0
10	- trace shells @ 9.8 ft BGS - dark gray @ 10 ft BGS						
12					3.5		
			004				0.0
14	- 0.08' silt lense @ 14.4 ft BGS						
		-3.90					
16	ML-SILT, trace sand, compact, non-plastic, fine grained sand, poorly graded, dark gray	-4.60			4.0		0.0
	SM-SILTY SAND, trace shells, compact, fine to medium grained sand, poorly graded, dark gray, moist						
18							
			005				0.0
20		-8.40			3.5		
	SP-SAND, compact, fine to medium grained sand, dark gray with red and white grains, saturated, poorly graded						
	- 0.08' silt lense @ 21.5 ft BGS						
22							
24					4.0		
			006				0.0
		-13.90					
26	SM-SILTY SAND, compact, fine to medium grained, poorly graded, dark gray, trace shells, moist	-14.40					
	END OF BOREHOLE @ 26.0ft BGS						
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-20
DATE COMPLETED: July 27, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, fine to medium grained, loose, poorly graded, dark brown with red and white grains		SS1		2.0		0
2			001 SS2		2.0		0
4	- Moist below 4 ft BGS		002 SS3		2.0		0
6	- saturated, glass shards, compact @ 6 ft BGS						
8			SS4		3.0		
10			003/004				
12			SS5		3.5		0
	- 1.5" thick silt lense, trace sand @ 13 ft BGS		005				
14	- 1" thick silt lense, trace sand @ 13.7 ft BGS						
	SM-SAND and SILT, compact, fine to medium grained sand, dark gray, moist	-2.90					
16			SS6		4.0		0
	- wood debris @ 17.5 ft BGS						
18	SP-SAND, trace silt, fine to medium grained sand, dark gray, saturated	-6.40					
			006				
20			SS7		4.0		0
	- 1" thick silt lense @ 18 ft BGS						
22	ML-SILT, trace fine grained sand and shell fragments, compact, dark gray	-10.40					
24			SS8		4.0		0
	- 1.5" thick silty sand lense @ 25 ft BGS		007				
26	END OF BOREHOLE @ 26.0ft BGS	-14.40					
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-21
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	SP-SAND, fine to medium grained, poorly graded, light to dark brown with white grains		SS1		2.0		0.0
2	- red and white grains present @ 2 ft BGS		001 SS2		4.0		0.0
4	- moist below 4 ft BGS		002 SS3				0.0
6	- saturated below 6 ft BGS						
8			SS4		3.0		0.0
			003				
10							
12			SS5		4.0		0.0
			004				
14	SM-SILTY SAND, trace shells, wood debris, compact, poorly graded, fine to medium grained sand, dark gray with red and white grains	-2.40					
16	- 0.64' silt seam, trace sand, non-plastic, compact, fine grained sand, dark gray		SS6		4.0		0.0
18	SP-SAND, trace silt, fine to medium grained, poorly graded, light to dark brown with white and red grains	-6.40					
			005				
20			SS7		4.0		0.0
22							
	ML-SILT, trace to with sand, trace shells, compact, fine grained sand, poorly graded, dark gray	-10.90					
24			SS8		4.0		0.0
			006				
26	END OF BOREHOLE @ 26.0ft BGS	-14.40					
	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-22
DATE COMPLETED: July 25, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, asphalt, fibrous pieces, sand with angular gravel		001 SS1		2.0		0.0
4	SP-SAND, trace silt, compact, poorly graded, fine to medium grained sand, dark gray with tan shading	7.60					
6	- 0.16' wood debris layer @ 6 ft BGS - 0.24' fibrous material layer @ 7 ft BGS		002 SS2		2.0		0.0
8	SP-SAND, compact, fine to medium grained, dark gray with red and white grains	3.60					
10	- 0.04' silt lense @ 10.5 ft BGS		SS3 003		4.0		0.0
12	SM-SILTY SAND, trace wood debris, poorly graded, fine to medium grained sand, saturated, dark gray with red and white grains	-0.40					
14	- 0.04' silt lense @ 14 ft BGS		SS4 004		4.0		0.0
	ML-SILT, trace fine grained sand, compact, poorly graded, dark gray	-2.90					
16	- trace wood debris @ 15 ft BGS SM-SILTY SAND, trace wood debris, trace shells, poorly graded, fine to medium grained sand, dark gray with red and white grains	-4.40					
18			SS5 005		4.0		0.0
20	SP-SAND, trace shells, compact, fine to medium grained sand, dark gray with red and white grains, saturated	-8.40					
22	ML-SILT, trace sand, trace shells, fine grained sand, compact, poorly graded, dark gray, moist	-10.40	SS6 006		4.0		0.0
24	SM-SILTY SAND, fine to medium grained sand, dark gray with red and white grains, poorly graded	-12.40	007 SS7		2.0		0.0
26	END OF BOREHOLE @ 26.0ft BGS Ground surface elevation is estimated.	-14.40					
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-01
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	GROUND SURFACE	11.52						
2	DEBRIS AND FILL		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS				NR
4								
6	SP-SAND, trace silt, very fine to fine grained, loose, well sorted, brown, white grains and red grains, wet, possible fill (6 to 10ft BGS)	5.52					10	0.0
8				2RS		5.0	10	
								0.0
10							10	
	- becoming dark gray-brown at 11.0ft BGS						10.5	0.0
12	- cemented sand nodules at 12.5ft BGS			3RS		5.0	10.5	
							10.5	23
14							11	
							10.5	
16	SC-CLAYEY SAND, trace silt, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet	-4.68						0.0
	- wood fragments at 16.6ft BGS	-5.78		4RS		5.0	10.5	
18	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet							32

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-01
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
							11	
							11	12.8
22	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, dense, well sorted, non plastic, dark gray, trace white grains and red grains, partial shell fragments, wet	-10.28		5RS		5.0	11	
24	- increase in sand content, grading to SM at 24.4ft BGS						11	0.0
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains throughout, partial to intact shell fragments throughout, wet	-13.78					11	
26							11	15.4
28				6RS		5.0	11	
								20.1
30	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-17.88					11	
	- small stones at 29.6ft BGS						11	23.7
32				7RS		5.0	11	
34								8.1
							11	
36							11.5	28
38				8RS		5.0	11.5	
								13.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-01
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42	- thin silt seams at 43.0ft BGS - 4" zone with partial shell fragments at 43.5ft BGS			9RS		5.0	11.5 12 12	84.4
44	- reddish brown at 45.0ft BGS						12 12	280
46							11.5	197
48	SM-SILTY SAND, very fine grained, dense, well sorted, dark gray, trace white grains and red grains, trace and size shell fragments, wet	-35.68 -36.28		10RS		5.0	11.5	
50	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet END OF BOREHOLE @ 50.0ft BGS	-38.48					11.5	225
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-02
DATE COMPLETED: September 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	GROUND SURFACE	12.22						
0	DEBRIS AND FILL (Hand Auger to 6ft BGS)		← BACKFILLED WITH CEMENT/ BENTONITE GROUT				11.5	
2				1HA				
4								
6	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, moist to wet	6.22						
8				2RS		5.0		0.0
	- cemented sand nodules at 9.5ft BGS						11.5	
10							12	0.0
12				3RS		5.0		
	- 2" silt seam, medium gray, wet at 12.9ft BGS						12	
	- increase in silt content to with silt at 13.4ft BGS							0.0
14	- cemented sand nodules/wood fragments at 14.8ft BGS						12	
	ML-SANDY SILT, firm, non plastic, slow dilatancy, dark gray, wet	-3.28						226
16	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell and larger shell fragments, wet	-4.18					12	
				4RS		5.0		
18	- grading to very fine to fine grained sand, with silt, trace fine gravel at 18.3ft BGS						12	1508
	- negative DNAPL dye test at 19.0ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-02
DATE COMPLETED: September 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
							12	
							11.5	155
22	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, very stiff, well sorted, dark gray, trace white grains and red grains, trace sand size and partial intact shell fragments, wet	-9.78		5RS		5.0		
	SM-SILTY SAND, trace clay, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet	-11.48					11.5	94
24								
							11.5	
26	- partial/intact shells/shell fragments at 26.0ft BGS						11.5	97
	- partial shell fragments at 27.4ft BGS			6RS		5.0		
28							11.5	150
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-16.98		-001			11.5	
30								32
	- partial shell fragments, small stones at 31.3ft BGS						11.5	
32				7RS		5.0		
							11.5	62
34								
							11.5	
36	- 4" zone interbedded silt seams at 36.5ft BGS						11.5	72
	- trace wood at 37.0ft BGS			8RS		5.0		
38							12	192

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-02
DATE COMPLETED: September 26, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42	SM-SILTY SAND, very fine grained, compact, well sorted, faintly laminated/interbedded sand, dark gray, white grains and red grains, trace sand size shell fragments, wet	-29.78		9RS		5.0	12 11	187
44	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-31.78					11	626
46							10	1240
48				10RS		5.0	10	
50	END OF BOREHOLE @ 50.0ft BGS	-37.78					10 10	4600
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-03
DATE COMPLETED: September 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	GROUND SURFACE	10.83						
	CONCRETE/DEBRIS/FILL			1RS				
2								
4								
	SM-SILTY SAND (FILL), very fine grained, compact, well sorted, brown, wet, wood fragments	5.83	← BACKFILLED WITH CEMENT/ BENTONITE GROUT				11.5	
6		4.43						0.0
	SP-SAND, trace to with silt, very fine to fine grained, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - cemented sand nodules at 6.6ft BGS			2RS		5.0	11.5	
8								0.0
10							11.5	
							13	0.0
12				3RS		5.0		
	SM-SILTY SAND, very fine grained, dense, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-2.47					13	24
14	- wood fragments at 13.4ft BGS	-3.07						
	SP-SAND, trace to with silt, very fine to fine grained, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-3.77					13	
16	- 3" sandy silt zones at 14.3ft BGS						13	392
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, trace white grains and red grains, trace sand size shell fragments, wet	-6.87		4RS		5.0		
18							13	
	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet							212

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-03
DATE COMPLETED: September 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
						13	
						12	67
22	ML/SM-SANDY SILT TO SILTY SAND, with clay, very fine grained, compact, low to medium plasticity, slow dilatancy, partial fragments throughout, dark gray, wet	-10.47					
		-11.87	5RS		5.0		
	SM-SILTY SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet					12	
24	- partial shell fragments at 24.0ft BGS						591
						12	
26	- partial shell fragments at 25.7ft BGS						82
						11.5	
	- partial shell fragments at 27.2ft BGS		6RS		5.0		
28		-17.17				11.5	
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet						530
						11.5	
30							
						11.5	0.0
32							
		-21.87	7RS		5.0	11.5	
	SM-SILTY SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet						559
34						11.5	
						12	
36	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-24.77					323
		-26.27				11	
	ML/SM-SANDY SILT TO SILTY SAND, very fine grained, compact, non plastic, rapid dilatancy, medium gray, wet	-26.77	8RS		5.0		
38	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet						153
	- partial shell fragments at 38.2ft BGS					11.5	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-03
DATE COMPLETED: September 27, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42				9RS		5.0	11	851
							11	
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-31.87						
44							11	1820
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet - partial shell fragments at 45.5ft BGS - partial/intact shell fragments/shells at 47.1ft BGS	-34.37						
46							11	484
48				10RS		5.0	11	
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-37.27					8	780
50	END OF BOREHOLE @ 50.0ft BGS	-39.17						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-04
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	GROUND SURFACE	11.73						
	ASPHALT/AGGREGATE							
	AGGREGATE FILL	11.23						
2				1RS				
4	- wood fragment at 4.0ft BGS	7.73						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, trace sand size and larger shell fragments, dry to moist		← BACKFILLED WITH CEMENT/ BENTONITE GROUT				8	6.6
6								
				2RS		5.0	8	
8								0.0
							8	
10							10	
								40.3
12				3RS		5.0	10	
							10	212
14	- increase in silt content at 14.2ft BGS							
		-3.57					10	
	SM-SILTY SAND, very fine to fine grained, compact to dense, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet to very wet							59.3
16							10	
				4RS		5.0		
18							10	
	- decrease in silt content, grading to sand, with silt at 18.9ft BGS							31.9
		-7.87					10	
	SP-SAND, trace to with silt, very fine to fine							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-04
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
22	grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet						10	42.6
	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, non plastic, dense, well sorted, dark gray, white grains and red grains, trace sand size shell fragments, wet	-10.77		5RS		5.0	10	
24	- partial shell fragments at 23.2ft BGS						10	10.4
26							11	50.3
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet	-14.87		6RS		5.0	11.5	
28	- 3" zone crushed shell fragments at 27.4ft BGS						11.5	215
	- 1" zone crushed shell fragments at 28.9ft BGS	-17.27						
30	SM-SILTY SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size and larger shell fragments, wet	-18.47					11.5	71.4
	- crushed/broken shell fragments at 29.6ft BGS						11.5	
32	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, white grains and red grains throughout, trace sand size and larger shell fragments, wet			7RS		5.0	11.5	104.0
34							11.5	
36							12	208.8
38				8RS		5.0	12	
	- increase in silt content, sand with silt at 39.4ft BGS						12	90.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-04
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42				9RS		5.0	12	75.3
							12	
44							12	75.3
	- wood fragments at 45.5ft BGS						-	
46								196.5
				10RS		5.0	12	
48							12	
								196.5
50	END OF BOREHOLE @ 50.0ft BGS	-38.27					12	
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-05
DATE COMPLETED: October 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	GROUND SURFACE	11.60						
	ASPHALT AND AGGREGATE							
		10.60						
2	SP-SAND (FILL), trace silt, very fine to fine grained, loose, well sorted, dark brown to dark gray brown, white grains and red grains, trace sand size shell fragments, dry			1RS				
4	- wood fragment at 4.0ft BGS							
			← BACKFILLED WITH CEMENT/ BENTONITE GROUT				8	0.0
6				2RS		5.0	8	
8							8	0.0
10							12	188.6
12	- cemented sand nodules at 12.5ft BGS			3RS		5.0	12	
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, trace white grains and red grains, trace sand size shell fragments, wet, faint brown mottling	-1.40						748.9
14		-2.50					12	
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-3.30		-001				
		-3.80					12	
16	ML-SILT, trace sand, firm, non plastic, slow dilatancy, medium gray, wet							810
	SM/ML-SILTY SAND TO SANDY SILT, trace clay, very fine grained, dark gray-brown, faint laminations, trace white grains and red grains, trace sand size shell fragments, wet						12	
18				4RS		5.0		
	- cemented sand nodules at 15.6ft BGS							
	- wood fragments at 17.2ft BGS	-6.90					12	285
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, medium to dark gray, white grains and red grains throughout,							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-05
DATE COMPLETED: October 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	trace sand size shell fragments, cemented sand nodules, wet						12	
							11.5	39
22				5RS		5.0		
	ML-SILT, trace to with very fine sand, firm, non plastic, slow dilatancy, medium gray, partial shell fragments, wet	-11.40					11.5	
24				-002				0.0
	SM-SILTY SAND, trace clay, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments, wet	-13.20					11.5	
26	- decrease in clay content, grading to silty sand at 25.6ft BGS						11	80.5
				6RS		5.0	11	
28	- partial to intact shells and shell fragments at 28.0ft BGS						11	0.0
	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments throughout, wet	-18.10					11	
30							11	165
32				7RS		5.0	11	
34							11	155
36							11	404
				8RS		5.0	11	
38	SM-SILTY SAND, very fine grained, compact, well sorted, dark brown, faint laminations, white grains and red grains, trace sand size shell fragments, wet	-26.70					11	321

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-002)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-05
DATE COMPLETED: October 3, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42	- 3" silt seam, soft, gray, wet at 43.1ft BGS			9RS		5.0	10	1727
							10	
							10	1515
44							10	
46	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-34.50					9	859
48				10RS		5.0	8	
							8	829
50	END OF BOREHOLE @ 50.0ft BGS	-38.40					8	
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-06
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	GROUND SURFACE	9.88						
	AGGREGATE/FILL							
2	CONCRETE	7.88		1RS				
4								
	CEMENTED SAND/FILL, wet	4.88	← BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6							11	
8				2RS		5.0		0.0
							11	
10	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet	-0.12					11.5	
	- cemented sand nodules and disks at 10.5ft BGS							0.0
12							12	
				3RS		5.0		
							12	
14								2.4
	- large wood fragment at 15.0ft BGS						13	
16							13	1404
				4RS		5.0	13	
18								
	- medium gray, amber colored porewater at 18.8ft BGS						13	1367

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-06
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	SM/ML-SILTY SAND TO SILTY SAND, very fine grained, dense, well sorted, medium to dark gray, white grains and red grains, trace sand size and larger shell fragments, wet	-10.32					13	1217
22	- partial shell fragments at 22.4ft BGS			5RS		5.0	12	
24	- partial shell fragments at 24.3ft BGS						12	762.8
26							12	
	SP-SAND, with silt, very fine to fine grained, loose to compact, well sorted, dark gray-brown, white grains and red grains, trace sand size and larger shell fragments, wet to very wet, with amber colored porewater	-17.22					12.5	677.5
28				6RS		5.0	12.5	1784
30							-	
32				7RS		5.0	11	1371
34							11	3544
36							11	1909
	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, dense, well sorted, medium gray, white grains and red grains, trace sand size and larger shell fragments, wet	-27.42		8RS		5.0	11	
38	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments	-28.62					9	1889

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-06
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	throughout, wet - increase in silt content at 40.6ft BGS						9	
							9	1047
42	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments	-31.72		9RS		5.0		
							9	
44								1145
	SP-SAND, trace to with silt, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-34.22					-	
							9	
46								4100
							9	
48	- wood fragment at 48.3ft BGS			10RS		5.0		
							9	4600
50	END OF BOREHOLE @ 50.0ft BGS	-40.12					-	
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-07
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	GROUND SURFACE	12.17						
	DEBRIS AND FILL		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS				
6	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, wet	6.17		2RS		5.0		NR
10							8.5	
								NR
12				3RS		5.0	9.5	
14								140
							10	
16	ML-SANDY CLAYEY SILT, firm, medium plasticity, slow dilatancy, medium gray, wet	-3.33						602
	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, we	-4.13					10.5	
18	- shell fragments at 18.3ft BGS			4RS		5.0	10.5	
								255
	SP-SAND, trace silt, very fine to fine grained,	-7.43						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-07
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	compact, well sorted, dark brown, white grains and red grains throughout, sand size shell fragments throughout, wet						10	585
22				5RS		5.0	13	
	SM-SILTY SAND, trace clay, very fine grained, dense, well sorted, dark gray-brown, trace white grains and red grains, partial shell fragments throughout, wet	-10.63						88.0
24		-11.93					12	
	SP-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-13.03					12	
26	SM-SILTY SAND, trace clay, very fine grained, dense, well sorted, dark gray-brown, trace white grains and red grains, partial shell fragments throughout, wet						11.5	230
	- 1' zone of partial shell fragments at 27.2ft BGS						11.5	
28				6RS		5.0	11.5	780
		-17.63						
30	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet						11.5	173
32				7RS		5.0	11.5	
34								228
36							11.5	
							11.5	404
38				8RS		5.0	11.5	
								195

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-07
DATE COMPLETED: September 25, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42				9RS		5.0	11.5 12	692
44								315
46							11.5	1150
48				10RS		5.0	11.5	220
50	END OF BOREHOLE @ 50.0ft BGS	-37.83					11.5	
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-08
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
	GROUND SURFACE	12.40						
2	CONCRETE/ASPHALT			1RS			7	0.0
4	AGGREGATE AND CONCRETE	8.40	← BACKFILLED WITH CEMENT/ BENTONITE GROUT					
6	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark brown, white grains and red grains throughout, trace sand size shell fragments throughout, dry to moist	6.40		2RS		5.0	7	
8							7	108
10	- wet at 10.0ft BGS - interbedded cemented sandy silt to silt layers, varying thicknesses >1/4" to 1" from 10.5 to 13.5ft BGS						11	28.1
12				3RS		5.0	11	
14							11	111.3
16	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, dense with interbedded silt seams, some cemented, well sorted, medium gray, white grains and red grains, wet	-3.10					12	1086
18	SM-SILTY SAND, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet	-4.60		4RS		5.0	12	1208
							12	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-08
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
		-8.10					11.5	202
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-9.70						
22	SM/ML-SILTY SAND TO SANDY SILT, trace clay, very fine grained, dense, well sorted, dark gray, trace white grains and red grains ,trace sand size and larger shell fragments, wet			5RS		5.0	11.5	
24							11.5	95.1
	- increase in sand content, grading to silty sand at 25.2ft BGS - shell fragments at 25.6ft BGS						11.5	
26								305
	- shell fragments at 27.1ft BGS - partial shell fragments at 27.4ft BGS			6RS		5.0	11.5	
28							11.5	557
	- partial/intact shells and shell fragments at 29.6ft BGS						11.5	
30		-17.90						
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet						11	227
32				7RS		5.0		
34							11	494
36							11	765
				8RS		5.0	11	
38	SM-SILTY SAND, very fine grained, compact, well sorted, laminated, dark gray-brown, white grains and red grains, trace sand size shell fragments, wet - interbedded thin sand seams at 38.5ft BGS	-25.70					11	349

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-08
DATE COMPLETED: October 4, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42				9RS		5.0	11	1110
							11	
44							11	291
46							11	434
	SP-SAND, trace to with silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-34.50		10RS		5.0		
48							11	2893
50	END OF BOREHOLE @ 50.0ft BGS	-37.60					11	
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-09
DATE COMPLETED: September 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	GROUND SURFACE	12.21						
0	DEBRIS AND FILL		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS				
6	SP-SAND, trace silt, very fine to fine grained, well sorted, dark brown, white grains and red grains throughout, trace sand size shell fragments, moist to wet	6.21		2RS		5.0	8.5 8.5	6.9
10	- partial shell fragments at 12.8ft BGS - cemented sand nodules/faint laminations at 13.1ft BGS - 1" sandy silt seam with silt nodules at 13.9ft BGS			3RS		5.0	8.5 10 11 11.5	36 276
16	SM-SILTY SAND, very fine grained, compact, well sorted, faintly laminated, dark gray, trace white grains and red grains, trace sand size shell fragments, wood fragments, wet - thin fine to medium sand seam, with wood fragments at 16.0ft BGS - thin fine sand seam at 16.5ft BGS - wood fragments at 17.2ft BGS - pieces of wood at 17.8ft BGS - pieces of wood at 18.2ft BGS - shell fragments at 19.0ft BGS	-3.29		4RS		5.0	12 12 12 12	205 1050
	SP-SAND, trace silt, very fine to fine grained,	-7.39						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-09
DATE COMPLETED: September 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
22	compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet - cemented sand nodules at 21.7ft BGS						12	887
	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, dense, non plastic, well sorted, dark gray, trace white grains and red grains, partial shell fragments, wet	-9.99		5RS		5.0	11	
24	- thin layer shell lag deposit at 23.2ft BGS						11	266
							11	
26							11	480
				6RS		5.0		
28	- intact shells at 27.7ft BGS						11	
								582
30	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments	-17.19					11	
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-19.09					11	658
32				7RS		5.0	11	
	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments	-20.59 -21.19						
34		-21.89					11	1780
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet						11	
36	SP-SAND, trace silt, very fine to fine grained, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments						11	797
				8RS		5.0		
38							11	
	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet - 3" sand seam, wet at 39.1ft BGS	-25.99						1080

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-09
DATE COMPLETED: September 28, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
							10.5	
		-28.99					10	1420
42	SP-SAND, trace to with silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet			9RS		5.0		
44	- increase in silt content at 44.6ft BGS						10	1320
46							10.5	1420
48	- silt nodules at 48.0ft BGS - 2" sandy silt seam, wet at 48.1ft BGS			10RS		5.0	10.5	
		-36.99					10.5	1600
50	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-37.79					10.5	
	END OF BOREHOLE @ 50.0ft BGS							
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-10
DATE COMPLETED: October 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
	GROUND SURFACE	11.43						
	ASPHALT							
	AGGREGATE	10.43						
2	SP-SAND (FILL), trace silt, very fine to fine grained, compact, well sorted, brown, dry	8.93		1RS				0.0
4			← BACKFILLED WITH CEMENT/ BENTONITE GROUT				dry	
6								0.0
8	- dark gray-brown, with white grains and red grains at 7.5ft BGS - wet at 9.0ft BGS			2RS		5.0	8	0.0
10							8	
12	- cemented sand nodules and disks at 11.0ft BGS			3RS		5.0	11 11	0.0
14	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, compact, well sorted, medium gray, trace white grains and red grains, wood fragments, wet	-2.57					11	11.2
16	- increase in sand content, grading to SM at 16.0ft BGS						11	41.4
18	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments throughout, wet	-5.67		4RS		5.0	11 11	28.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-10
DATE COMPLETED: October 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	Field pH	PID (ppm)
22	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, compact, well sorted, faintly laminated, medium gray with brown mottling, white grains and red grains, sand size shell fragments, wet	-10.57		5RS		5.0	11.5	13.5
							11.5	
24							11.5	9.4
26	- increase in sand content, grading to SM, shell fragments at 26.0ft BGS						11.5	55.4
				6RS		5.0	11.5	
28							11.5	
	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size and larger shell fragments throughout, wet	-17.37						145.9
30							12	469
32				7RS		5.0	12	
34							12	1155
36							11.5	1561
				8RS		5.0	11.5	
38	SM-SILTY SAND, very fine grained, compact, well sorted, dark gray-brown, white grains and red grains throughout, trace sand size shell fragments, wet	-26.67					11.5	1511

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: PH-10
DATE COMPLETED: October 5, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE Field pH	SAMPLE PID (ppm)
42	- increase in sand content, grading to SP at 41.0ft BGS						11	7515
				9RS		5.0	11	
44	- increase in silt content, trace clay at 43.0ft BGS						11	6374
	- increase in sand content at 45.2ft BGS						11	
46							10.5	1962
	- increase in silt content at 47.0ft BGS			10RS		5.0	10	
48	- medium to dark gray at 48.2ft BGS						10	4660
50	END OF BOREHOLE @ 50.0ft BGS	-38.57						
52								
54								
56								
58								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 077843-WI-PH.GPJ CRA_CORP.GDT 2/11/14

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SB-75
DATE COMPLETED: February 3, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-45' BGS - See Log from 75-50 for Stratigraphy						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SB-75
DATE COMPLETED: February 3, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown	-33.40					0
46	- damp, slight odor @ 45 ft BGS						0
	- pH=10.98 @ 45.5 ft BGS						0
	- pH=10.93 @ 46.5 ft BGS						0
48	- pH=10.86 @ 47.5 ft BGS						
	- pH=10.68 @ 49.5 ft BGS	-37.90					0
50	SM-SAND, with silt, compact, medium to fine grained, slightly plastic, poorly graded, gray, saturated	-39.40	1RS				0
	ML-SANDY SILT, trace clay, dense, fine grained, slightly plastic, poorly graded, gray, saturated	-40.40					0
52	- pH=10.70 @ 51 ft BGS						
	SM-SAND, with silt, compact, medium to fine grained, slightly plastic, poorly graded, gray, saturated						
54	- pH=10.66 @ 52.5 ft BGS						0
	- pH=10.26 @ 54.5 ft BGS	-43.40					
56	END OF BOREHOLE @ 55.0ft BGS						
	Ground surface elevation is estimated.						
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SB-82
DATE COMPLETED: February 2, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Not Sampled (Refer to 55-25 for stratigraphy)						
20	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown, damp - silty clay lense @ 21 ft BGS. pH=10.47 - pH=10.31 @ 22 ft BGS - silty clay lense @ 23.5 ft BGS. pH=10.38 - pH=10.30 @ 26 ft BGS - trace shells fragments @ 28 ft BGS - pH=10.49 @ 28 ft BGS - pH=10.33 @ 30 ft BGS	-8.40	RS1				0
30	END OF BOREHOLE @ 30.0ft BGS	-18.40					
	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SB-83
DATE COMPLETED: February 6, 2009
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Gowing

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	11.60				
	Not Sampled					
16	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown, saturated	-4.40				
18	SM-SILTY SAND, with woody debris, compact, fine grained, moderately plastic, poorly graded, gray, saturated	-6.40 -6.90				
20	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown, saturated		1RS			
22	SM-SAND, with silt, trace shells, compact, fine grained, poorly graded, gray, saturated	-10.90 -11.90				
24	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark brown, saturated					
28	- silt lense, with shells @ 29.6 ft BGS - shells more prevelent @ 30 ft BGS		2RS			
30	END OF BOREHOLE @ 31.0ft BGS	-19.40				
32	Ground surface elevation is estimated.					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	7.88						
	ASPHALT	7.48						
	SP-SAND, few silt, trace fine and coarse gravel, loose, fine grained sand, brown, dry							
2	- negative DNAPL dye test at 2.5ft BGS			1RS		2.8		5.03
	NO RECOVERY (2.8 to 5.0ft BGS)	5.08						
4								
	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, brown/black, moist	2.88						
6	- negative DNAPL dye test at 6.0ft BGS							39.6
	- 0.2' silty clay lens, laminated at 7.4ft BGS			2RS		5.0		
8								132
	- negative DNAPL dye test, neutral pH (6) at 9.0ft BGS			-001				
10			BACKFILLED WITH CEMENT/ BENTONITE GROUT					125
12				3RS		5.0		
	- negative DNAPL dye test at 13.0ft BGS							
	- 0.1' silty clay lens, laminated at 13.7ft BGS							155
14								
	- silty clay stringer at 14.9ft BGS							
	- negative DNAPL dye test at 15.0ft BGS	-7.12						
	NO RECOVERY (15.0 to 20.0.0ft BGS)							
16								
				4RS		0.0		
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-001)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
20	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, black, wet - negative DNAPL dye test at 20.0ft BGS - negative DNAPL dye test at 21.5ft BGS	-12.12		-002				136
22	NO RECOVERY (22.5 to 25.0ft BGS)	-14.62		5RS		2.5		--
24	SP-SAND, trace silt, compact, fine grained, white grains and red grains throughout, black, wet, continuing neutral pH (6)	-17.12						
26	- negative DNAPL dye test at 26.5ft BGS			-003				139
28	- increase in silt content at 28.0ft BGS			6RS		5.0		111
30	- negative DNAPL dye test at 30.0ft BGS							
32	- negative DNAPL dye test at 31.5ft BGS SM-SILTY SAND, with clay, compact, fine grained, black, wet	-24.32		7RS		5.0		88
34	- decrease in clay content at 34.0ft BGS	-26.52						101
36	SP-SAND, trace silt, trace shell fragments, compact, red grains throughout, black, wet - negative DNAPL dye test at 35.0ft BGS			-004				94
38	- negative DNAPL dye test at 37.5ft BGS			8RS		5.0		103

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
40	- negative DNAPL dye test at 40.0ft BGS - negative DNAPL dye test at 40.5ft BGS							80
42				9RS		5.0		
	SM-SILTY SAND, compact, very fine grained, black, wet	-35.42						67
44	SP-SAND, trace silt, compact, fine grained, red grains throughout, black, wet, continuing neutral pH (6)	-36.22						
	- negative DNAPL dye test at 45.0ft BGS			-005				
46								35
	- negative DNAPL dye test at 47.5ft BGS			10RS		5.0		
48								24
50	- negative DNAPL dye test at 50.0ft BGS - negative DNAPL dye test at 50.5ft BGS							16
52				11RS		5.0		
54								22
	- negative DNAPL dye test at 55.0ft BGS							
56								24
				12RS		5.0		
58	- negative DNAPL dye test at 58.0ft BGS							147

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-005)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
60	- silty clay stringer at 59.6ft BGS - negative DNAPL dye test at 60.0ft BGS - negative DNAPL dye test at 60.5ft BGS			-006				261
62				13RS		5.0		
64	- silty clay stringer at 64.1ft BGS - negative DNAPL dye test at 64.5ft BGS - negative DNAPL dye test at 65.0ft BGS			-007				413
66	- increase in silt content, negative DNAPL dye test at 65.5ft BGS	-58.12						
	SP-SAND, with silt, compact, fine grained, red grains throughout, black, wet, continuing neutral pH (6) - negative DNAPL dye test at 66.0ft BGS			14RS		5.0		486
68	- 0.39" wood fragment, brown at 68.3ft BGS - 0.79" wood fragment, brown, at 69.0ft BGS - 0.39" wood fragment, brown at 69.3ft BGS							506
70	- decrease in silt content, negative DNAPL dye test at 69.5ft BGS	-61.92						
	SP-SAND, trace silt, compact, fine grained, red grains throughout, black, wet - negative DNAPL dye test at 70.5ft BGS							155
72	- negative DNAPL dye test at 73.0ft BGS			15RS		5.0		
74	SP-SAND, with silt, compact, fine grained, red grains throughout, black, wet - trace wood fragment at 74.1ft BGS	-66.02						156
	- negative DNAPL dye test at 75.0ft BGS	-67.02		-008				
76	SP-SAND, trace silt, compact, fine grained, red grains throughout, black, wet - negative DNAPL dye test at 75.5ft BGS							121
78				16RS		5.0		
								127

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
80	- negative DNAPL dye test at 80.0ft BGS							
								127
82	- negative DNAPL dye test at 82.0ft BGS			17RS		5.0		
								133
84								
	- negative DNAPL dye test at 85.0ft BGS							
86								
	- negative DNAPL dye test at 86.5ft BGS							142
	- few silt, dense at 87.0ft BGS							
88				18RS		5.0		
	- negative DNAPL dye test at 89.0ft BGS			-009				215
90								
	- negative DNAPL dye test at 90.5ft BGS							
								147
92								
	- negative DNAPL dye test at 92.5ft BGS			19RS		5.0		
94								228
	- negative DNAPL dye test at 95.0ft BGS			-010				
96								288
	- few silt, dense at 97.0ft BGS							
	- negative DNAPL dye test at 97.5ft BGS			20RS		5.0		
98	- trace shell fragment at 98.2ft BGS							
								215

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
100	- negative DNAPL dye test at 101.0ft BGS						480
102	- negative DNAPL dye test at 102.5ft BGS		21RS-011		5.0		
104	- negative DNAPL dye test at 104.0ft BGS						560
	SP-SAND, with silt, compact, fine grained, red grains throughout, black, wet	-96.32					
	SM-SILTY SAND, compact, dark gray, wet, continuing neutral pH (6)	-97.12					
106	- negative DNAPL dye test at 105.0ft BGS						267
	ML-SILT, compact, dark gray, wet	-99.12					
108	- negative DNAPL dye test at 107.5ft BGS		22RS		5.0		183
110	SP-SAND, few silt, compact, fine grained, red grains throughout, black, wet	-102.22					
	- negative DNAPL dye test at 111.0ft BGS						119
112	- negative DNAPL dye test at 112.5ft BGS		23RS		5.0		
114	- negative DNAPL dye test at 114.5ft BGS - trace laminated silt at 114.7ft BGS						107
116	- silty clay nodule at 116.0ft BGS						266
118	- increase in silt content at 117.5ft BGS - high pH (13) at 118.0ft BGS		24RS		5.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (21RS-011)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
								399
	- negative DNAPL dye test at 119.5ft BGS			-012				
120								
	- negative DNAPL dye test at 121.0ft BGS							102
122								
				25RS		5.0		
	- negative DNAPL dye test at 123.0ft BGS - shell fragment at 123.3ft BGS							
124								117
	- negative DNAPL dye test at 125.5ft BGS			-013				
126	- shell fragment at 126.0ft BGS							56
	SM-SILTY SAND, dense, black, wet, continuing high pH (13)	-119.42		26RS		4.0		
128	- negative DNAPL dye test at 127.5ft BGS							75
	NO RECOVERY (129.0 to 130.0ft BGS)	-121.12						
130	SP-SAND, trace silt, compact, fine grained, red grains throughout, black, wet	-122.12						
	- negative DNAPL dye test at 131.0ft BGS							45
	SP-SAND, few silt, dense, fine grained, red grains throughout, black, wet, continuing high pH (13 to 14)	-123.72						
132				27RS		5.0		
134								148
	- negative DNAPL dye test at 134.5ft BGS							
	- negative DNAPL dye test at 135.5ft BGS			-014				
136								27
	- negative DNAPL dye test at 137.5ft BGS			28RS		5.0		
138								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- wood fragments at 138.7ft BGS							13
140	- negative DNAPL dye test at 140.5ft BGS			-015				
								72
142				29RS		5.0		
								45
144	- silt, very dense, negative DNAPL dye test at 144.0ft BGS - silt, very dense at 144.5ft BGS							
	- negative DNAPL dye test at 145.5ft BGS							
146								26
				30RS		5.0		
148								
	SM-SILTY SAND, few silty clay, dense, black, wet	-140.42						31
	CL-SILTY CLAY, trace fine grained sand, soft, medium plasticity, black, wet	-141.12						
150	- negative DNAPL dye test at 149.0ft BGS	-142.12						
	SP-SAND, with silt, compact, fine grained, trace medium grained, red grains and white grains throughout, black, wet, high pH (12)			-016/ 017				28
	- negative DNAPL dye test at 150.5ft BGS							
152								
	- negative DNAPL dye test, elevated pH (10) at 152.5ft BGS	-144.72		31RS		5.0		
	ML-SILT, trace fine sand, dense, black, wet							
154	- neutral pH (8) at 154.0ft BGS							43
	- negative DNAPL dye test at 155.0ft BGS							
156								198
	- negative DNAPL dye test at 156.5ft BGS							
				32RS		5.0		
158								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- shell fragments, white at 158.6ft BGS							291
	- negative DNAPL dye test at 159.5ft BGS			-018				
160								
								120
162								
	SP-SAND, trace silt, compact, fine and medium grained, red grains and white grains throughout, black, wet, shell fragments, continuing neutral pH (7 to 8)	-154.32		33RS		5.0		
	- negative DNAPL dye test at 163.5ft BGS							131
164								
	- negative DNAPL dye test at 164.5ft BGS			-019				
	ML-SILT, trace clay, compact, slight plasticity, gray/black, wet	-157.12						
166	- negative DNAPL dye test, neutral pH (7) at 166.0ft BGS							131
	- neutral pH (6) at 167.0ft BGS							
	- negative DNAPL dye test at 167.5ft BGS			34RS		5.0		
168								
								49
	SP-SAND, trace silt, trace fine and coarse gravel, compact, fine grained, gray/black, wet, shell fragments	-161.82						
170	- negative DNAPL dye test at 170.5ft BGS			-020				
	SC-CLAYEY SAND (glacial contact), fine grained, slight plasticity, olive gray, wet	-163.22						28
172	CL-SILTY CLAY, trace fine grained sand, firm, medium plasticity, mottled, olive gray, wet	-164.12		35RS		5.0		
	- negative DNAPL dye test at 173.5ft BGS							33
174								
	- shell fragments at 174.4ft BGS							
	- shell fragments at 174.9ft BGS							
	NO RECOVERY (175.0 to 180.0ft BGS)	-167.12						
176								
				36RS		0.0		
178								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
180	SP-SAND, few silt, compact, fine grained, white grains and red grains throughout, black, wet, continuing neutral pH (6)	-172.12					
	CL-SILTY CLAY, few sand, firm, fine grained, olive gray, wet	-173.02					16.5
182			37RS		5.0		
	SM-SILTY SAND, with clay, trace fine and coarse subangular to subrounded gravel, olive gray to slight brown, wet	-175.12					
184	- negative DNAPL dye test at 183.5ft BGS	-176.12					21
	SM-SILTY CLAYEY SAND, few fine and coarse subangular to subrounded gravel, compact, olive gray, wet	-177.12					
186	CL-SILTY CLAY, trace fine grained sand, firm, medium plasticity, gray, wet - negative DNAPL dye test at 185.0ft BGS - negative DNAPL dye test at 186.5ft BGS						11
			38RS		5.0		
188	- oxidation at 188.3ft BGS	-180.52					
	SP-SAND, few silt, compact, fine grained, brown, wet - negative DNAPL dye test at 189.5ft BGS		-021				13
190	SP-SAND ,trace silt, trace fine gravel, compact, fine and medium grained, brown, wet, continuing neutral pH (6)	-182.12					
	- negative DNAPL dye test at 190.5ft BGS						21
192			39RS		5.0		
	- negative DNAPL dye test at 193.5ft BGS						17
194	- clay stringer at 194.3ft BGS						
	SW-SAND, trace silt, trace fine gravel, compact, medium to coarse grained, brown, wet	-187.12	-022				
196	- negative DNAPL dye test at 195.0ft BGS						18
	- negative DNAPL dye test at 197.0ft BGS						
			40RS		5.0		

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-A
DATE COMPLETED: July 19, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: B. WILLIAMS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
200	- negative DNAPL dye test at 200.0ft BGS END OF BOREHOLE @ 200.0ft BGS NOTE: GLACIAL CONTACT ASSUMED AT 171.1FT BGS	-192.12		-023				16
202								
204								
206								
208								
210								
212								
214								
216								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-023)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	GROUND SURFACE	10.55						
	AIR KNIFED (0.0 to 8.0ft BGS)							
2								
4	- negative DNAPL dye test on air knifed material at 4.5ft BGS		BACKFILLED WITH CEMENT/ BENTONITE GROUT	1RS		4.5		5.4
6								
8	SP-SAND, loose, fine grained, white grains and red grains throughout, brown, dry	2.55						
	- compact, trace shell fragments at 8.0ft BGS							0.44
	- negative DNAPL dye test at 8.5ft BGS							
10	- alternating layering very fine and fine grained sand, wet, faint stratification, neutral pH (8) at 10.0ft BGS							
	- negative DNAPL dye test at 11.5ft BGS							1.92
12	- dark brown at 12.0ft BGS							
	- negative DNAPL dye test at 13.5ft BGS							
	- silty sand stringers at 13.6ft BGS							2.72
14	- silty sand seam, traces wood at 14.0ft BGS							
	- 1" silty sand seam at 14.8ft BGS							
	- loose at 15.0ft BGS			2RS		10.0		
16	- negative DNAPL dye test at 16.5ft BGS							34.8
18	- negative DNAPL dye test at 18.5ft BGS							
	- partial shell fragments, complete shells at 19.0ft BGS							59.55

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	NO RECOVERY (20.0 to 21.0ft BGS)	-9.45	-001				
	SP-SAND, loose, fine grained, white grains and red grains throughout, brown, dry	-10.45					429
22	- negative DNAPL dye test at 22.5ft BGS						
	- negative DNAPL dye test, continuing neutral pH (7 to 8) at 23.5ft BGS						87.1
24	- 2" silt seam, wet at 24.1ft BGS - 2" silt seam, wet at 24.6ft BGS		3RS		9.0		
26	- negative DNAPL dye test at 26.0ft BGS						80
28							30
	- negative DNAPL dye test at 29.5ft BGS						
30	- negative DNAPL dye test at 30.5ft BGS						5.17
32							
	- 1" silty sand seam, with wood fragments, negative DNAPL dye test at 34.0ft BGS						3.94
34	- 1" silty sand seam at 34.9ft BGS		-002/-003 4RS		10.0		
36	- negative DNAPL dye test at 36.0ft BGS						7.35
	SM-SILTY SAND, compact, fine grained, white grains and red grains throughout, medium brown, wet, trace sand size and larger shell fragments	-26.15 -27.05					
38	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments - negative DNAPL dye test at 38.5ft BGS						12.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- negative DNAPL dye test at 41.0ft BGS						3.7
42	- wood fragments, continuing neutral pH (7 to 8) at 42.5ft BGS						
	- negative DNAPL dye test at 43.5ft BGS		-004				3.0
44	- 1/4" thin silty sand seam at 44.0ft BGS						
	- increase in silt content at 45.1ft BGS	-34.55	5RS		8.5		
	NO RECOVERY (45.1 to 46.5ft BGS)						
46		-35.95					
	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments						8.0
48	- wood fragments at 46.8ft BGS - increase in sand content at 47.2ft BGS						
	- negative DNAPL dye test at 49.0ft BGS						2.85
50							
							10.7
52	- negative DNAPL dye test at 52.0ft BGS						
	- negative DNAPL dye test at 53.5ft BGS						42.36
54	SM-SILTY SAND, compact, fine grained sand, white grains and red grains throughout, medium to dark brown, wet, trace sand size and larger shell fragments	-43.35	6RS		10.0		
56	- negative DNAPL dye test at 56.5ft BGS		-005				0.21
58							
	- negative DNAPL dye test at 59.0ft BGS - increase in silt content at 59.4ft BGS - wood fragments at 59.5ft BGS						0.27

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments	-49.65						
	- negative DNAPL dye test at 61.5ft BGS							4.62
62								
	SM-SILTY SAND, compact, very fine to fine grained, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments	-52.25						
	-1" silty sand seam at 62.9ft BGS							
64	- negative DNAPL dye test at 63.0ft BGS							7.12
	- interbedded silty sand seams, very fine grained sand at 64.0ft BGS	-54.45		7RS		10.0		
	- increase in sand content at 64.8ft BGS							
66	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments			-006				13.4
	- negative DNAPL dye test, continuing neutral pH (7 to 8) at 66.5ft BGS							
68	- thin silt seams at 67.7ft BGS							
	- thin silt seams at 68.5ft BGS							14.1
	- negative DNAPL dye test at 69.5ft BGS							
70	- thin silt seams at 69.7ft BGS							
								9.24
72	- negative DNAPL dye test at 72.0ft BGS							
	- negative DNAPL dye test at 73.5ft BGS							9.68
74	- thin sandy silt seam at 74.4ft BGS			8RS		10.0		
76								10.32
	- negative DNAPL dye test at 77.0ft BGS			-007				
	- increase in silt content at 77.3ft BGS							
78								
								10.47
	- negative DNAPL dye test at 79.5ft BGS							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- sandy at 80.0ft BGS	-69.45						
	NO RECOVERY (80.0 to 81.0ft BGS)	-70.45						
82	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments							3.71
	- negative DNAPL dye test at 81.0ft BGS							
	- negative DNAPL dye test at 82.5ft BGS							
84								6.9
				9RS		9.0		
	- partial shell fragments, continuing neutral pH (7 to 8) at 85.5ft BGS							
86								
	- negative DNAPL dye test at 86.5ft BGS			-008				2.36
	- silty clasts at 87.7ft BGS							
88	- increase in silt content at 88.2ft BGS							
	SM-SILTY SAND, compact, very fine to fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments	-78.05						3.4
90	- negative DNAPL dye test at 89.0ft BGS	-79.55						
	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments							4.89
92	- negative DNAPL dye test at 91.5ft BGS							
	- negative DNAPL dye test at 93.5ft BGS							5.14
94				10RS		10.0		
96								9.52
	- negative DNAPL dye test at 96.5ft BGS							
98								
	- negative DNAPL dye test at 98.5ft BGS			-009				762

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (-###)

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
102	- negative DNAPL dye test at 101.5ft BGS							337
104	- negative DNAPL dye test, continuing neutral pH (7 to 8) at 104.5ft BGS - increase in silt content at 104.8ft BGS - increase in sand content at 105.1ft BGS							509
106	- negative DNAPL dye test at 105.5ft BGS			11RS		10.0		387
108	- negative DNAPL dye test at 108.0ft BGS			-010				662
110	- 3" silty sand lens, very fine grained sand, wet at 109.6ft BGS							811
112	- negative DNAPL dye test at 112.5ft BGS							
114	- negative DNAPL dye test at 113.5ft BGS			12RS		10.0		517
116	ML-SANDY SILT, soft, trace white grains and red grains throughout, dark brown, wet, trace sand size shell fragments	-105.45						781
118	- negative DNAPL dye test at 117.0ft BGS - negative DNAPL dye test at 119.0ft BGS			-011				1139

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (XX)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
		-109.55						
	SP-SAND, trace silt, compact, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments							389
	- negative DNAPL dye test at 120.5ft BGS							
122								
	- negative DNAPL dye test at 123.5ft BGS							618
124								
				13RS		10.0		
126								503
	- negative DNAPL dye test, continuing neutral pH (7 to 8) at 127.5ft BGS							
128								
								506
	- negative DNAPL dye test at 129.5ft BGS			-012				
	- 3" clayey silty sandy lens at 129.7ft BGS							
130	- elevated pH (9.5 to 10.4) at 130.5ft BGS							
								344
	- negative DNAPL dye test at 131.5ft BGS							
132		-121.35						
	SM-SILTY SAND, dense, very fine to fine grained sand, trace white grains and red grains throughout, dark brown, wet, trace sand size shell fragments							
	- silty at 132.8ft BGS							
	- silty, very dense at 133.8ft BGS							317
134								
	- negative DNAPL dye test at 134.5ft BGS							
				14RS		10.0		
	- 3" sandy silt lens at 135.8ft BGS							
136	- high pH (11) at 136.0ft BGS							250
	- negative DNAPL dye test at 136.5ft BGS							
	- 1' zone standing brackish water at 137.0ft BGS							
138								
								385
				-013				
	- negative DNAPL dye test at 139.5ft BGS							
	- 3" sandy silt to silt lens, very dense at 139.8ft							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	BGS - weak positive DNAPL dye test, elevated pH (10 to 11) at 140.5ft BGS	-130.45	-014				10300
142	SM/ML-SILTY SAND/SANDY SILT, dense to very dense, very fine grained sand, trace white grains and red grains, dark brown, wet, trace sand size shell fragments - weak positive DNAPL dye test at 141.0ft BGS - negative DNAPL dye test at 142.0ft BGS	-132.65	-015				
144	SM-SILTY SAND/SAND, compact, very fine grained sand, trace white grains and red grains throughout, dark brown, wet, trace sand size shell fragments - 3" zone soft, wet at 143.3ft BGS - weak positive DNAPL dye test at 144.0ft BGS - positive DNAPL dye test at 145.0ft BGS		-016				3830
146	- sandy at 145.1ft BGS - weak positive DNAPL dye test at 145.5ft BGS		15RS -017 -018		10.0		10400
148	- dense to very dense, cemented, negative DNAPL dye test at 147.5ft BGS		-019				4568
150	- weak positive DNAPL dye test at 149.5ft BGS		-020				1292
152	- sandy, soft at 150.8ft BGS - weak positive DNAPL dye test, high pH (11) at 151.0ft BGS - sandy silt, dense at 151.4ft BGS - 6" clayey sand lens, very fine grained at 151.9ft BGS - negative DNAPL dye test at 152.0ft BGS	-142.25	-021				210
154	SC-CLAYEY SAND, trace silt, soft, very fine grained sand, trace white grains and red grains throughout, dark brown, wet, trace sand size shell fragments, neutral pH (7 to 8) - wood fragments at 153.3ft BGS - negative DNAPL dye test at 154.0ft BGS - 2" sand seam, fine grained sand, wet at 154.6ft BGS	-144.55	-022				
156	SP-SAND, trace silt, loose, fine grained sand, white grains and red grains throughout, dark brown, wet, trace sand size shell fragments - 1' zone brackish standing water, negative DNAPL dye test, elevated pH (10 to 11) at 156.0ft BGS		16RS		10.0		72.8
158	- 1" clayey sand seams at 157.4ft BGS - 4" zone brackish standing water, negative DNAPL dye test at 158.5ft BGS		-023/-024				446

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	- silty clasts at 160.3ft BGS - negative DNAPL dye test, neutral pH (7 to 9) at 161.0ft BGS							10.07
162								
	SC-CLAYEY SAND, trace silt, soft, very fine grained sand, trace white grains and red grains throughout, dark brown, trace sand size shell fragments	-151.85						
164	- negative DNAPL dye test at 163.0ft BGS							1.24
	SM-SILTY SAND, compact, very fine grained sand, white grains and red grains throughout, dark gray/brown, wet, trace sand size shell fragments	-153.75		17RS		10.0		
166	- 1" sand lens at 164.7ft BGS - negative DNAPL dye test at 166.5ft BGS							0
168	- negative DNAPL dye test at 168.0ft BGS			-025				0
170	- increase in clay content at 170.1ft BGS - negative DNAPL dye test, elevated pH (10 to 11) at 170.5ft BGS							65.1
172	- grading to clayey silty sand, very fine grained sand at 172.0ft BGS - neutral pH (7 to 9) at 173.0ft BGS - partial shells and small stones at 173.4ft BGS							
174	- negative DNAPL dye test at 174.0ft BGS							0
	CL/ML-SILTY CLAY, trace fine gravel soft to firm, medium plasticity, gray with green hue, wet	-164.55		18RS		10.0		
176	- negative DNAPL dye test at 176.5ft BGS							2.1
178				-026				
	- negative DNAPL dye test at 179.0ft BGS							1.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	SC-CLAYEY SAND, soft, very fine grained sand, medium plasticity, gray with greenish hue, wet	-169.55						1.59
182	- negative DNAPL dye test, neutral to elevated pH (8 to 10.5) at 181.5ft BGS							
184	- negative DNAPL dye test at 184.0ft BGS							6.76
	GW/GC-GRAVEL (GLACIAL), with clay and fine to medium grained sand, compact to medium dense, subrounded, well graded, gray to yellow brown, wet	-174.25		19RS		7.5		
186								NM
	- negative DNAPL dye test at 187.5ft BGS	-176.95		-027				
188	NO RECOVERY (187.5 to 195.0ft BGS)							
190								
192								
194								
	GW/GM-GRAVEL, with silt and coarse, medium and fine grained sand, medium dense, subrounded, well graded, beige, wet, neutral pH (7 to 9)	-184.45		20RS		5.0		
196	- negative DNAPL dye test at 196.0ft BGS							16.03
198	- negative DNAPL dye test at 198.0ft BGS			-028				3.28
	GW/GC-GRAVEL, with clay and sand, medium	-188.85						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: SB-B-DEEP
DATE COMPLETED: August 15, 2013
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE FID (ppm)
	dense, subrounded, well graded, brown, wet	-189.45						
	END OF BOREHOLE @ 200.0ft BGS							
	NOTE: GLACIAL CONTACT ASSUMED AT 184.8FT BGS							
202								
204								
206								
208								
210								
212								
214								
216								
218								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843WIN WMU-FID.GPJ CRA_CORP.GDT 10/21/13

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.60					
	0-10' BGS - See Log from SP-1 for Stratigraphy						
2							
4							
6							
8							
10	Not Sampled	1.60					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
		-95.40					
108	SP-SAND, trace silt, compact, fine to medium grained, dark brown, moist to wet, strong odor, no visible contamination						
			12		5.0		>10,000
110		-98.40					
	OL-SILT, firm to stiff, dark brown, dry to moist, friable - water inferred below 110.4 ft BGS - shell fragments below 111 ft BGS						
112							
114							
		-103.40					
116	SP-SAND, trace silt, loose, fine to medium grained, dark brown, moist to wet, strong odor - 0.5' silt lense, firm to stiff, dark brown, damp @ 115.5 ft BGS						
			13		10.0		>10,000
118							
120		-108.40					
	SM-SAND, some silt, fine grained, dark brown, moist, strong odor						
122	- 3.5' thick sand lense, trace silt, fine grained, dark brown, moist @ 122 ft BGS						
124							
126	- 1.0' sand lense, trace silt, fine grained, dark brown, damp to moist @ 126 ft BGS						
			14		10.0		>10,000
128	- 1.0' sand lense, trace silt, fine grained, dark brown, moist @ 128.5 ft BGS						
	- dry to damp below 129.5 ft BGS						
130		-118.90					
	SP-SAND, trace silt, loose, fine grained, dark brown, moist						
132		-120.40					
	SM-SAND, some silt, loose, dark brown, moist to wet, odor						
		-121.90					
134	ML-SILT, trace sand, firm, low plasticity, brown, moist						
136							
			15		10.0		>10,000
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	SM-SAND, some silt, loose, fine to coarse grained, dark brown, moist to wet	-130.40					
		-131.90					
144	SP-SAND, trace silt, loose, medium to coarse grained, dark brown, moist to wet	-132.90					
	GP-GRAVEL, some sand, trace silt, trace cobbles, loose, fine to medium grained, brown, moist to wet (Recessional Glacial Outwash)						
146	- 1.0' sand lense, some silt, loose to compact, fine to medium grained, brown, moist to wet @ 146 ft BGS		16		10.0		>10,000
148	- 1.5' sand lense, trace silt, loose to compact, fine to medium grained, brown, moist to wet @ 148.5 ft BGS						
150							
152	SP-SAND, trace silt, loose, medium to coarse, dark brown, moist to wet	-140.40					
154							
156			17		10.0		>10,000
158							
160							
162	- shell fragments below 162 ft BGS						
164							
166			18		10.0		759
168							
170	- trace gravel, fine to medium grained sand below 170 ft BGS						
172							
	GP-GRAVEL, trace silt, trace cobbles, loose to compact, some fine to coarse grained sand, poorly to well graded, brown, wet	-160.90					
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (16, 17, 18)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176							
178			19		10.0		0
180							
182	- 0.5' lense with cobbles @ 182 ft BGS						
	- with silt below 183.5 ft BGS						
184							
186							
			20		10.0		0
188							
190	- 0.5' sand lense, with gravel, with silt, compact, fine to medium grained sand, brown, moist to wet @ 190 ft BGS						
192	GP-SAND and GRAVEL, trace silt, loose to compact, medium to coarse grained sand, poorly graded, brown, moist to wet	-180.40					
194							
196	SM-SAND, some silt, trace gravel, loose to compact, fine to medium grained, brown, moist to wet	-184.40					
	- cobble below 197 ft BGS		21		10.0		0
198							
200	- 1.5' lense of silt and gravel with cobbles, trace sand, subangular rounded gravel/cobble, dense, stiff, moist to wet @ 199.5 ft BGS						
	- 1.5' lense of silty cobble with gravel, trace sand, dense @ 201 ft BGS						
202	- some gravel, compact below 201.5 ft BGS						
204	GM-GRAVEL, SILT and COBBLES, trace sand, subangular to rounded cobbles, dense, very stiff, very low plasticity, brown, moist	-191.40					
	- with some sand below 204.5 ft BGS						
206							
	- with trace cobbles below 207 ft BGS		22		10.0		0
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (19, 20, 21, 22)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1(2)
DATE COMPLETED: September 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
212	- with cobbles below 210 ft BGS			X			
	END OF BOREHOLE @ 212.0ft BGS	-200.40					
214	Ground surface elevation is estimated.						
216							
218							
220							
222							
224							
226							
228							
230							
232							
234							
236							
238							
240							
242							
244							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-1
DATE COMPLETED: June 23, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	ASPHALT/FILL						
	SP-SAND with GRAVEL, loose, medium grained sand, subangular gravel, poorly graded, light brown, moist	10.60	001		1.5		1.0
2	SP-SAND, trace shells, loose, fine to medium grained, poorly graded, dark gray, red and white grains, moist	9.60					
4			002		4.0		339
6							
8			003		4.0		51.7
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-10' BGS - See Log from SP-2 for Stratigraphy						
10	Not Sampled	1.60					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: SP-2(2)
PROJECT NUMBER: 07843
DATE COMPLETED: September 28, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: Rotosonic
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: J. Leader
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102	SM-SAND, some silt, firm to stiff, fine grained, dark brown, damp	-90.40		X			
104	SP-SAND, trace silt, trace gravel, compact, fine to medium grained, dark brown, damp	-91.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
			12		10.0		>10,000
108	- trace shell fragments below 108 ft BGS						
110	- 0.5' silt lense, firm, dark brown, damp @ 110.5 ft BGS - becoming loose below 111 ft BGS						
112							
	SM-SAND, some silt, firm, dark brown, damp	-101.40					
114	- 0.5' sand lense @ 114 ft BGS						
	- with trace gravel below 115 ft BGS						
116							
	- 2.0' silt lense @ 117 ft BGS		13		10.0		1,058
118							
120							
122	- becoming loose to compact, moist to wet below 122 ft BGS						
124							
126							
			14		10.0		2,948
	- silt, trace sand below 127.5 ft BGS						
128	- 0.25' silty sand lense @ 128 ft BGS						
	- 0.25' silty sand lense @ 129 ft BGS						
130							
132	- trace shells, becoming firm, moist below 132 ft BGS						
134							
136							
			15		10.0		>10,000
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
146							
			16		10.0		0
148							
150							
	GM-GRAVEL, some sand, silt, and cobbles, loose, rounded, greenish gray, moist to wet	-138.90					
152							
154							
156							
			17		10.0		>10,000
158							
160							
162							
164	- trace cobbles below 163.5 ft BGS						
166	- brown below 165.5 ft BGS						
			18		10.0		>10,000
168							
	SM-SAND and SILT, trace gravel, firm to stiff, compact, fine grained, brown, moist	-157.40					
170							
172	- loose to compact, sand becoming fine to coarse grained below 172 ft BGS						
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176	- firm to stiff below 175 ft BGS						
	GM-GRAVEL and SILT, trace cobbles, trace sand, very stiff, brown, dry to damp	-165.40	19		10.0		>10,000
178							
180	- becoming gray below 180 ft BGS						
182							
184							
186			20		10.0		>10,000
188							
190							
192	- dense, some medium to coarse grained sand, brown, moist to wet below 192 ft BGS						
194							
196			21		10.0		>10,000
198							
200							
202							
204							
206			22		10.0		>10,000
208	- sand and cobbles, some silt, trace gravel below 209 ft BGS						
		-197.90					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	SM-SAND, some silt, trace gravel, compact, coarse grained, brown, moist						
		-199.90					
212	ML-SILT, trace sand, very stiff, medium plasticity, brown and gray, dry to damp						
214							
	- with trace gravel below 215 ft BGS						
216	- some gravel, trace cobbles below 216 ft BGS						
			23		10.0		>10,000
218							
220	- some sand, gray, moist to wet below 220.5 ft BGS						
222							
224							
226							
			24		10.0		>10,000
228							
230							
232							
		-220.90					
	GM-GRAVEL and SILT, some sand, trace cobbles, compact to dense, fine to coarse grained sand, gray, moist to wet						
234							
236							
			25		10.0		52
238							
240		-228.40					
	GP-GRAVEL and SAND, trace cobbles, fine to coarse grained, gray, moist to wet						
242							
244	- some cobbles, loose, greenish gray, moist to wet below 244 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
246							
		-235.40	27		10.0		125
248	ML-SILT, trace sand and gravel, very firm, medium plasticity, green, dry						
	- some sand, some gravel, dry, friable below 249 ft BGS						
250							
	- firm, greenish gray, damp below 251 ft BGS						
252	- wet below 252 ft BGS						
		-240.90					
	GM-GRAVEL, SAND, and SILT, loose, fine to medium grained, greenish gray, wet						
254	- becoming gray below 253.5 ft BGS						
256							
			28		10.0		>2,000
258	- trace fine grained sand, stiff, medium plasticity, greenish gray below 258.5 ft BGS						
	- some sand, trace cobbles, moist below 259 ft BGS						
260							
262							
264							
266							
	- becoming loose, gray below 267 ft BGS		29		10.0		44
268							
		-257.90					
270	ML-SILT, very stiff, low plasticity, brown, damp						
272							
274	- some gravel, some sand, stiff, greenish gray below 274 ft BGS						
		-262.90					
	GM-GRAVEL, SAND, and SILT, loose to compact, coarse grained, brown, moist						
276							
			30		10.0		58
278							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2(2)
DATE COMPLETED: September 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
282	No Recovery	-270.40					
284							
286			31		0.0		NA
288							
290							
292	GM-GRAVEL, SAND, and SILT, very stiff, medium to coarse grained, greenish brown, damp to moist	-280.40					
294							
296			32		10.0		48
298							
300							
302	ML-SILT, trace fine grained sand, stiff, greenish gray, damp to moist END OF BOREHOLE @ 302.0ft BGS Ground surface elevation is estimated.	-289.90 -290.40					
304							
306							
308							
310							
312							
314							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-2
DATE COMPLETED: July 7, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM/GM-SAND and GRAVEL with SILT, compact, fine to coarse sand, fine to coarse gravel, poorly graded, brown, moist		001		2.0		0.6
2							
	SP-SAND, trace silt, compact, fine grained, trace medium grains, poorly graded, dark brown, moist	8.60	002		3.5		0.5
4							
6	- saturated below 6 ft BGS						
8					3.5		0.9
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-3
DATE COMPLETED: June 14, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT/FILL, gravel, trace sand, loose, poorly graded, dark to light brown		001		1.5		49.7
2	- gray powder substance from 2 to 4 ft BGS - trace shells from 2 to 5 ft BGS	9.60					
4	SP-SAND, compact, fine to medium grained, dark brown, red and white grains, moist		002		4.0		16.9
6	- trace shells, saturated below 6 ft BGS - gravel lense, subangular, poorly graded below 6.2 ft BGS						
8			003		4.0		6.9
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
12	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4(2)
DATE COMPLETED: September 20, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-10' BGS - See Log from SP-4 for Stratigraphy						
10	Not Sampled	1.60					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4(2)
DATE COMPLETED: September 20, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4(2)
DATE COMPLETED: September 20, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
100	OL-SILT, firm to stiff, low plasticity, dark brown, damp to moist, decomposition odor	-88.40		X			

72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4(2)
DATE COMPLETED: September 20, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			12		12.0		NA
108							
110							
112	SM-SAND, some silt, compact to firm, medium to coarse grained, dark brown, moist, decomposition odor	-100.40					
114	- silt lense, firm, fine to coarse grained sand, moist, not stratified, mainly silt pockets and subsequently silt pockets @ 114 ft BGS						
116			13		9.0		30
118							
120							
122	- loose to compact, moist to wet below 122 ft BGS						
124							
126			14		8.0		NA
128							
130							
132	- becoming mostly silty, loose, soft, some fine to coarse grained, moist below 132 ft BGS						
134	OL-SILT, some gravel, trace sand, soft, low plasticity, brown, moist	-122.40					
136	- medium to coarse grained gravel below 137 ft BGS		15		10.0		140
138							
	ML-SILT and SAND, some gravel, firm to compact, greenish gray, damp to moist	-127.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: SP-4(2)
PROJECT NUMBER: 07843
DATE COMPLETED: September 20, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: Rotosonic
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: J. Leader
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	(Recessional Glacial Outwash) - gravelly silt and sand below 141 ft BGS						
142	SP-SAND, trace silt, trace gravel, loose to compact, medium to coarse grained, greenish brown, damp to moist	-130.40					
		-131.90					
144	GM-GRAVEL and SAND, some silt, trace cobbles, loose to compact, greenish brown, damp to moist - firm to stiff below 145 ft BGS						
146							
			16		10.0		0
148							
150							
152							
154							
	- medium to coarse grained sand, light tan with greenish gray tones, becoming moist to saturated below 155 ft BGS						
156							
			17		10.0		0
158							
160							
162	- moist below 162 ft BGS						
164							
166							
			18		10.0		0
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4(2)
DATE COMPLETED: September 20, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Leader

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176							
178			19		10.0		
180							
182	END OF BOREHOLE @ 182.0ft BGS Ground surface elevation is estimated.	-170.40					
184							
186							
188							
190							
192							
194							
196							
198							
200							
202							
204							
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (19)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-4
DATE COMPLETED: June 20, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM/GM-SILTY SAND and GRAVEL, compact, fine to coarse sand and gravel, poorly graded, brown, moist	10.10	001		2.0		18.8
2	SP-SAND, trace silt, shell fragments, compact, fine grained, trace medium to coarse grained, poorly graded, dark brown with red and white grains, moist						
4			002		4.0		20.1
6			003				35.5
	- saturated below 7 ft BGS						
8					4.0		
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-5
DATE COMPLETED: June 2, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM/GM-SAND and GRAVEL with SILT, compact, fine to coarse sand and gravel, poorly graded, brown to light brown, moist		001		1.0		21.2
2	SP-SAND, trace silt, trace fine gravel, compact, fine grained, trace medium to coarse grained, poorly graded, brown, moist	9.80					
4	- dark brown, trace white and red grains below 4 ft BGS		002		4.0		75.5
6							
			003		2.0		189
8	- saturated below 8 ft BGS				2.0		
10	Not Sampled	1.60					
12							
14							
16							
18							
20	SP-SAND, trace silt, compact, fine to medium grained, trace coarse grained, poorly graded, dark brown, white and red grains, saturated	-8.40					
22					4.0		60.5
24	END OF BOREHOLE @ 24.0ft BGS	-12.40					
	Ground surface elevation is estimated.						
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6(2)
DATE COMPLETED: August 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	0-10' BGS - See Log from SP-6 for Stratigraphy						
10	Not Sampled	1.60					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: SP-6(2)

PROJECT NUMBER: 07843
DATE COMPLETED: August 28, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: Rotosonic

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6(2)
DATE COMPLETED: August 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6(2)
DATE COMPLETED: August 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
110	SM-SAND, some silt, loose to compact, fine grained, dark brown with red and white grains, saturated, moderate decomposition odor	-98.40					
116					12.0		0
	ML-SILT, some sand, compact, dark brown, saturated, moderate decomposition odor	-105.40					
120	SM-SAND, some silt, loose to compact, fine grained, dark brown with red and white grains, saturated, moderate decomposition odor	-108.40					
126					10.0		0
	ML-SILT, trace sand, compact to dense, dark brown, saturated, moderate decomposition odor	-115.40					
130	ML-SILT, some clay, compact, moist	-118.40					
136					10.0		0
	SM-SAND, some silt, fine grained, dark brown with red and white grains	-127.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6(2)
DATE COMPLETED: August 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
146							
148					10.0		328
150							
152							
	ML-SILT, some gravel, trace sand, subrounded gravel, gray, wet	-141.40					
154							
156							
158					10.0		3
	SP-SAND, little silt, little gravel, dark gray, wet	-147.40					
160							
162							
164							
166					10.0		0
168							
	GP-GRAVEL, some sand, little silt, medium to coarse grained sand, subrounded, dark gray, wet	-156.40					
170							
172							
174							
	GM-GRAVEL, some sand, some silt, medium to coarse grained sand, subrounded,	-162.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6(2)
DATE COMPLETED: August 28, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino, J. Cornetta, J. Williams

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176	brown, moist				10.0		0
178							
180							
182	END OF BOREHOLE @ 182.0ft BGS	-170.40					
	Ground surface elevation is estimated.						
184							
186							
188							
190							
192							
194							
196							
198							
200							
202							
204							
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-6
DATE COMPLETED:
DRILLING METHOD:
FIELD PERSONNEL:

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM/GM-SILTY SAND and GRAVEL, compact, fine to coarse sand and gravel, poorly graded, light brown, moist	10.10	001		0.7		161
2	SP-SAND, trace silt, trace fine gravel, compact, fine grained, trace medium to coarse grained, dark brown, trace red and white grains, moist						
4			002		3.0		35.2
6	- saturated below 6 ft BGS						
8					4.0		3.8
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	0-10' BGS - See Log from SP-7 for Stratigraphy						
10	Not Sampled	1.60					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100	SM-SAND and SILT, firm, fine grained, dark gray to black, very moist	-88.40		X			
102							
104	SP-SAND, some silt, fine to medium grained, dark gray to black, moist	-91.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	ML-SILT, stiff, hard, very low plasticity, dark gray, dry	-93.40	1 SC				1.9
108							
110							
112	SM-SAND and SILT, firm, fine grained, dark gray, moist	-99.40					
114			2 SC				0.3
116							
118							
120							
122							
124			3 SC				0.8
126							
128							
130							
132							
134			4 SC				0.1
136							
138	ML-SILT, little fine grained sand, medium plasticity, dark gray, moist	-125.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
146	SM-SAND, some silt, fine grained, dark gray to black with red grains (andesite), wet	-133.40	5 SC				0
148							
150							
152							
154							
156			6 SC				0
158	SM-SAND and SILT, firm, dense, fine grained, dark gray, moist	-146.40					
160	SP-SAND, fine to medium grained, trace silt, black with red grains (andesite), moist	-148.40					
162							
164							
166	ML-SILT, some sand, firm, fine grained, dark gray, wet	-153.40	7 SC				0
168	GP-GRAVEL, little silt, little sand, fine to coarse grained, subrounded, gray to brown, wet (post glacial outwash)	-155.40					
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
176			8 SC				0
178							
180	SM-SILT, some sand, some gravel and cobbles, dense, medium grained sand, subrounded gravel and cobbles, light brown (TILL)	-168.40					
182							
184			9 SC				0
186							
188							
190							
192							
194			10 SC				0
196							
198							
200							
202							
204			11 SC				0
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7(2)
DATE COMPLETED: September 1, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: J. Williams, J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
212							
214	- hard, dark green to gray, dry below 214 ft BGS		12 SC				0
216							
	- less dense, light brown, moist below 217 ft BGS						
218							
220							
222							
224							
226							
228			13 SC				0
230							
232							
	SM-SAND and SILT, some gravel, coarse grained, subrounded gravel (pre glacial outwash)	-221.40					
234							
236							
	END OF BOREHOLE @ 237.0ft BGS	-225.40					
238	Continuation of SP-7 from 100.0 ft. BGS.						
240	Ground surface elevation is estimated.						
242							
244							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-7
DATE COMPLETED: June 28, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT/FILL with sand, dark brown		001		1.5		21.7
2		9.10					
4	SP-SAND, compact, fine to medium grained, dark brown, red and white grains, moist		002		4.0		0.0
6	- silt lense @ 5.5 ft BGS - moist to wet below 6 ft BGS						
8			003		4.0		0.0
10	END OF BOREHOLE @ 10.0ft BGS	1.60					
12	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: SP-8
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND, trace shells, loose, fine to medium grained, dark brown with white grains, dry		001		1.5		0.4
2	- moist below 2 ft BGS						
4			002		3.5		0.0
6	- moist to saturated below 6 ft BGS						
8			003		4.0		0.0
10	- silt lense, light brown @ 9 ft BGS						
	END OF BOREHOLE @ 10.0ft BGS	1.60					
12	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-1
DATE COMPLETED: June 11, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SAND and GRAVEL, medium grained sand, 45% 0.25-1.0"Ø angular to rounded gravel, dark brown to black, no odor	10.80					
2	SP-SAND, medium grained, dark brown to black, no odor		GP1		2.3		0.8
4							
6			GP2		3.0		1.8
8							
10	- wet, slight odor below 9.0 ft BGS ▽		GP3		2.9		1.8
12	END OF BOREHOLE @ 12.0ft BGS	-0.40					
14	Ground surface elevation is estimated.						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-2
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	GW-GRAVEL, crushed, gray, dry, no odor	10.90					
2	SW-SAND, 20% 0.125-0.5"Ø gravel, medium grained sand, dark brown, damp to moist, no odor - shell fragments from 1.1 to 5.5 ft BGS		GP1		1.8		0.5
4							
6	- 0.25-0.5"Ø angular gravel fragments below 5.5 ft BGS - shell fragments below 5.8 ft BGS		GP2		2.5		
8							
10	- wet below 9 ft BGS		GP3		2.8		
12	END OF BOREHOLE @ 12.0ft BGS	-0.40					
	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-3
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	GW-GRAVEL, 0.25-0.5"Ø angular to rounded		GP1		3.0		1.3
		8.60					
4	SP-SAND, medium grained, light to dark brown, damp, no odor - black material (organic) in matrix with some silt content from 4.4 to 4.6 ft BGS - 0.25-0.5"Ø angular gravel from 4.6 to 6.0 ft BGS						
6	- slight odor below 6 ft BGS		GP2		3.8		240
8	- 0.125-0.25"Ø gravel from 8.0 to 10.5 ft BGS						
10	- wet, slight odor below 10.5 ft BGS		GP3		2.8		27.1
12	END OF BOREHOLE @ 12.0ft BGS	-0.40					
	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-4
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	GW-GRAVEL, angular, various sizes, dry, no odor	11.10					
	GWS-SAND and GRAVEL, medium grained sand, 50% angular to rounded 0.125-0.75"Ø gravel, brown to black, slightly damp, no odor	10.70					
2	SW-SAND, medium grained, brown to black, slightly damp, no odor		GP1		2.6		0
4	- some shell fragments below 4 ft BGS						
6			GP2		3.5		0.02
8							
	- wet below 9.2 ft BGS ▽						
10			GP3		2.8		0
12	END OF BOREHOLE @ 12.0ft BGS	-0.40					
	Ground surface elevation is estimated.						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-5
DATE COMPLETED: June 10, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND and GRAVEL, medium grained, 30-65% 0.25-1.0"Ø gravel, brown, slightly damp, no odor						
2			GP1		2.9		1.3
4							
	FILL, process sludge, white, viscous, fibrous	6.90					
	SP-SAND and GRAVEL, medium grained, 30-65% 0.25-1.0"Ø gravel, brown, slightly damp, no odor	6.70					
6	- strong odor below 6.7 ft BGS		GP2		3.5		83
8							
10			GP3		2.2		126
12		-0.40 ▽					
	END OF BOREHOLE @ 12.2ft BGS						
14	Ground surface elevation is estimated.						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-6
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: M. Pauly, M. Hendy, B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SW/GW-SAND and GRAVEL, medium grained sand, up to 1.5"Ø gravels grade from 80% to 25% @ 4 ft BGS, no odor						
2			GP1		3.0		
4	- slight odor, slightly damp below 4 ft BGS						
	FILL, process material, white to gray, viscous, gooey, fibrous texture, slight odor	6.90 6.60					
6	SP-SAND, some gravel, some clay, medium grained sand, slightly damp, odor - no clay, no odor below 5.7 ft BGS		GP2		3.0		48
8	- slight odor between 8 and 9 ft BGS						
	- angular 0.125-0.5"Ø gravel present, slightly damp, very slight odor between 9.0 and 9.5 ft BGS						
10			GP3		2.5		169
12	SP-SAND, trace silt, very loose, medium to coarse grained, dark brown with red grains, saturated, strong odor	-0.40					
14			076		5.0		8
16							
	- some shell fragments, light to medium odor below 17 ft BGS						
18							
20							
22			077/078		10.0		293
24							
26							
28							
30							
32			079		10.0		2.1
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-6
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: M. Pauly, M. Hendy, B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- fine to coarse grained, no odor below 37 ft BGS						
38							
40							
42			080		10.0		0
44							
46							
48	ML-SILT, trace sand, compact, dark brown, saturated	-35.40					
50							
52			081		10.0		0
54							
56	SM-SAND and SILT, compact, fine grained, dark brown with red and white grains, saturated	-43.40					
58	ML-SILT, trace sand, trace clay, compact, dark brown, saturated	-45.40					
60							
62			082		10.0		0
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-6
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: M. Pauly, M. Hendy, B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			083		10.0		0
74							
76							
	END OF BOREHOLE @ 77.0ft BGS	-65.40					
78	0 to 12.0 ft. BGS completed on 6/10/04.						
80	Ground surface elevation is estimated.						
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (083)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-7
DATE COMPLETED: August 17, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	SAND and GRAVEL, medium grained sand, 60% 0.25-1"Ø rounded to angular gravel, brown to black, slightly damp						
		10.10					
2	SP-SAND, medium grained, brown to black, slightly damp		GP1		2.5		7.8
	- trace clay, damp, wood fragments with slight organic decomposition odor from 2.9 to 4.0 ft BGS						
4							
		6.90					
	GW-GRAVEL-white crushed rock fragments	6.70					
	SAND and GRAVEL, medium grained sand, 70% 0.25-1.0"Ø angular to rounded gravel, brown to black, slightly moist	6.40					
6			GP2		3.0		544
	SP-SAND, shell fragments, medium grained sand, brown to black, slightly moist						
8	- some clay, with 0.25-0.75"Ø angular gravel between 8 and 8.9 ft BGS						
	- trace silt, with 20% 0.25-1.0"Ø angular gravel below 8.9 ft BGS						
10	- odor below 9.6 ft BGS		GP3		2.7		139
	- wet below 11.2 ft BGS						
12		-0.40					
	SP-SAND, trace silt, very loose, fine to coarse grained, dark brown with red and white grains, dry, strong odor						
14					5.0		88.7
16							
	- saturated, some shell fragments below 17 ft BGS						
18							
20							
22			084		10.0		80.3
24							
26							
28	- silt lense 0.2 inches thick @ 28 ft BGS						
30							
32			085		10.0		62.9
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-7
DATE COMPLETED: August 17, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
	SM-SAND and SILT, some shell fragments, fine to medium grained sand, dark brown with red and white grains, saturated	-25.40					
38							
40	ML-SILT, little sand, compact, fine grained, dark brown with red grains, saturated	-28.40					
42			086		10.0		65.7
44							
46							
48							
50							
52			087		10.0		6.8
54							
56							
	SP-SAND, some shell fragments, trace silt, compact, medium grained, dark brown with red and white grains, saturated	-45.40					
58							
60							
62	ML-SILT, trace sand, compact, dark brown, saturated	-50.40	088		10.0		0.6
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-7
DATE COMPLETED: August 17, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			089		10.0		0.5
74							
76							
78	OL-SILT, trace sand, trace clay, compact, dark brown to gray, saturated, putrid decomposite odor	-65.40					
80							
82			090		10.0		22.7
84							
86							
88							
90							
92			091		10.0		3
94							
96							
98	ML-SILT, trace sand, compact, fine grained sand, dark brown to gray, moist to saturated, putrid decomposite odor	-85.40					
100	- slight odor below 100 ft BGS						
102			092		10.0		34.7
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-7
DATE COMPLETED: August 17, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110							
112	SP-SAND, trace silt, fine to medium grained, compact, dark brown with red and white grains, saturated	-100.40	093		10.0		1.4
114							
116							
118							
120							
122			094		10.0		0.4
124							
126							
	ML-SILT, trace sand, trace clay, compact, dark brown, saturated	-115.40					
128							
130							
132			095		10.0		0.4
134							
136							
	ML-SILT, some clay, some shell fragments, compact, low plasticity, dark gray, saturated	-125.40					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (093, 094, 095)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-7
DATE COMPLETED: August 17, 2006
DRILLING METHOD: Direct Push/Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			096		10.0		0.3
144							
146							
148							
150							
152			097/098		10.0		0.4
154							
156							
	END OF BOREHOLE @ 157.0ft BGS	-145.40					
158	0 to 12.0 ft. BGS completed on 6/10/04.						
160	Ground surface elevation is estimated.						
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-08(2)
DATE COMPLETED: October 9, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	0-12' BGS - See Log from WMUA-08 for Stratigraphy						
12	SP-SAND, fine to medium grained, trace silt, trace shells, dark gray, moist to wet, strong solvent odor	-0.40	SS1				2750
			001		5.0		517
16	- increased silt content						
			SS2 002		10.0		11.7
26	- less odor						
30	ML-SANDY SILT, trace shell fragments, gray, wet, slight solvent odor	-18.90	SS3				
32	SP-SAND, medium grained, trace shell fragments, gray, wet, slight odor	-20.40					
34			003		4.0		2.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-08(2)
DATE COMPLETED: October 9, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND, fine to medium grained, trace shell fragments, trace wood fragments, gray, wet	-24.40					
38							
40							
			SS4-004		10.0		0.7
42							
44							
46	SP-SAND, fine to medium grained, trace shell fragments, trace silt, gray, wet	-34.40					
48							
50							
			SS5				
52							
54			005		10.0		1.4
56	SM-SILTY SAND, fine, gray, wet	-44.40					
58							
60							
			SS6				
62							
64			006		10.0		8.7
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-08(2)
DATE COMPLETED: October 9, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS7				
74			007		10.0		4.7
76							
78							
80			SS8				
82							
84			008		10.0		0.7
86							
88							
90			SS9				
92							
94			009		10.0		0.7
96							
98							
100			SS10				
102							
104			010		10.0		1.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-08(2)
DATE COMPLETED: October 9, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	ML-SILT, trace shells, trace fine sand, loose, gray, wet	-94.40					
108							
110							
			SS11				
112							
114			011		10.0		0
116	SM-SAND, and silt, fine to medium, trace shells, loose, gray, wet	-104.40					
118							
120							
			SS12				
122							
124	SM-SAND, fine to medium, trace silt, trace shell fragments, loose, dark gray, wet	-112.40	012		10.0		0
126	ML-SILT, trace shells, compact, gray, moist	-114.40					
128							
130							
			SS13				
132							
134			013		10.0		0
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-08(2)
DATE COMPLETED: October 9, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS14				
144			014		10.0		0
146	END OF BOREHOLE @ 146.0ft BGS Ground surface elevation is estimated.	-134.40					
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (014)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-8
DATE COMPLETED: June 11, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SAND and GRAVEL, medium grained sand, 30-80% 0.25-1.5"Ø gravel						
2	- white and black processed material from 1.5 to 2.4 ft BGS		GP1		3.3		2.1
4	- boulder, fragmented, gray between 3.4 and 4.8 ft BGS						
6	FILL, processed material, including viscous dark gray fibrous material	6.00	GP2		3.0		198
	SAND and GRAVEL, medium grained sand, 30-80% 0.25-1.5"Ø gravel, odor	5.60					
8	- no gravel below 8 ft BGS						
	GW-GRAVEL-rock, crushed	3.10					
	- mixed with sludge-like material between 8.5 and 8.6 ft BGS	2.90					
10	SAND and GRAVEL, medium grained sand, 30-80% 0.25-1.5"Ø gravel		GP3		3.1		1200
12	- no gravel, purple banding in sand below 9.7 ft BGS						
	END OF BOREHOLE @ 12.0ft BGS	-0.40					
14	Ground surface elevation is estimated.						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-9
DATE COMPLETED: June 11, 2004
DRILLING METHOD: Hand Auger
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	FILL, gravel						
	SP-SAND, medium grained sand, 20% rounded gravel (0.25-0.5"Ø), brown, moist, no odor	10.60	GP1		4.0		10
4	- some shell fragments below 4 ft BGS						
6			GP2		1.5		2.1
8	- wet below 9 ft BGS		GP3				
	END OF BOREHOLE @ 9.0ft BGS	2.60 ▽					
10	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-10
DATE COMPLETED: June 11, 2004
DRILLING METHOD: Hand Auger
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, gravel and asphalt debris						
2	SP-SAND, shell fragments, medium grained, gray-black-brown, moist, no odor	10.10					
4			GP1		2.5		0.1
6							
8			GP2		1.5		17
9		2.60 ▽					
10	END OF BOREHOLE @ 9.0ft BGS						
	Ground surface elevation is estimated.						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11(2)
DATE COMPLETED: August 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-27' BGS - See Log from WMUA-11 for Stratigraphy						
4			001		4.0		0.3
5			025				
12			002		10.0		0.4
16			026				
16	▽						
22			003		10.0		25.5
26			027				
26	ML-SILT, some sand, compact, fine grained, dark brown, saturated	-15.40					
30	SP-SAND, trace silt, trace shell fragments, loose to compact, fine to medium grained, red and white grains, saturated	-18.40					
32			004		10.0		7.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11(2)
DATE COMPLETED: August 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			028				
	SM-SAND, some silt, compact, fine to medium grained, dark brown with red and white grains, saturated	-25.40					
38							
40							
42			005		10.0		0.4
44							
46			029				
	ML-SILT, trace sand, compact, dark brown, saturated	-35.40					
48							
50							
52			006		10.0		0.4
	SM-SAND, some silt, compact, fine grained, dark brown, saturated	-40.40					
54							
56			030/031				
	ML-SILT, trace sand, compact, dark brown, saturated	-45.40					
58							
60							
62			007		10.0		0.5
64							
66			032				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11(2)
DATE COMPLETED: August 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			008		10.0		10.7
74							
76			033				
	SM-SAND, some silt, compact, fine grained, dark brown, saturated	-65.40					
78							
80							
82			009		10.0		0.7
84							
86			034				
	ML-SILT, trace sand, compact, dark brown, saturated	-75.40					
88							
90							
92			010		10.0		0.5
94							
96			035				
98							
100							
	SM-SAND, some silt, compact, fine grained, dark brown, saturated, sulfur odor	-88.40					
102			011		10.0		2.2
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11(2)
DATE COMPLETED: August 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			036				
108							
110							
112			012		10.0		3.1
114							
116			037				
	No Recovery	-105.40					
118							
120							
122			013		0.0		NA
124							
126							
128							
130							
132			014		0.0		NA
134							
136							
	ML-SILT, some clay, loose to compact, low plasticity, dark gray, saturated	-125.40					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11(2)
DATE COMPLETED: August 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			015		10.0		0
144							
146			038				
148							
150							
152			016		10.0		0
154							
156			039				
	END OF BOREHOLE @ 157.0ft BGS	-145.40					
158	Continuation of boring WMUA-11, previously completed using Geoprobe on 6/6/05.						
160	Ground surface elevation is estimated.						
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-11
DATE COMPLETED: June 6, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, gravel fill	11.10					
	SW-SAND, dark brown, dry		SS1		3.0		0.0
2							
4							
			SS2 001				0.0
6							
	- moist below 7 ft BGS						
8			002				
	- saturated below 9 ft BGS		SS3		4.0		0.0
10							
12							
			SS4		3.8		0.0
14							
16							
	MH-CLAYEY SILT, with sand, dark brown	-5.40	SS5		4.0		17.9
18			003				
	SW-SAND, medium grained, dark brown	-7.40					
20							
			SS6		4.0		2.4
22	- coarse grained below 22 ft BGS						
24			004				
			SS7		4.0		0.0
26							
	END OF BOREHOLE @ 27.0ft BGS	-15.40					
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-12
DATE COMPLETED: June 6, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, gravel	11.10					
	SW-SAND, medium grained, dark brown, dry		SS1		2.5		0.6
2			001				
4			SS2		4.0		0.4
6			002				
8			SS3		4.0		0
10							
12			SS4		4.0		0
14							
16							
	MH-CLAYEY SILT with SAND, dark brown, saturated	-5.40	SS5		4.0		37.8
18			003				
	SW-SAND, some silt, medium grained, dark brown	-7.40					
20							
	- coarse grained below 21 ft BGS		SS6		4.0		24.4
22			004				
24			005				
			SS7		3.7		2.8
26			006				
	END OF BOREHOLE @ 27.0ft BGS	-15.40					
28	Ground surface elevation is estimated.						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval) GRAIN SIZE ANALYSIS (rectangle)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-13
DATE COMPLETED: June 6, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, asphalt, gravel						
2	SP-SAND, medium to fine grained, brown, dry	9.60	1		2.0		0
4							
6			2		4.0		0
8							
10	- moist below 9 ft BGS - wet below 10.5 ft BGS		3		3.0		0
12							
14	SP-SAND, gray, red grains, wet	-1.40	4		4.0		238
16	- silt lense @ 15.5 ft BGS						
18	ML-CLAYEY SILT, saturated	-5.30	5		4.0		65.8
20	SP-SAND, gray, red grains, wet	-8.40					
	MLS-SANDY SILT	-9.00					
22			6		4.0		68.3
	SP-SAND, medium to coarse grained	-11.20					
24							
26			7		3.0		1
28	END OF BOREHOLE @ 28.0ft BGS	-16.40					
30	Ground surface elevation is estimated.						
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-14
DATE COMPLETED: June 13, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, rock fragments, asphalt						
		10.10					
2	SP-SAND, brown, dry		SS1		5.0		NR
4							
6			001/002 SS2		3.0		0.6
8		3.60					
	FILL, sand, rock, gravel						
10	SP-SAND, brown, moist	1.60	SS3 003		3.4		0
12	- 2' of gravel in sand @ 12 ft BGS						
14			SS4		2.0		0
16							
		-5.60					
18	ML-SANDY SILT		SS5 004		3.0		148
20		-8.40					
	SP-SAND, brown, moist						
22			SS6 005		3.0		51.3
24			SS7		3.0		86.7
26		-14.40					
	Not Sampled						
28							
30							
32		-20.40					
	SM-SILTY SAND, gray, saturated	-21.10					
	SP-SAND, brown, moist						
34			006 SS8		3.0		6.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-14
DATE COMPLETED: June 13, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	Not Sampled	-24.40					
38							
40							
42	SP-SAND, brown, moist	-30.40					
44			007 SS9				51.7
46	Not Sampled	-34.40					
48							
50							
52	SP-SAND, brown, moist	-40.40					
54	- slight increase in silt content below 54.5 ft BGS		008 SS10		3.0		7.9
	Not Sampled	-43.40					
56							
58							
60							
62	SP-SAND, medium to coarse grained, gray, red grains	-50.40					
64			009 SS11		3.0		0
	END OF BOREHOLE @ 65.0ft BGS	-53.40					
66	NR = Not Recorded.						
68	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15(2)
DATE COMPLETED: August 7, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-45' BGS - See Log from WMUA-15 for Stratigraphy						
14			SS1 001		4.0		1.6
24			SS2 002		4.0		30.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001, 002)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15(2)
DATE COMPLETED: August 7, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44							
	SP-SAND, trace silt, compact, fine to medium grained, dark brown, saturated	-33.40	001				
46							
	ML-SILT, trace sand, compact, fine grained, dark brown, saturated	-35.40					
48							
50			SS3		12.0		1.7
52							
54							
56			002				2.9
58							
60							
62			SS4		10.0		0.7
64							
66			003				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001, 002, 003)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15(2)
DATE COMPLETED: August 7, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SM-SILTY SAND, compact, fine grained, dark brown, saturated	-60.40	SS5		10.0		0.4
74							
76			004				
78		-67.40					
80	ML-SILT, trace sand, trace clay, compact to dense, dark brown, saturated						
82			SS6		10.0		7.6
84							
86			005				
88	SP-SAND, trace silt, compact, fine to coarse grained, dark brown, white and red grains, saturated	-75.40					
90							
92			SS7		10.0		0.6
94							
96			006				
98	ML-SILT, trace to some clay, compact to dense, dark brown, saturated	-85.40					
100	SP-SAND, trace silt, compact, fine to medium grained, dark brown, white and red grains, saturated	-87.40					
102			SS8		10.0		0.4
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (004, 005, 006)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15(2)
DATE COMPLETED: August 7, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			007				
108							
110							
112			SS9		10.0		0.4
114							
116			008				
118							
120							
122			SS10		10.0		0.1
124							
126			009				
128							
130	ML-SILT, trace sand, trace shells, fine grained, dark brown, saturated	-118.40					
132			SS11		10.0		0.0
134							
136			010				
	END OF BOREHOLE @ 137.0ft BGS	-125.40					
138	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15
DATE COMPLETED: June 4, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand						
	SP-SAND, fine to medium grained, brown, dry	10.90					
2			SS1		3.0		0
4	- 0.5' sand, silt, clay layer @ 4 ft BGS						
6			SS2		3.4		0
			001				
8							
10			SS3		3.8		0
			002				
12							
14	- 3-inch silt layer @ 14.2 ft BGS		SS4 003		4.0		15
16							
			004				
18	- 6-inch silt layer @ 18 ft BGS		SS5		4.0		157
20							
	No Recovery	-8.40					
	SP-SAND, coarse to medium grained, gray with red grains, saturated	-9.40					
22							
			SS6		4.0		187
24			005				
	Not Sampled	-13.40					
26							
28							
30							
32		-20.40					
	SP-SAND, coarse to medium grained, gray with red grains, saturated - 0.32' sandy silt layer @ 32.5 ft BGS		SS7 006		2.5		56.3
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-15
DATE COMPLETED: June 4, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	Not Sampled	-23.40					
38							
40							
42	SP-SAND, medium to fine grained, gray, moist	-30.40	SS8-007		3.0		0
44							
46	END OF BOREHOLE @ 45.0ft BGS	-33.40					
	Ground surface elevation is estimated.						
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS8-007)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-16
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL	11.10					
	SP-SAND						
2			SS1		4.0		
4		7.60					
	SP-SAND, brown, dry						
6			SS2		3.0		0.0
			001				
8							
	- large gravels present from 8.7' BGS to 9.2' BGS						
	- moist below 9.5 ft BGS						
10			002 SS3		2.0		0.0
12							
14			SS4		3.2		15.8
			003				
	- silt lense @ 14.8 ft BGS						
16		-4.40					
	MLS-SILTY SAND						
			004 SS5		1.5		67.2
18							
20		-8.40					
	SP-SAND, medium grained, white and red grains						
22			SS6		3.0		35.8
			005				
			006				
24			SS7		2.0		16.8
		-13.40					
	Not Sampled						
26							
28							
30							
32		-20.40					
	SP-SAND, medium grained, white and red grains						
			SS8		1.2		3.1
34			007				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-16
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	Not Sampled	-23.40					
38							
40							
42	SP-SAND, medium grained, white and red grains	-30.40	SS9 008		3.0		15.8
44		-33.40					
46	Not Sampled						
48							
50							
52							
54	SP-SAND, medium grained, white and red grains	-41.40	009 SS10		2.0		10.7
56	Not Sampled	-43.40					
58							
60							
62							
64	SP-SAND, medium grained, white and red grains	-51.40	010 SS11		2.0		4.8
66	Not Sampled	-53.40					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-16
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SP-SAND, medium grained, white and red grains	-61.40	011 SS12		2.0		11.3
		-63.40					
76	Not Sampled						
78							
80							
82							
84	SP-SAND, medium grained, white and red grains	-71.40	012 SS13		2.0		34.5
		-73.40					
86	Not Sampled						
88							
90							
92							
94	MLS-SANDY SILT, brown water observed	-81.40	013 SS14		2.0		10.8
		-83.40					
96	Not Sampled						
98							
100							
102							
104	SP-SAND, coarse grained, gray, moist	-91.40	014 SS15		2.0		8.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-16
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	Not Sampled	-93.40					
106							
108							
110							
112							
	SP-SAND, coarse grained, gray, moist	-101.40	015 SS16		0.3		8.7
114		-103.40					
	Not Sampled						
116							
118							
120							
122							
	ML-SILT, gray, moist	-111.40	016 SS17		2.5		10.8
124	- some red present below 124.6 ft BGS						
	END OF BOREHOLE @ 125.0ft BGS	-113.40					
126	Ground surface elevation is estimated.						
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-17
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand	11.30					
	SP-SAND, medium grained, brown, dry						
2			SS1		3.3		0.0
4							
6			SS2		4.0		3.7
			001				
8							
	- 0.2' section with gravel present @ 9 ft BGS		002				
10			SS3		4.0		5.8
12							
	- gray below 13 ft BGS						
	- 0.05' silt lense @ 13.5 ft BGS		003				
14	- 0.05' silt lense @ 13.7 ft BGS		SS4		4.0		10.4
16	- saturated below 16 ft BGS						
	- silt lense @ 17.5 ft BGS						
18			SS5		3.0		14.7
			004				
20							
22			SS6		4.0		33.7
			005				
24	SP-SAND, medium to coarse grained, red and white grains, saturated	-12.40					
26			SS7		4.0		38.7
			006				
28	Not Sampled	-16.40					
30							
32	SP-SAND, medium to coarse grained, red and white grains, saturated	-20.40					
	MLS-SANDY SILT, saturated	-21.40	SS8		4.0		23.7
34			007				
		-22.90					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-17
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND, medium to coarse grained, red and white grains, saturated						
	Not Sampled	-24.40					
38							
40							
42	SP-SAND, medium to coarse grained, red and white grains, saturated	-30.40					
44			008 SS9		4.0		68.5
46	Not Sampled	-34.40					
48							
50							
52	SP-SAND, fine to medium grained, red and white grains, saturated	-40.40					
54			009 SS10		3.0		159
56	Not Sampled	-44.40					
58	MLS-SANDY SILT	-46.40					
60			SS11 010		2.0		71.9
62	Not Sampled	-50.40					
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-17
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SP-SAND, fine to medium grained, gray, moist, densely packed	-60.40	011 SS12		3.0		94.6
74		-63.40					
	Not Sampled						
76							
78							
80							
82	SP-SAND, fine to medium grained, gray, moist, densely packed	-70.40	012 SS13		1.5		34.6
84		-73.40					
	Not Sampled						
86							
88							
90							
92	SP-SAND, fine to medium grained, gray, moist, densely packed	-80.40	013 SS14		3.0		23.0
94	MLS-SANDY SILT	-82.00					
	Not Sampled	-83.40					
96							
98							
100							
102	ML-silt lense	-90.40					
	SP-SAND, medium to fine grained, gray	-90.90	014 SS15		2.0		987
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-17
DATE COMPLETED: June 16, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	Not Sampled	-93.40					
112	SP/SM-SAND with SILT, gray, moist	-100.40					
	MLS-SANDY SILT, gray, moist	-101.40	015 SS16		3.5		6.3
114	END OF BOREHOLE @ 115.0ft BGS	-103.40					
116	Refusal at 115 ft BGS.						
118	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-18
DATE COMPLETED: June 8, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	FILL	10.60					
	SP-SAND, brown, dry						
2			SS1		3.0		0
4			001				
6			SS2		3.5		NR
8							
10			SS3		3.4		NR
			002				
12	- saturated below 12.5 ft BGs						
14	- silt lense @ 14.5 ft BGS		SS4 003/004		4.0		2
16							
18			SS5 005		4.0		2
	ML-CLAYEY SILT	-6.90					
	SP-SAND, some silt, brown, saturated	-7.40					
20							
22	SP-SAND, medium to coarse grained, gray, saturated	-10.40	SS6 006		3.5		7
24							
26			007 SS7		3.8		19.6
28							
30			SS8		4.0		99.7
	- 4-inch silt lense @ 31.3 ft BGS		008				
32	- minor silt content from 33 to 34 ft BGS						
34			SS9		4.0		289

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-18
DATE COMPLETED: June 8, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- red grains present below 36 ft BGS						
38			SS10		4.0		241
			009				
40	No Recovery	-28.40					
42			SS11				118
44	SP-SAND, medium to coarse grained, gray with red grains, saturated	-32.40					
46	SM-SILTY SAND, gray, saturated	-34.40	SS12		3.0		36.8
			010				
48	SP-SAND, medium to coarse grained, gray with red grains, saturated	-36.40					
	- 2-inch silty sand layer @ 48.8 ft BGS						
50	- 2-inch silty sand layer @ 49.8 ft BGS		SS13		3.0		16
	- 2-inch silty sand layer @ 50.8 ft BGS						
52							
54			SS14		4.0		32
	- silty sands from 55 to 56 ft BGS						
56			011				
58			SS15		4.0		38
60							
62			SS16		4.0		34
			012				
64							
66			SS17		4.0		32
68							
	- 0.5-inch silt lense @ 69 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-18
DATE COMPLETED: June 8, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
			SS18		3.4		59.7
72	- 0.5-inch silt lense @ 71.2 ft BGS - 1-inch silty sand layer @ 72.3 ft BGS - 1-inch silty sand layer @ 73 ft BGS - wood debris present below 73.1 ft BGS		013				
74			SS19		3.0		219
76	ML-CLAYEY SILT, gray, saturated	-64.40					
78			SS20		3.0		2.5
80	SP-SAND, medium to coarse grained, gray with red grains, saturated	-68.40					
82		-70.40	SS21		4.0		51.8
	SM-SILT and SAND, gray, saturated	-70.90					
	SP-SAND, medium to coarse grained, gray with red grains, saturated		014				
84	Not Sampled	-72.40					
86							
88							
90	SP-SAND, medium to coarse grained, gray, saturated	-78.40					
92			015 SS22		4.0		82.3
94	Not Sampled	-82.40					
96							
98							
100	SP-SAND, medium to coarse grained, gray, saturated	-88.40					
			016				
102			SS23		2.0		123
104	SM-SAND and SILT	-92.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-18
DATE COMPLETED: June 8, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			017 SS24		4.0		6.5
108	END OF BOREHOLE @ 108.0ft BGS	-96.40					
110	Refusal at 108 ft. BGS.						
112	NR = Not Recorded						
114	Ground surface elevation is estimated.						
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-19
DATE COMPLETED: June 7, 2005
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Suroweicki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand, asphalt						
	SP-SAND, brown, dry	10.60					
2			SS1		3.0		0.5
4	- 2-inch gravel fill layer @ 4.5 ft BGS						
6			001 SS2		3.0		0
8							
	SPG-GRAVEL/SAND	2.60					
10	SP-SAND, brown, wet	2.10	002 SS3		2.5		0
12							
	SPG-GRAVEL/SAND	-1.10					
14	SP-SAND, brown, saturated	-2.30	SS4		3.0		0
16							
	- 2-inch silty sand layer, gray, moist @ 17 ft BGS						
18			SS5 003		3.0		58.3
	SM-SILTY SAND, gray, moist	-6.70					
20			004				
	SP-SAND, coarse grained, gray with red grains	-10.00					
22			SS6		3.4		5
24							
26	- 2-inch silt lense @ 26 ft BGS		005 SS7		3.5		0
28							
	END OF BOREHOLE @ 28.0ft BGS	-16.40					
30	Ground surface elevation is estimated.						
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-20
DATE COMPLETED: July 17, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.60					
0	SM-SILTY SAND, with gravel, compact, fine to coarse grained sand and gravel, poorly graded, light brown, moist						
2		9.60					
4	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, light to dark brown, moist		S1		4.0		19.3
	- coarse gravel seam with clay @ 5 ft BGS		001				
6		5.60 ▽					
	SP-SAND, trace silt, trace shells, compact, fine to medium grained sand, poorly graded, dark gray with white and red grains, saturated		002				
8			S2		5.0		8.1
10							
12							
14	- 6" silt seam @ 14, 15, and 16 ft BGS		S3		5.0		20.4
16			003				
18							
20			S4		5.0		10.3
22							
24			S5		5.0		13.7
26			004				
	- 6" silt seam @ 27 ft BGS						
28							
30			S6		5.0		2.4
	SM-ML-SANDY SILT, trace shells, compact, fine grained sand, poorly graded, dark gray, saturated	-18.40					
32			006				
34			S7		5.0		4.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-20
DATE COMPLETED: July 17, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, trace shells, compact, fine to medium grained, poorly graded, dark gray with white and red grains, saturated	-24.40					
		-25.40					
38	SP-SM-SILTY SAND, compact, fine to medium grained sand, poorly graded, dark gray, saturated		S8				0.2
40							
42							
44			S9				0.4
46			007				
48	SM-SILTY SAND, compact, fine to medium grained, poorly graded, dark gray	-35.40					
50			S10				0.5
52							
54	ML-SILT with SAND, fine grained sand, poorly graded, dark gray	-42.40	008 S11				0.5
		-43.40					
56	SP-SAND, trace silt, trace shells, compact, fine to medium grained sand, poorly graded, dark gray with white and red grains, saturated	-44.40					
	ML-SILT with SAND, compact, fine grained sand, poorly graded, dark gray	-45.40					
58	SP-SAND, trace silt, trace shells, compact, fine to medium grained sand, poorly graded, dark gray with white and red grains, saturated	-46.40					
60	ML-SILT with SAND, compact, fine grained sand, poorly graded, dark gray		S12				0.2
62							
64			009 S13				0.1
66							
68	No Recovery. Lost core.	-55.40	S14				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-20
DATE COMPLETED: July 17, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	PID (ppm)
72							
74			S15				
76							
78							
80			S16				
82	SM-ML-SANDY SILT, trace shells, compact, fine grained, poorly graded, dark gray, saturated	-70.40					
84			010 S17				0
86							
88							
90			S18				0.1
92							
94			011 S19				0.2
96	END OF BOREHOLE @ 97.0ft BGS	-85.40					
98	Ground surface elevation is estimated.						
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-21
DATE COMPLETED: July 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SM-SILTY SAND with GRAVEL, compact, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, light brown, moist						
2		9.60					
	SP-SAND, with gravel, trace shells, compact, fine to coarse grained gravel, fine grained sand, poorly graded, light to dark gray, moist		SS1		4.0		311
4							
			001				
6							
			002				
8							
			SS2		6.0		12.5
10							
12							
14							
			SS3		5.0		54.3
		-3.40					
16	SM-SILTY SAND, trace shell fragments, compact, poorly graded, dark gray, fine to medium red and white grains, saturated		003				
18	- 1' silt layer @ 18 ft BGS						
		-7.40					
20	SP-SAND, with gravel, trace shells, compact, fine to coarse grained gravel, fine grained sand, poorly graded, light to dark gray, moist		SS4		5.0		20.5
22							
		-11.40					
24	SM-SILTY SAND, trace shell fragments, trace wood debris, compact, poorly graded, dark gray, fine to medium red and white grains, saturated		SS5		5.0		58.6
	- 1' silt layer with sand, dark gray (ML) @ 25 ft BGS		004				
26							
28							
			SS6		5.0		36.6
30							
32			005				
34			SS7		5.0		10.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-21
DATE COMPLETED: July 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40			SS8		5.0		0.5
42			006				
44	- 1.5' silt layer with sand, dark gray (ML) @ 44 ft BGS		SS9		5.0		0.2
46							
48							
50			SS10		5.0		0.5
52			007				
54			SS11		5.0		2.4
56							
58							
60			SS12		5.0		0.4
62			008				
64	SP-SAND, with gravel, trace shells, compact, fine to coarse grained gravel, fine grained sand, poorly graded, light to dark gray, moist	-51.40	SS13		5.0		4.5
66							
68	ML-SILT, trace sand, compact, fine grained, poorly graded, non-plastic, dark gray, saturated	-55.40 ▽	009 SS14		5.0		1.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-21
DATE COMPLETED: July 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74			SS15		5.0		0.3
	SM/ML-SANDY SILT, compact, fine to medium grained, poorly graded, dark gray	-63.40					
76							
78							
	- 1" silt seam (ML) @ 79.5 ft BGS		SS16		5.0		1.2
80	ML-SILT, trace sand, compact, fine grained, poorly graded, non-plastic, dark gray, saturated	-68.40					
82							
84			SS17		5.0		4.8
			010				
86							
88							
90			SS18		5.0		6.7
92							
94			011				
			SS19		5.0		30.2
96							
	SM/ML-SANDY SILT, compact, fine to medium grained, poorly graded, dark gray, fishy odor	-85.40					
98							
100			SS20		5.0		14.3
102							
104			SS21		5.0		12.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-21
DATE COMPLETED: July 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
		-95.40	012				
108	ML-SILT, trace sand, compact, fine grained, poorly graded, non-plastic, dark gray, saturated						
			SS22		5.0		13.8
110							
112		-100.40					
	SM-SILTY SAND, trace shell fragments, compact, poorly graded, dark gray, fine to medium red and white grains, saturated						
114			013 SS23		5.0		0.4
116							
		-105.40					
118	ML-SILT, trace sand, compact, fine grained, poorly graded, non-plastic, dark gray, saturated						
			SS24		5.0		0.8
120							
122							
124			014 SS25		5.0		0.9
126							
	- trace shells below 127 ft BGS						
128							
			SS26		5.0		0.5
130							
132							
134			015 SS27		5.0		0.6
136							
138							
			SS28		5.0		0.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-21
DATE COMPLETED: July 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144			016 SS29		5.0		0.4
146							
	END OF BOREHOLE @ 147.0ft BGS	-135.40					
148	Ground surface elevation is estimated.						
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-22
DATE COMPLETED: July 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers/L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SM-SILTY SAND with GRAVEL, compact, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, light brown, moist						
2		9.60	001 SS1		4.0		2.5
	SP-SAND, trace silt, trace shells, compact, fine grained, poorly graded, dark brown, moist						
4			002				
6	- saturated below 5.9 ft BGS	5.60					
	SM-SILTY SAND with GRAVEL, compact, fine grained gravel, fine grained sand, trace medium to coarse grained sand, poorly graded, moist to very moist						
8			SS2		4.0		0.8
10							
12							
14			SS3		4.0		1.0
		-3.40	003				
	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated						
16							
18							
20			SS4		5.0		34.7
22							
24			004 SS5		5.0		51.9
26							
28	- 0.32' silty sand seam, trace shell, trace wood fragments, compact, fine grained, poorly graded, gray, saturated @ 28.5 ft BGS						
30	- 0.64' silty sand seam, trace shell, trace wood fragments, compact, fine grained, poorly graded, gray, saturated @ 29.5 ft BGS		SS6		5.0		6.7
32							
34			005 SS7		5.0		21.9

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-22
DATE COMPLETED: July 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers/L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- 0.48' silty sand seam, trace shell, trace wood fragments, compact, fine grained, poorly graded, gray, saturated @ 35 ft BGS						
38							
40			SS8		5.0		51.3
	SM/ML-SANDY SILT, compact, fine grained, non-plastic, medium gray, saturated	-28.40					
42			006				
44			SS9		5.0		53.6
	SM-SAND with SILT, compact, fine to medium grained, poorly graded, dark gray, wet	-33.40					
46							
48							
50			SS10		5.0		27.0
	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated	-39.40					
52			007				
54	- 0.16' sandy silt seam, compact, fine grained, non-plastic, medium gray, saturated @ 54 ft BGS		SS11		5.0		60.8
56	- sand with silt seam, compact, fine to medium grained, poorly graded, dark gray @ 56 ft BGS						
	ML-SILT with SAND, compact, fine grained sand, non-plastic, medium gray, saturated	-45.40					
58							
60			SS12		5.0		0
62							
64			008 SS13		5.0		0
66							
68							
	- 0.48' wood debris @ 69 ft BGS		SS14		5.0		4.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-22
DATE COMPLETED: July 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers/L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	- 0.08' sand with silt seam, compact, fine to medium grained, poorly graded, dark gray, wet @ 72 ft BGS						
74			SS15 009		5.0		25.2
76	SM/ML-SANDY SILT, compact, fine grained, non-plastic, medium gray, saturated	-64.40					
78							
80	- 0.48' sand seam, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated @ 79 ft BGS		SS16				41.5
82			010				
84			SS17				43.6
86	- 0.48' sand seam, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated @ 86 ft BGS						
88							
90			SS18				11.8
92	- 0.16' sand seam, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated @ 91 ft BGS		011				
94			SS19				0
96	SM-SILTY SAND, compact, fine to medium grained, non-plastic, medium gray	-83.40					
98	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated	-85.40					
100	- 0.4' silty sand seam, compact, fine to medium grained, non-plastic, medium gray @ 99 ft BGS		SS20				0
102							
104	ML-SILT with SAND, compact, fine grained, non-plastic, poorly graded, dark gray,	-92.40	012 SS21				0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-22
DATE COMPLETED: July 14, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers/L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	saturated						
106							
108							
110			SS22				1.5
112			013				
114	- 0.4' sandy silt seam, compact, fine grained, non-plastic, medium gray, saturated @ 114 ft BGS		SS23				3.8
116							
	ML-SILT, trace sand, trace clay, trace shells, firm/compact, fine grained, very low plasticity, poorly graded, dark gray, saturated to very moist	-105.40					
118							
120			SS24				
122			015				
124			SS25				
126							
	SM/ML-SANDY SILT, compact, fine grained, non-plastic, medium gray, saturated	-115.40					
128							
130			SS26				
132			014				
134			SS27				
	ML-SILT, trace sand, trace clay, trace shells, firm to compact, fine grained, very low plasticity, poorly graded, dark gray, saturated to very moist	-123.40					
136							
	END OF BOREHOLE @ 137.0ft BGS	-125.40					
138	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-23
DATE COMPLETED: July 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.27					
	SM-SILTY SAND with GRAVEL, compact, fine to coarse grained gravel, fine to coarse grained sand, poorly graded, medium brown, moist						
2							
	SP-SAND, trace silt, trace shell debris, compact, fine grained, poorly graded, dark brown, trace red and white grains, moist	8.60	SS1		6.0		1599
4			001				
6							
	- very moist below 7 ft BGS		002				
8	- gray, saturated below 8 ft BGS		SS2		5.0		25.9
10							
12							
			SS3		5.0		15.8
14			003				
16							
18			SS4		5.0		18.8
20			004				
22							
	SM/ML-SAND and SILT, trace shells, compact, fine grained, poorly graded, non-plastic, gray, saturated	-11.40	SS5		5.0		8.0
24			005				
		-13.40					
26	SP-SAND, trace silt, trace shell debris, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated	-14.40					
	SM/ML-SAND and SILT, trace shells, compact, fine grained, poorly graded, non-plastic, gray, saturated	-15.90					
28	SP-SAND, trace silt, trace shell debris, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated		SS6		5.0		8.0
30							
32							
	SM/ML-SAND and SILT, trace shells, compact, fine grained, poorly graded, non-plastic, gray, saturated	-21.40	SS7		5.0		7.6
34			006				
		-22.90					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-23
DATE COMPLETED: July 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND, trace silt, trace shell debris, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated						
38			SS8		5.0		4.6
40							
42							
44			SS9 007		5.0		11.3
46							
48			SS10		5.0		4.5
50							
52	ML-SILT, trace sand, trace wood and shell fragments, compact, fine grained, non-plastic, gray, saturated	-39.40	SS11 008		5.0		14.6
54							
56	SP-SAND, trace silt, trace shell debris, compact, fine grained, poorly graded, dark brown, trace red and white grains, saturated	-43.40					
58	SM/ML-SAND and SILT, compact, fine grained, poorly graded, non-plastic, gray, saturated, trace silt lenses (<0.08' thick)	-45.40	SS12		5.0		4.1
60							
62							
64			SS13 009		5.0		13.6
66	SP-SAND, trace silt, trace wood debris, compact, fine grained, poorly graded, gray, saturated	-53.40					
68	SM-SILTY SAND, trace wood debris, compact, fine grained, poorly graded, gray, saturated	-56.40	SS14		5.0		19.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-23
DATE COMPLETED: July 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
		-59.40					
72	SP-SAND, trace silt, trace wood debris, compact, fine grained, poorly graded, gray, saturated	-61.40					
74	SM-SILTY SAND, trace wood debris, compact, fine grained, poorly graded, gray, saturated	-64.40	SS15 010		5.0		24.8
76	ML-SILT, trace sand, compact, fine grained, non-plastic, medium gray, saturated, sulfur-like odor						
78			SS16		5.0		19.5
80							
82							
84	SP-SAND, trace to with SILT, compact, fine grained, trace medium grained, poorly graded, gray, saturated	-71.40	SS17 011		5.0		21.2
86							
88			SS18		5.0		83.9
90			012				
92	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-79.40					
94			SS19		5.0		34.6
96							
98			SS20		5.0		8.9
100	ML-SILT, trace clay, trace sand, trace shell fragments, firm/compact, fine grained, non-plastic, medium gray, moist	-87.40	013				
102							
104			SS21		5.0		2.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-23
DATE COMPLETED: July 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108			SS22		5.0		2.3
110							
112							
114			SS23		5.0		2.4
	SP-SAND, trace silt, trace to with shell fragments, compact, fine to coarse grained, poorly graded, gray, trace red and white grains, saturated	-102.40	014				
116							
118			SS24		5.0		18.9
	- fine grained, trace medium to coarse grained below 119 ft BGS						
120							
122							
124			SS25		5.0		22.6
			015				
126	ML-SILT, trace clay, trace sand, trace shell fragments, firm/compact, fine grained, non-plastic, medium gray, moist	-114.40					
128			SS26		5.0		8.8
130							
132	- increase in clay content, very low plasticity below 133 ft BGS						
134			SS27		5.0		9.3
			016				
136	- decrease in clay content, non-plastic below 136 ft BGS						
138			SS28		5.0		8.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (014, 015, 016)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-23
DATE COMPLETED: July 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144			SS29 (017)		5.0		6.6
	END OF BOREHOLE @ 145.0ft BGS	-133.40					
146	Ground surface elevation is estimated.						
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (017)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-24
DATE COMPLETED: July 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.27					
	SM-SILTY SAND with GRAVEL, fine gravel, compact, fine to coarse grained sand, poorly graded, medium brown, moist						
2	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, moist, trace shell fragments, trace red and white grains	9.60	SS1		6.0		25.3
4			001				
6			002				
	- very moist						
8	- saturated, gray						
			SS2		6.0		28.4
10							
12							
14			SS3		5.0		22.3
			003				
16							
18							
20			SS4		5.0		4.3
22							
24			004				
			SS5		5.0		3.9
26							
28	- 0.08' silt seam, compact, trace fine grained sand, non-plastic, gray, saturated						
			SS6		5.0		12.1
30							
32							
34			005				
			SS7		5.0		12.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-24
DATE COMPLETED: July 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40			SS8		5.0		18.8
42							
44			006 SS9		5.0		14.2
46							
48							
50			SS10		5.0		16.5
52	ML-SILT with SAND, fine grained sand, compact, non-plastic, gray, saturated, trace shell fragments	-40.40	007				
54			SS11		5.0		20.1
56							
58							
60			SS12		5.0		12.4
62							
64	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated, trace shells and wood fragments	-51.40	008 SS13		5.0		12.6
66							
68			SS14		5.0		10.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-24
DATE COMPLETED: July 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74			009 SS15		5.0		9.4
76							
78							
80			SS16		5.0		12.5
82							
84	- sulfur/organic odor		010 SS17		5.0		12.3
86							
88							
90			SS18		5.0		10.3
92	ML-SILT with SAND, fine grained sand, compact, non-plastic, gray, saturated, trace shell fragments, sulfur/organic odor	-80.40					
94			011 SS19		5.0		11.0
96							
98							
100			SS20		5.0		9.8
102	SP-SAND, trace silt, compact, fine grained, poorly graded, gray, saturated, trace shell fragments, trace red and white grains	-90.40					
104			012 SS21		5.0		10.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-24
DATE COMPLETED: July 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110			SS22		5.0		11.7
112							
114			013 SS23		5.0		14.8
116	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated, trace shells and wood fragments	-103.40					
118	ML-SILT with SAND, fine grained sand, compact, non-plastic, gray, saturated, trace shell fragments, sulfur/organic odor	-105.40					
120			SS24		5.0		10.1
122							
124			014 SS25		5.0		7.8
126	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated, trace shells and wood fragments	-113.40					
128	ML-SILT, trace sand and clay, firm/compact, non-plastic, gray, moist, clay content increases with depth and plasticity changes to very low plasticity	-115.40					
130			SS26		5.0		9.3
132							
134			015 SS27		5.0		8.8
136							
138			SS28		5.0		8.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-24
DATE COMPLETED: July 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144			SS29 016		3.0		8.3
	END OF BOREHOLE @ 145.0ft BGS	-133.40					
146	Ground surface elevation is estimated.						
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-25
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM-SILTY SAND with GRAVEL, fine to coarse gravel, compact, fine to coarse sand, poorly graded, brown, moist						
2	SP-SAND, trace silt, compact, fine grained, poorly graded, dark brown, moist, trace shell fragments	9.60					
			SS1		6.0		8.5
4			001				
6			002				
	- very moist						
8	- saturated, trace red and white grains						
			SS2		6.0		12.1
10							
12							
14			003 SS3		5.0		9.8
16							
18							
20			SS4		5.0		10.1
22							
24			004 SS5		5.0		9.6
26							
28							
	- 1' silty sand seam, compact, fine grained, poorly graded, gray, saturated, trace woody and shell fragments						
30			SS6		5.0		8.5
32							
34		-22.40					
	SM/ML-SAND and SILT, compact, fine sand, non-plastic, gray, saturated, trace		SS7		5.0		8.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-25
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	shell fragments		005				
38							
40			SS8		5.0		4.5
42							
44			006 SS9		5.0		4.1
46							
48							
50			SS10		5.0		3.2
52	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-39.40					
54			007 SS11		5.0		8.1
56							
58							
60			SS12		5.0		10.1
62	- sand with silt						
64			008				
66	SM/ML-SAND and SILT, compact, fine sand, non-plastic, gray, saturated, trace shell fragments	-52.40	SS13		5.0		10
68							
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated	-56.40	SS14		5.0		13.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-25
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74			009 SS15		5.0		19.8
76							
78							
80			SS16				16.1
	ML-SILT with fine SAND, compact, non-plastic, gray, very moist to saturated	-68.40	010				
82							
84			SS17				9.0
86							
88							
90			SS18				14.9
92							
	SP-SAND, trace silt, compact, fine to medium grained, trace coarse grained, poorly graded, medium gray, saturated, trace shell fragments, trace red and white grains, sulfur/organic like odor	-80.40	011				
94			SS19				12.1
	- fine grained, trace medium to coarse grained						
96							
98							
	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated, with sulfur/organic like odor	-86.40					
100			SS20		5.0		10.1
102							
104			012 SS21		5.0		9.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-25
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	SP-SAND, trace silt, compact, fine to medium grained, trace coarse grained, poorly graded, medium gray, saturated, trace shell fragments, trace red and white grains, sulfur/organic like odor	-94.40					
108							
110	SM-SILTY SAND, compact, fine grained, poorly graded, gray, saturated, with sulfur/organic like odor	-97.40	SS22		5.0		13.2
112							
114			013 SS23		5.0		10.9
116							
118	- 0.8' sand seam, compact, fine to medium grained, poorly graded, medium gray, saturated		SS24		5.0		8.4
120							
122							
124			014 SS25		5.0		4.2
126	ML-SILT with fine SAND, trace clay, compact/firm, non-plastic, gray, very moist	-113.40					
128							
130			SS26		5.0		3.8
132							
134	- 2' silty sand seam, compact, fine grained, poorly graded, gray, saturated		SS27 015		5.0		2.0
136							
138			SS28		5.0		2.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-25
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144			SS29 016		3.0		2.1
	END OF BOREHOLE @ 145.0ft BGS	-133.40					
146	Ground surface elevation is estimated.						
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS29 016)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-26
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	ASPHALT	11.30					
	SM-SILTY SAND with GRAVEL, compact, fine to coarse grained, fine to coarse grained gravel, poorly graded, brown, moist						
2	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark brown, moist	9.60	SS1		6.0		1.8
4			001/002				
6			003				
8	- saturated below 8 ft BGS		SS2		6.0		2.1
10							
12							
14			004 SS3		5.0		4.7
	SM-SAND with SILT, compact, fine grained, poorly graded, gray, saturated	-3.40					
16							
	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, trace red and white grains, saturated	-5.40					
18							
20			SS4		5.0		13.9
22							
24			005 SS5		5.0		15.9
	- 0.8' silty sand seam, with shell fragments, fine grained, poorly graded, gray, saturated @ 25 ft BGS						
26							
28							
30			SS6		5.0		6.4
32							
34			006 SS7		5.0		11.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-26
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	ML-SILT with SAND, trace shell fragments, compact, fine grained, non-plastic, gray, very moist to saturated	-23.40					
38	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, trace red and white grains, saturated	-25.40	SS8		5.0		2.0
40	SM-SILTY SAND, trace shell fragments, compact, fine grained, poorly graded, gray, saturated	-28.40					
42							
44			SS9 007		5.0		7.6
46							
48							
50			SS10		5.0		129
52			008				
54	- increase in silt content below 54 ft BGS		SS11		5.0		126
56							
58	ML-SILT with SAND, trace shell fragments, compact, fine grained, non-plastic, gray, very moist to saturated	-45.40	SS12		5.0		0.2
60							
62							
64			009 SS13		5.0		0.8
66							
68			SS14		5.0		2.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-26
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
	SP-SAND, trace silt, trace shell fragments, compact, fine grained, trace medium to coarse grained, poorly graded, dark gray, trace red and white grains, saturated	-60.40	010 SS15		5.0		3.5
74							
76	- 0.5' silt lense @ 76.5 ft BGS						
78							
80			SS16		5.0		0.2
82							
84			011 SS17		5.0		0.3
86							
88							
90			SS18		5.0		1.0
92							
94			012 SS19		5.0		1.0
96							
98							
100			SS20		5.0		1.1
102	SM-SILTY SAND, trace shell fragments, compact, fine grained, poorly graded, gray, saturated	-90.40					
104			013/014 SS21		5.0		1.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-26
DATE COMPLETED: July 13, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110			SS22		5.0		0.9
	ML-SILT with SAND, fine grained, compact, non-plastic, gray, very moist to saturated	-99.40					
112							
114			SS23		5.0		1.1
116	SM-SILTY SAND, trace shell fragments, compact, fine grained, poorly graded, gray, saturated	-104.40					
	END OF BOREHOLE @ 117.0ft BGS	-105.40					
118	Ground surface elevation is estimated.						
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-27
DATE COMPLETED: October 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Hand Augered. Not Sampled.						
6	SP-SAND, fine to medium grained, loose, dark brown to black, moist	5.60	SS1				
14			001		10.0		31.4
16	SP-SAND, medium with fine sand, trace silt, dark brown to black, wet	-4.40					
24			SS2 002		10.0		24.4
26	SP-SAND, fine to medium grained, trace silt, dark brown-gray, trace shells, wet	-14.40					
34	- 1" layer of organic matter		SS3 003		10.0		17.25

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-27
DATE COMPLETED: October 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SM-SILTY SAND, fine, trace shells, dark gray, wet	-24.40					
38							
40							
			SS4				
42							
44			004		10.0		42.7
46	- increased silt content						
48							
50							
			SS5				
52							
54			005		10.0		38.6
56							
58							
60							
			SS6				
62							
64			006		10.0		38.4
66	ML-SILT, with fine sand, trace shells, gray, wet	-54.40					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-27
DATE COMPLETED: October 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SM-SAND, and SILT, gray, wet	-58.40	SS7				
74	SP-SAND, fine to medium, dark brown to black, with red and white grains, moist to wet	-61.40	007		10.0		3.6
76	SP-SAND, medium to coarse, dark brown-black, moist to wet	-64.40					
78							
80							
82			SS8				
84	SP-SAND, medium to fine grained, dark brown to black, trace wood fragments, moist to wet	-71.40	008		10.0		0
86	SP-SAND, fine, gray, trace silt, moist	-74.40					
88							
90							
92	SP-SAND, medium to fine grained, dark brown to black, moist	-79.90	SS9				
94			009		10.0		0
96	SP-SAND, fine to medium, black, very wet	-84.40					
98							
100			SS10				
102							
104			010		10.0		4.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-27
DATE COMPLETED: October 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	SP-SAND, fine to medium, trace silt, dark gray to black	-94.40					
108							
110			SS11				
112							
114			011		10.0		0
116	- increased silt content						
118							
120			SS12				
122							
124			012		10.0		0
126	SM-SILTY SAND, fine, trace organic matter (wood/straw-like pieces), trace clay, gray, moist	-114.40					
128							
130			SS13				
132	- 1" layer of sand, medium grained (SP)						
134			013		10.0		0
136	No Recovery	-124.40					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (011)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-27
DATE COMPLETED: October 12, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
146	No Recovery	-134.40					
148							
150							
152							
154							
156	ML-SILT, with fine sand, trace shells, trace organic matter, gray, wet	-144.40					
158							
160							
162			SS14				
164			014		10.0		0
166	END OF BOREHOLE @ 166.0ft BGS	-154.40					
168	Ground surface elevation is estimated.						
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28(2)
DATE COMPLETED: October 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	0-106' BGS - See Log from MWUA-28 for Stratigraphy						
14			001		10.0		28.1
24			002		10.0		124
34			003		10.0		35.7

SS1 SS2 SS3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28(2)
DATE COMPLETED: October 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42			SS4				
44			004		10.0		127
46							
48							
50			SS5				
52							
54			005		10.0		8.7
56							
58							
60			SS6				
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28(2)
DATE COMPLETED: October 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82			SS7				
84			006		10.0		1.4
86							
88							
90							
92			SS8				
94			007		10.0		1.1
96							
98							
100							
102			SS9				
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (006, 007)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28(2)
DATE COMPLETED: October 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	SP-SAND, fine to medium grained, trace silt, dark gray, moist	-94.40					
108							
110							
			SS10				
112							
114			009		10.0		0.7
116							
118							
120							
			SS11				
122							
124			010		10.0		0.0
126							
128							
130							
			SS12				
132							
134			011		10.0		
136	SM-SILTY SAND, fine, dark gray, wet	-124.40					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28(2)
DATE COMPLETED: October 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS13				
144			012		8.0		0.0
146	SM-SILTY SAND, fine to medium, dark gray, wet, trace organic matter	-134.40					
148							
150			SS14				
152							
154	- 4" thick layer of clay, gray, wet		013		10.0		0.0
156	END OF BOREHOLE @ 156.0ft BGS	-144.40					
	Ground surface elevation is estimated.						
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28
DATE COMPLETED: August 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Hand-augered as part of utility check						
8	No Recovery	3.60					
10			SS1		0.0		
12	SP-SAND, trace silt, loose, fine to medium grained, poorly sorted, dark brown, red and white grains, dry	-0.40	011 SS2		2.0		0.4
14	- shells present, fine to coarse grained, dry to moist below 14 ft BGS		012/013 SS3		3.0		0.4
16							
18	SM-SILTY SAND, loose, fine grained to medium grained, dark brown, red and white grains, saturated	-5.40					
20			014				39.6
22	SP-SAND, trace silt, shells present, loose, fine to coarse grained, dark brown, red and white grains, saturated	-10.40	SS4				
24							
26			015				59.6
28							
30							
32			SS5		10.0		49.5
34	ML-SILT, trace sand, trace clay, shells present, loose to compact, dark brown,	-22.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28
DATE COMPLETED: August 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	saturated		016				
	SP-SAND, trace silt, shells present, loose, fine to coarse grained, dark brown, red and white grains, saturated	-25.40					
38							
40							
42		-30.40	SS6		10.0		28.3
	ML-SILT, trace sand, trace clay, compact, dark brown, saturated						
44							
46			017				
48							
50							
52			SS7		10.0		59.2
54							
56			018				
	SM-SAND with SILT, shells present, compact, dark brown, red and white grains, saturated	-45.40					
58							
60	ML-SILT, trace sand, compact, dark brown, saturated	-48.40					
62			SS8		10.0		15.3
64							
66			019				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28
DATE COMPLETED: August 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS9		10.0		1.6
74							
76			020				
	SM-SILTY SAND, shells present, loose to compact, dark brown, red and white grains, saturated	-65.40					
78							
80							
82			SS10		10.0		0.2
84							
86			021				
	- silt lense @ 87.5 ft BGS						
88	SP-SAND, trace silt, loose to compact, dark brown, red and white grains, saturated	-76.40					
90							
92			SS11		10.0		0.1
94							
96			022				
	SM-SILTY SAND, loose to compact, dark brown, red and white grains, saturated	-85.40					
98							
100							
102			SS12		10.0		0.0
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-28
DATE COMPLETED: August 11, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			023/024	X			
	END OF BOREHOLE @ 107.0ft BGS	-95.40					
108	Ground surface elevation is estimated.						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (023/024)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-29
DATE COMPLETED: July 19, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	ASPHALT	11.30					
	SM-SILTY SAND, fine to coarse grained gravel, compact, fine to coarse grained sand, poorly graded, light brown, moist						
2	SP-SAND, trace silt, trace gravel, trace shell fragments, compact, fine to coarse grained sand, fine grained gravel, poorly graded, dark brown, moist	9.60					
			SS1		6.0		0.8
4			001				
6	- very moist below 6 ft BGS		002				0.7
	- saturated below 7 ft BGS ▽						
8							
			SS2		6.0		42.9
10							
12							
14			SS3		5.0		431
			003				
16	SM-SAND with SILT, compact, fine grained, poorly graded, gray, saturated	-4.40					
18	SP-SAND, trace silt, trace gravel, trace shell fragments, compact, fine grained sand, trace coarse grained sand, fine grained gravel, poorly graded, dark brown, red and white grains, moist	-6.40					
20			SS4		5.0		73.7
22							
			004				
24			SS5		5.0		107
26							
28							
			SS6		5.0		83.7
30							
32			005				
	- 10" SM-SILTY SAND seam, compact, fine grained, poorly graded, gray, saturated @ 33 ft BGS						
34			SS7		5.0		89.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-29
DATE COMPLETED: July 19, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	- 6" SM-SAND with SILT seam, compact, fine grained, poorly graded, gray, saturated @ 35 ft BGS - 8" SM-SAND with SILT seam, compact, fine grained, poorly graded, gray, saturated @ 36 ft BGS						
38							
40			SS8		5.0		196
42							
44			006 SS9		5.0		201
46							
48							
50			SS10		5.0		121
52							
54	ML-SILT, trace sand, trace wood fragments, compact, fine grained, non-plastic, dark gray-brown, saturated	-42.40	007 SS11		5.0		161
56	SM-SAND with SILT, trace shell fragments, compact, fine grained, poorly graded, dark brown, saturated	-43.40					
58	SP-SAND, trace silt, trace gravel, trace shell fragments, compact, fine grained sand, trace coarse grained sand, fine grained gravel, poorly graded, dark brown, red and white grains, moist	-45.40	SS12		5.0		87
60	ML/SM-SANDY SILT, trace wood fragments, compact, fine sand, poorly graded, non-plastic, dark brown, saturated	-48.40					
62			008/009				
64			SS13		5.0		104
66							
68			SS14		5.0		26.3

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-29
DATE COMPLETED: July 19, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74			010 SS15		5.0		28.9
76							
78							
	ML-SANDY SILT, compact, fine grained, non-plastic, dark gray-brown, saturated	-66.40					
80			SS16		5.0		8.5
82							
84			011 SS17		5.0		1.0
86							
88							
90			SS18		5.0		0.9
92							
94			012 SS19		5.0		1.2
96							
	ML-SILT, trace sand, trace clay, compact, fine grained, very low plasticity, dark gray-brown, very moist to saturated, sulfur-like odor	-84.40					
98							
100			SS20		5.0		0.8
102							
104			013 SS21		5.0		0.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-29
DATE COMPLETED: July 19, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110			SS22		5.0		1.4
112							
114	SM-SAND with SILT, compact, fine grained, poorly graded, dark brown-gray, saturated, sulfur-like odor	-101.40	014 SS23		5.0		1.3
116							
118							
120	ML-SILT, trace sand, trace clay, compact, fine grained, very low plasticity, dark gray-brown, very moist to saturated, sulfur-like odor	-107.40	SS24		5.0		0.8
122							
124			SS25		5.0		0.5
126							
128							
130			SS26		5.0		0.4
132							
134			SS27		5.0		0.6
136							
138			SS28		5.0		0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-29
DATE COMPLETED: July 19, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142							
144							
	- clay, trace fine sand, no sulfur-like odor below 145 ft BGS		SS29		5.0		0.0
146							
148							
150			SS30		5.0		0.0
152							
154			SS31		5.0		0.0
156							
158							
160	CL-SILTY CLAY, trace sand, trace gravel, fine to coarse grained sand, fine grained gravel, low plasticity, green-gray, moist	-148.40					
162	SP/GP-SAND and GRAVEL, trace silt, trace clay, compact, fine to coarse grained sand, fine to coarse grained gravel, poorly graded, green-gray, saturated	-150.40					
164							
166							
168							
170							
172							
	END OF BOREHOLE @ 173.0ft BGS	-161.40					
174	Ground surface elevation is estimated.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SM-SAND, some silt, trace gravel, trace shell fragments, very loose, brown with red and white grains, dry (NATIVE)						
8			SS1		7.0		1.8
16			117/118				
16	SP-SAND, trace silt, trace shell fragments, fine to coarse grained, dark brown with red and white grains, moist	-5.40					
22			SS2		10.0		12.6
26			119				
30	SM-SAND, some silt, loose, fine to medium grained, dark brown with red and white grains, saturated	-18.40					
32			SS3		10.0		5.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- trace shell fragments, loose to compact, fine grained below 37 ft BGS		120				
38							
40							
42			SS4		10.0		58.2
44							
46			121				
48							
50							
52			SS5		10.0		637
54							
56			122				
	ML-SILT, some SAND, compact, fine grained, dark brown, saturated	-45.40					
58							
60							
62			SS6		10.0		218
64							
66			123				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SM-SAND, some silt, compact, fine grained, dark brown with red and white grains, saturated, mild decomposition odor	-58.40	SS7		10.0		915
74							
76			124				
78	ML-SILT, trace sand, compact, dark brown, saturated	-65.40					
80	SM-SILTY SAND, compact, fine grained, dark brown with red and white grains, saturated, mild decomposition odor	-68.40					
82			SS8		10.0		284
84							
86			125				
88							
90							
92			SS9		10.0		323
94							
96			126				
98	ML-SILT, trace sand, trace shell fragments, compact to dense, dark brown to gray, saturated, strong decomposition odor	-85.40					
100							
102			SS10		10.0		108
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (124, 125, 126)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			127				
108							
110							
112			SS11		10.0		19.9
114							
116			128				
118	- dark brown below 117 ft BGS						
120	SM-SAND, some silt, compact, fine grained, dark brown, saturated, strong decomposition odor	-108.40					
122			SS12		10.0		38
124							
126			129				
128	ML-SILT, trace silt, compact to dense, dark brown, moist to saturated, strong decomposition odor	-115.40					
130							
132			SS13		10.0		41.5
134							
136			130				
138	- trace sand, trace clay, low plasticity						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS14		10.0		0
144							
146			131				
148							
150							
152			SS15		10.0		0
154							
156			132				
158							
160							
162	SM-SAND, some silt, compact, fine to coarse grained, dark brown with red and white grains, saturated	-150.40	SS16		10.0		0
164	SP/GM-SAND and GRAVEL, trace silt, trace cobbles, dense, fine to coarse grained, light gray, saturated (TILL)	-152.40					
166			133				
168							
170							
172			SS17		10.0		0
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (131, 132, 133)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176			134				
	SHELBY TUBE SAMPLE	-165.40					
178							
180	SP/GM-GRAVELLY, SILTY SAND, trace clay, trace cobbles, very dense, fine to coarse grained, light gray with a green tint, saturated, probable till, presence of purple colorations	-168.40					
182			SS18		10.0		0
184							
186							
188							
190							
192			SS19		10.0		0
194							
196							
	SHELBY TUBE SAMPLE	-185.40					
198							
	SP-SAND, some gravel, trace cobbles, trace silt, trace clay, dense, poorly sorted, light brown to gray, saturated	-187.40					
200							
202			SS20		10.0		0
204							
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (134)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-30
DATE COMPLETED: August 23, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
212			SS21		10.0		0
214							
216							
	PEAT-like material, dark brown, saturated (NON-GLACIAL DEPOSIT)	-205.40					
218	SM-SAND, some silt, compact to dense, gray to brown, saturated	-205.90					
220							
222			SS22		10.0		0
224							
	- some gravel below 225 ft BGS						
226							
228							
230	SP/SC-SAND, little silt, little gravel, compact to dense, brown, saturated	-218.40					
232			SS23		10.0		0
234							
236							
	SHELBY TUBE SAMPLE	-225.40					
238							
	END OF BOREHOLE @ 239.0ft BGS	-227.40					
240	Ground surface elevation is estimated.						
242							
244							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND, trace silt, very loose, medium to coarse grained, light brown, dry						
2							
4			SS		3.0		0
6			057				
8	- loose, fine to coarse grained, dark brown with red and white grains, moist to saturated below 7 ft BGS	▽					
10							
12			SS2		10.0		5.2
14							
16			058				
18							
20							
22			SS3		10.0		45.5
24							
26			059/060				
28							
30	ML-SILT, trace sand, compact, dark brown, saturated	-18.40					
32			SS4		10.0		25.6
34	SP-SAND, trace silt, loose, fine to coarse grained, dark brown with red and white	-22.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	grains, saturated		061				
	ML-SILT, some sand, some shell fragments, compact, fine grained, dark brown, saturated	-25.40					
38							
40							
42			SS5		10.0		140
44							
46			062				
48							
50							
52			SS6		10.0		257
54							
56			063				
	SP-SAND, some shell fragments, trace silt, loose, fine to medium grained, dark brown with red and white grains, saturated	-45.40					
58							
60							
62			SS7		10.0		1293
64							
66			064				
	ML-SILT, trace sand, compact, dark brown, saturated	-55.40					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS8		10.0		95.7
74							
76			065				
		-65.40					
78	SP-SAND, trace silt, loose, fine to medium grained, dark brown with red and white grains						
		-68.40					
80	ML-SILT, trace clay, compact, dark brown, saturated						
82			SS9		10.0		25.7
84							
86			066				
88							
90							
92			SS10		10.0		356
94							
96			067				
		-84.40					
	SM-SAND and SILT, compact, fine grained, dark brown, saturated						
		-85.40					
98	ML-SILT, trace sand, compact, fine grained, dark brown to gray, saturated, strong decomposition odor						
100	- sand seam, approximately 2-ft thick @ 100 ft BGS						
102			SS11		10.0		1591
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			068				
108							
110							
112			SS12		10.0		3.6
114							
116			069				
118	SP-SAND, some shell fragments, trace silt, compact, fine to medium grained, dark brown with red and white grains, saturated, presence of strong putrid odor	-105.40					
120							
122			SS13		10.0		5
124							
126			070				
128							
130	OL-SILT, trace sand, compact, dark brown, dry to moist, strong decomposition odor	-118.40					
132			SS14		10.0		222
134							
136			071				
138	SP-SAND, some shell fragments, trace silt, fine to coarse grained, dark brown with red and white grains, saturated	-125.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	- silt lense, approximately 8-inches thick @ 140 ft BGS		SS15		10.0		0.7
144							
146	- silt lense, approximately 8-inches thick @ 145 ft BGS		072				
	ML-SILT, trace sand, trace clay, compact to dense, dark gray, dry to moist	-135.40					
148							
150							
152			SS16		10.0		0.4
154							
156			073				
	ML-SILT, some shell fragments, trace sand, dense, dark brown, moist to saturated	-145.40					
158							
160							
162			SS17		10.0		0
164							
166			074				
	GM-GRAVEL and SAND, some silt, dense, fine to coarse grained, green, moist to saturated (TILL)	-155.40					
168							
170							
172			SS18		10.0		0
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-31
DATE COMPLETED: August 16, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176			075	X			
	END OF BOREHOLE @ 177.0ft BGS	-165.40					
178	Ground surface elevation is estimated.						
180							
182							
184							
186							
188							
190							
192							
194							
196							
198							
200							
202							
204							
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-32
DATE COMPLETED: August 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
	Hand Augered to check for utilities						
6	Not Sampled	5.60					
	SP-SAND, trace silt, trace shell fragments, very loose, fine to medium grained, dark brown with red and white grains, dry to moist	4.60					
12			SS1		10.0		0
16			099				
	- moist (capillary) below 17 ft BGS						
18			100				
20	- strong odor below 20 ft BGS						
22			SS2		10.0		753
24	- silt lense, approximately 1' thick @ 24 ft BGS						
26			101				
32			SS3		10.0		354

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-32
DATE COMPLETED: August 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			102				
	SM-SAND, some silt, trace shell fragments, compact, fine grained, dark brown with red and white grains, saturated, slight odor	-25.40					
38							
40							
42			SS4		10.0		59.6
44							
46			103				
48							
50							
52			SS5		10.0		84.9
54							
56			104				
	ML/OL-SILT, trace sand, compact, dark brown, saturated, slight decomposition odor	-45.40					
58							
60							
62			SS6		10.0		295
64							
66			105				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-32
DATE COMPLETED: August 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS7		10.0		192
74							
76			106				
	ML-SILT, trace sand, compact, dark brown, saturated	-65.40					
78							
80							
82			SS8		10.0		185
84							
86			107				
	SP/OL-SAND, trace silt, loose to compact, dark brown with red and white grains, saturated, strong decomposition odor	-75.40					
88							
90							
92			SS9		10.0		296
94							
96			108				
	SM/OL-SAND, some silt, compact, fine grained, dark brown, saturated, slight decomposition odor	-85.40					
98							
100							
	ML/OL-SILT, trace sand, compact, dark brown, saturated, strong decomposition odor	-88.40					
102			SS10		10.0		202
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WMUA-32
PROJECT NUMBER: 07843
DATE COMPLETED: August 18, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: Rotosonic
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: B. Garbarino
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	SM-SAND, some silt, trace shell fragments, loose to compact, fine grained, dark brown with red and white grains, saturated, strong decomposition odor	-93.40	109				
108							
110							
112			SS11		10.0		141
114							
116			110				
118	ML-SILT, trace sand, compact, dark brown to gray, dry to moist, strong decomposition odor	-105.40					
120							
122			SS12		10.0		2.1
124							
126			111				
128	OL-SILT, some clay, compact, dark gray, saturated, strong decomposition odor	-115.40					
130							
132			SS13		10.0		0
134							
136	SP/OL-SAND, trace silt and shell fragments, loose, fine to medium grained, dark brown with red and white grains, strong decomposition odor	-123.40	112				
138	SP-SAND, trace silt, trace shell fragments, compact, fine to coarse grained, dark brown with red and white grains, saturated	-125.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: WMUA-32

PROJECT NUMBER: 07843
DATE COMPLETED: August 18, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: Rotosonic

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: B. Garbarino

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS14		10.0		0.5
144							
146			113				
148							
150							
152	ML/OL-SILT, trace clay, trace gravel, compact to dense, dark gray, moist to saturated	-140.40	SS15		10.0		0.5
154							
156			114				
158	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained, dark brown to gray with red and white grains, saturated	-145.40					
160							
162	GM-GRAVEL and SAND, some silt, occasional cobbles, fine to coarse grained, dark gray to green, saturated (probable TILL)	-150.40	SS16		10.0		0
164							
166			115				
168							
170							
172			SS17		10.0		0
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-32
DATE COMPLETED: August 18, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
176			116	X			
	END OF BOREHOLE @ 177.0ft BGS	-165.40					
178	Ground surface elevation is estimated.						
180							
182							
184							
186							
188							
190							
192							
194							
196							
198							
200							
202							
204							
206							
208							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (116)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-33
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	SP-SAND, trace silt, loose, medium grained, poorly sorted, dark brown, dry (vadose sample)						
2							
4			SS1		5.0		0.3
6			040				
		4.60					
8	SP-SAND, trace silt, loose, fine to medium grained, dark brown to black, moist (capillary sample)						
10							
12			SS2		10.0		0.4
14							
16			041				
		-5.40 ▽					
18	SM-SAND, some silt, some shell fragments, loose, fine to medium grained, dark brown with red and white grains, saturated						
20							
22			SS3		10.0		52.7
24							
26			042/043				
		-15.40					
28	ML-SILT, trace sand, compact, dark brown, saturated						
		-18.40					
30	SP-SAND, trace silt, loose, fine to medium grained, dark brown, moist to saturated						
32			SS4		10.0		13.7
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-33
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			044				
	SM-SAND, some silt, loose, fine to medium grained, dark brown with red and white grains, saturated	-25.40					
38							
40							
42			SS5		10.0		18.4
44							
46			045				
48							
50							
52			SS6		10.0		303
54							
56			046				
	SP-SAND, trace silt, loose, fine to medium grained, dark brown with red and white grains, moist to saturated	-45.40					
58							
60							
62			SS7		10.0		4.7
64							
66			047				
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-33
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SM-SAND, some silt, little wood debris, loose, dark brown, saturated	-60.40	SS8		10.0		52.8
74							
76			048				
	- little shell fragments, loose to compact below 77 ft BGS						
78							
80							
82			SS9		10.0		79.1
84							
86			049				
88							
90	SP-SAND, trace silt, loose, dark brown with red and white grains, saturated	-78.40					
92			SS10		10.0		0.1
94							
	- silt lense, approximately 1' thick below 95 ft BGS						
96			050				
98	SM-SAND, some silt, some shell fragments, loose, dark brown with red and white grains, saturated	-85.40					
100							
102			SS11		10.0		47.2
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-33
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106			051				
108							
110							
112			SS12		10.0		12
114							
116			052				
	ML-SILT, compact, dark brown, saturated	-105.40					
118							
120							
122			SS13		10.0		0
124							
126			053				
128							
130							
132			SS14		10.0		0
134							
136			054				
	No Recovery	-125.40					
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUA-33
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: B. Garbarino

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142			SS15		2.0		0
144							
		-133.40					
146	ML-SILT, trace sand, trace clay, compact, dark brown, saturated		055				
		-135.40					
148	No Recovery						
150							
152			SS16		0.0		NA
154							
156							
		-145.40					
158	ML-SILT, some clay, little shell fragments, compact, low plasticity, dark gray, saturated						
160							
162			SS17		10.0		0
164							
166			056				
		-155.40					
168	END OF BOREHOLE @ 167.0ft BGS						
	Ground surface elevation is estimated.						
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUC-1
DATE COMPLETED: June 9, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, gravel, some sand, asphalt fragments, dry to slightly moist - fine to coarse grained (rounded to angular), with sand from 1 to 2.5 ft BGS		GP1		1.7		0
2							
4			GP2		1.8		0
		6.60					
6	FILL, burnt process material and sand, some coarse grained gravel, damp to wet						
8			GP3		1.3		44.8
		2.60					
10	FILL, sand, wood fragments, medium grained sand, wet						
12			GP4		3.8		0
		-1.40					
14	CL-SILTY CLAY, wood fragments, wet, slight odor						
		-3.40	GP5		1.8		17
16	SP-SAND, medium grained, brown/black, slight odor						
		-5.40					
	CL-CLAY, some silt, gray/brown, wet, odor	-6.00					
18	SP-SAND, medium grained, brown/black, saturated, uniform						
20			GP6		2.8		32.8
22							
					3.8		0
24							
		-13.40					
26	END OF BOREHOLE @ 25.0ft BGS Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ⊽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUC-2
DATE COMPLETED: June 9, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, sand, trace organic material		GP1		2.4		0
4							
6	- grades to sand and gravel, coarse angular gravel, dark brown, moist below 5.0 ft BGS - boulder fragments, dry below 6.1 ft BGS		GP2		2.0		0
		4.40 ▽					
8	FILL, burnt processed material with sand, wet oxides	3.60					
10	FILL, sand with clay, gravel, fine to coarse grained (round to angular), gray - trace clay, fine grained gravel (angular), saturated below 10.0 ft BGS		GP3		1.8		0
12	- wood between 11.2 and 12.0 ft BGS - grades to rounded gravel below 12.0 ft BGS						
14	FILL, sandy silt with wood, strong odor	-1.40			2.0		430
16							
18	ML-CLAYEY SILT, some solid organics, dark brown to black, moist, no odor	-5.70					
	SP-SAND, medium grained, black to brown	-6.20	GP4		3.0		0
20							
22	- dense below 21.0 ft BGS		GP5		3.5		10
24	- trace clay (clods), coarse grained sand, wet between 24.2 and 24.6 ft BGS				2.4		1
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUH-1
DATE COMPLETED: June 8, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Pietraszek-Polovich, M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	11.60					
	FILL, sand, medium grained, brown to black						
2	- broken cobble between 2.0 and 2.3 ft BGS		GP1		1.5		6.9
4	- broken up asphalt between 3.6 and 4.0 ft BGS						
6	- sand and gravel, fine rounded grained gravel, moist below 6.0 ft BGS		GP2		2.8		21.6
	- gravel layer (~2"), angular from 7.2 to 7.3 ft BGS						
8	- sand and angular gravel between 8.5 and 9.0 ft BGS - large cobble between 9.0 and 9.3 ft BGS						
10	- brick fragments between 10.5 and 10.8 ft BGS - coarse grained sand below 10.8 ft BGS		GP3		1.6		0
12							
14			GP4		1.7		22
	- sand with gravel, black, sheen on surface below 15.0 ft BGS						
16	- 15% angular gravel, trace clay (clods) below 16.0 ft BGS						
	- broken asphalt between 17.5 and 18.3 ft BGS						
18			GP5		2.5		299
20							
22			GP6		1.9		81.6
	CL-CLAY, minor silt and sand, gray, moist, no odor	-11.90					
24	- trace sand and silt below 24.8 ft BGS				0.8		0
	END OF BOREHOLE @ 25.0ft BGS	-13.40					
26	Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUH-2
DATE COMPLETED: June 8, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: J. Pietraszek-Polovich, M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand, with gravel, medium grained sand, fine grained rounded gravel, brown to black						
2			GP1		0.9		0
4							
6	- medium to coarse sand with pebbles, dry to moist below 5.0 ft BGS				2.0		4.5
8	- wood/organic layer, reddish brown to black, wet between 7.5 and 8.0 ft BGS ▽						
10	- sand, some silt, some fine rounded gravel - contains slag, glass, organics, black to brown, moist below 9.5 ft BGS				2.7		5.0
12	FILL, sandy silt, with wood organics, saturated	0.90					
14	FILL, sand, coarse grained (well sorted), brown with multicolored grains, wet (no odor) - sand and gravel, coarse grained sand below 13.0 ft BGS	-0.60			1.7		0
16	FILL, wood debris	-3.70					
	CL-SILTY CLAY, trace sand, wood debris	-4.40					
18	SP-SAND, medium grained, brown to black	-5.70			2.4		2.5
20							
22	- wood chunk between 21.0 and 21.8 ft BGS				3.4		0
24	- clay with sand, hard, gray, moist below 24.2 ft BGS	-12.80			1.3		0
	SP-SAND with clay, black no odor	-13.40					
26	END OF BOREHOLE @ 25.0ft BGS Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: WMUH-3
DATE COMPLETED: June 9, 2004
DRILLING METHOD: Direct Push
FIELD PERSONNEL: M. Pauly, M. Hendy

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	FILL, sand and gravel, medium grained sand, angular gravel, crushed asphalt, brown to black - no asphalt below 1.3 ft BGS - rubber debris between 1.8 and 2.0 ft BGS		GP1		3.0		8
		8.80					
	FILL, sandy clay, with gravel rounded, gray to white	8.40					
4	FILL, oxidized material and gravel, fine to coarse grained angular with wood/glass	7.90					
	FILL, sand, medium grained, brown to black -brick fragment layer (~4") @ 4.0 ft BGS						
6			GP2		2.3		0
	- fine grained sand, some oxides, moist from 7.5 to 7.8 ft BGS						
8	- sand and clay, brown to gray, dry to moist from 8.5 to 8.7 ft BGS - sand with silt, with gravel, fine to coarse grained (rounded to angular), wet between 8.7 and 9.2 ft BGS						
10			GP3		3.6		0
12							
14			GP4		3.5		0
	- silt, some clay, gray, moist, contains layers of fine sand between 15.1 and 15.6 ft BGS						
16	- wood chunk (~2 in) @ 15.8 ft BGS						
	- sand with wood chunks (no odor) between 16.0 and 16.4 ft BGS	-5.40					
	CL-CLAY, trace silt, gray, moist						
18	-sand and clay layering (~0.1" to 0.2" intervals) between 17.3 and 20.0 ft BGS				3.6		0
20		-8.40					
	SP-SAND, medium grained, brown to black, wet						
22			GP5		2.5		0
24							
		-12.90					
	CL-CLAY some silt, gray to brown, moist	-13.40					
26	END OF BOREHOLE @ 25.0ft BGS Ground surface elevation is estimated.						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

Waterway Borings

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-1
DATE COMPLETED: September 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 716210
EASTING: 1167562

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-48.62					
	ML-SILT, very soft, dark gray, wet	-49.12					
	SM-SAND and SILT, soft, fine grained sand, dark gray, wet		SS1		1.7		186
2	- moist to wet, slightly dense @ 2 ft BGS		SS2		1.1		182
4							
	SP-SAND, trace silt, loose, fine to medium grained sand, dark gray with abundant red grains, moist to wet	-53.62	SS3		1.5	4	453
6	- thin silt lenses present @ 6 ft BGS		SS4		1.8	5	920
8	- trace shell fragments @ 8 ft BGS		SS5		1.4	10	995
10							
12	Not Sampled	-60.62					
14							
	SP-SAND, trace silt, dense, fine to medium grained sand, gray, wet	-63.62	SS6		1.1	24	198
16		-65.62					
	Not Sampled						
18							
	SP-SAND, trace silt, dense, fine to medium grained sand, gray, wet	-68.62	SS7		1.2	18	150
20							
22	Not Sampled	-70.62					
24							
	SP-SAND, trace silt, dense, fine to medium grained sand, gray, wet	-73.62	SS8		1.1	14	139
26	- trace of wood debris @ 25.6 ft BGS						
	Not Sampled	-75.62					
28							
	SM-SAND with SILT, dense, fine grained sand, gray, moist to wet	-78.62	SS9		1.3	15	155
30							
32	Not Sampled	-80.62					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS4, SS5, SS6, SS7, SS8, SS9)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-1
DATE COMPLETED: September 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, compact, fine to medium grained sand, grey, moist to wet	-83.62	SS10		1.1	26	207
		-85.62					
38	Not Sampled						
40	ML-SILT, trace fine sand, firm, dark grey, moist to wet, odor	-88.62					
		-89.62	SS11		1.6	27	452
	SM-SILTY SAND, loose, fine grained sand, dark grey, wet, odor	-90.02					
42	ML-SILT, trace fine grained sand, compact, moist, dark grey	-90.62					
	Not Sampled						
44							
	ML-SILT, trace fine grained sand, firm, dark grey, odor	-93.62					
		-94.12					
46	SP-SAND, loose, medium to fine grained, dark grey, moist to wet, odor	-94.42	SS12		1.4	30	197
	ML-SILT, little fine grained sand, stiff, dark grey, moist	-95.62					
	Not Sampled						
48							
50	SP-SAND, medium to fine grained, loose, dark grey, moist to wet, odor	-98.62	SS13		1.7	27	229
		-100.62					
52	Not Sampled						
54							
	ML-SILT, little fine grained sand, stiff, dark grey, moist, odor	-103.62					
56			SS14		1.5	30	331
		-105.62					
	Not Sampled						
58							
60	ML-SILT, little fine grained sand, stiff, dark grey, moist	-108.62					
	SP-SAND, fine to medium grained, medium density, dark grey, moist to wet	-108.82	SS15		1.4	34	33.7
62		-110.62					
	Not Sampled						
64							
	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark grey, moist to wet	-113.62					
66			SS16		1.4	38	2.3
		-115.62					
	Not Sampled						
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-1
DATE COMPLETED: September 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark grey, moist to wet	-118.62	SS17		1.0	29	12.8
72	Not Sampled	-120.62					
74		-123.62					
76	SP-SAND, trace silt, dense, fine to medium grained sand, poorly graded, dark grey, moist to wet	-124.42	SS18		1.0	39	10.8
	SM-SILTY SAND, firm, dark grey, moist	-125.62					
78	Not Sampled						
80	ML-SILT, little fine grained sand, firm, dark grey, dry to moist	-128.62					
	SP-SAND, with silt, loose, fine to medium grained sand, dark grey, dry to moist	-129.42	SS19		2.0	17	5.6
	ML-SILT, trace fine grained sand, firm, dark grey, dry to moist	-129.62					
82	SP-SAND, with silt, loose, fine to medium grained, dark grey, dry to moist	-129.92					
	ML-SILT, trace fine grained sand, firm, dark grey, dry to moist	-130.12					
	Not Sampled	-130.62					
84							
	MH-SILT, some clay, shell fragments present, soft, high plasticity, dark grey, moist	-133.62	SS20		1.4	0	0.0
86		-135.62					
	Not Sampled						
88							
90	ML-SILT, little sand, soft, dark grey, moist	-138.62					
	ML-SILT, trace fine grained sand, soft, very wet	-139.32	SS21		2.0	38	0.0
	- 0.2' layer of sand with medium grained white grains @ 91.3 ft BGS	-139.62					
92	SP-SAND, trace silt, compact, fine to medium grained sand, grey with abundant red grains, moist to wet	-140.62					
94	- 0.2' layer of medium white sand mixed with grey and red sand grains @ 918 ft BGS						
	Not Sampled	-143.62					
96	GM-GRAVEL, some sand, little silt, dense, light brown, moist to wet, fine to coarse subangular to rounded gravel (Till?)	-145.62	SS22		1.8	61	1.5
	Not Sampled						
98							
100	SW-SAND, some fine to coarse, subangular to rounded gravel, dense, fine to medium grained sand, light brown, moist to wet (Till)	-148.62	SS23		1.0	47	0.2
102	Not Sampled	-150.62					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-1
DATE COMPLETED: September 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	SP-GRAVELLY SAND, dense, coarse grained sand, poorly graded, dark grey, moist - fine grained gravelly sand, trace silt @ 105.7 ft BGS	-153.62	SS24		1.2	42	0.0
		-155.62					
108	Not Sampled						
110	SP-SAND, trace silt, medium to coarse grained sand, orange/white/grey//black grains, moist to wet	-158.62 -158.82	SS25		0.4	59	0.0
112	GM-GRAVEL, little silt, trace sand, fine gravel, coarse grained sand, yellow/orange/black/grey grains, moist	-160.62					
	Not Sampled						
114							
116	ML-SILT, little fine grained sand, trace medium gravel, dense, grey, moist	-163.62	SS26		0.5	78	0.0
		-165.62					
118	END OF BOREHOLE @ 117.0ft BGS Refusal at 117.0 ft BGS.						
120	Chemical analyses refer to both groundwater and sediment.						
122	Ground Surface = Mudline						
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-2
DATE COMPLETED: January 30, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

NORTHING: 716126
EASTING: 1167561

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-50.92					
0	ML-SILT, dark gray, wet		1		1.8	4	291
2			2		2.0	7	11.2
4	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, moist	-54.92	3		1.7	14	11.5
6	Not Sampled	-56.92					
8							
10							
12							
14	SP-SAND, trace silt, dense, fine grained sand, poorly graded, dark gray, with white grains, moist	-64.92	4		1.2	36	236
16	Not Sampled	-66.92					
18							
20							
22							
24	SP-SAND, trace silt, compact, fine to medium grained sand, dark gray with red/whitish grains, wet - 0.02' silt lense @ 24.3 ft BGS	-74.92	5		1.6	29	863
26	- odor @ 25 ft BGS Not Sampled	-76.92					
28							
30							
32							
34	SM-SILTY SAND, dense, fine grained sand, dark gray, moist	-84.92 -85.12					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-2
DATE COMPLETED: January 30, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, with silt, fine to medium grained sand, dark gray, wet, odor	-85.52	6		1.9	42	1107
	SM-SILTY SAND, dense, fine grained sand, dark gray, moist	-85.82					
	SP-SAND, with silt, fine to medium grained sand, dark gray, wet, odor	-86.02					
	SM-SILTY SAND, dense, fine grained sand, dark gray, moist	-86.92					
38	Not Sampled						
40							
42							
44	ML-SILT, with sand, compact, fine grained sand, poorly graded, dark gray, wet	-94.92					
	SP-SAND, trace silt, compact, medium grained sand, poorly graded, dark grey, wet	-95.52	7		2.0	40	225
	ML-SANDY SILT, compact fine grained sand, dark grey, wet	-96.12					
46	Not Sampled	-96.92					
48							
50							
52							
54	SM-SAND with SILT, dense, fine grained sand, poorly graded, dark grey, wet, odor present	-104.92	8		0.8	62	128
56	Not Sampled	-106.92					
58							
60							
62							
64	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained sand, poorly graded, dark grey, trace red grains, wet	-114.92	9			22	98.8
66	Not Sampled	-116.92					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-2
DATE COMPLETED: January 30, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SM-SAND with SILT, compact, fine grained sand, poorly graded, dark grey, wet, odor present	-124.92 -125.52	10		2.0	28	8.7
76	ML-SILT, with trace sand, compact, fine grained sand, poorly graded, dark grey, wet, odor present	-126.92					
	Not Sampled						
78							
80							
82							
84	ML-SILT, with trace sand, compact, fine grained sand, poorly graded, dark grey, wet, odor present	-134.92 -135.42	11		1.2	21	1.3
86	SM-SAND with SILT, compact, fine grained, poorly graded, dark grey, moist, odor present	-136.92					
	Not Sampled						
88							
90							
92							
94	SP-SAND, trace silt, shell fragments, compact, fine to medium grained sand, dark grey with red/whitish grains, moist	-144.92 -145.42	12		1.6	28	11.8
	SM-SILTY SAND, compact, fine grained sand, dark grey, moist	-146.02					
96	- 0.08' sandy silt lense @ 95.2 ft BGS	-146.92					
	SP-SAND, trace silt, compact, fine to medium grained sand, dark grey with fine to medium whitish opaque grains, moist						
98	Not Sampled						
100							
102							
104	GM-GRAVEL and SAND with SILT, dense, well graded, rounded to sub-rounded	-154.92 -155.72					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-2
DATE COMPLETED: January 30, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	gravel, medium to coarse grained sand, fine to coarse gravels, brownish/grey, wet		13	X	1.6	49	0.0
	SW-SAND, trace silt, well graded, medium to coarse grained, trace fine gravel, dark grey with grains of various colors, wet	-156.92					
	END OF BOREHOLE @ 106.0ft BGS						
108	Chemical analyses refer to both groundwater and sediment.						
110	Ground Surface = Mudline						
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-3
PROJECT NUMBER: 07843
DATE COMPLETED: September 19, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: K. Lynch, B. Sinclair, D. Deitner
Tacoma, Washington

NORTHING: 716045
EASTING: 1167695

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-48.32					
	SP-SAND, fine to medium grained sand, moist to wet, gray with red sand grains, loose	-49.12	SS1		2.0	2	10.5
	SM-SILT and SAND, fine grained sand, gray, moist to wet, medium density	-49.52					
2	SP-SAND, fine to medium grained, moist to wet, gray with red grains, loose	-50.12					
	SM-SILT and SAND, trace wood, fine grained sand, gray, moist to wet, slightly dense	-50.32	SS2		2.0	8	7
4	SP-SAND, shell fragments, fine to medium grained, moist to wet, gray with red sand grains, loose	-51.72					
	SM-SILT with SAND, fine grained sand, gray, moist to wet, slightly dense	-52.32	SS3		2.0	20	1900
6	SP-SAND, few shell fragments, fine to medium grained, dark gray with abundant red grains, moist to wet, loose to slightly dense	-54.32					
	Not Sampled	-55.32					
8	SP-SAND, few shell fragments, fine to medium grained, dark gray with abundant red grains, moist to wet, loose to slightly dense						
10	SM-SAND, fine grained, little silt, moist to wet, light gray, medium stiffness	-58.32	SS4		1.6	16	520
12	SP-SAND, trace silt, fine to medium grained sand, dark gray with trace red and white grains, wet, poorly graded, compact	-60.32					
	- 0.02' silt lense						
14	- 0.02' silt lense	-62.32					
	SM-SAND, little silt, trace shell fragments, fine grained, moist to wet, light gray, medium stiffness	-63.82	SS5		1.4	17	1090
16	Not Sampled						
	SP-SAND, trace silt, fine to medium grained, dark grey with trace red and white grains, wet, poorly graded, compact	-65.32					
18	ML-SILT, trace sand, slight plasticity, dark grey, moist, compact	-66.82					
	SM/SP-SAND, little silt, trace shell fragments, fine to medium grained, grey with trace red grains, moist to wet, poorly graded,	-67.32	SS6		1.4	11	14.3
20	SP-SAND, fine to medium grained, moist to wet, grey, dense	-69.32					
	SM -SAND, little silt, fine grained sand, grey, dense	-70.42	SS7		2.0	12	10.6
22	SP-SAND, fine to medium grained, grey, moist to wet, medium density	-71.32					
			SS8		2.0	38	7.6
24							
			SS9		2.0	21	4.3
26	SM-SAND and SILT, fine grained sand, grey, moist, stiff	-74.52					
	SP-SAND, fine to medium grained, grey, moist to wet, medium density	-75.32					
28	SM-SAND and SILT, fine grained sand, grey, moist, stiff	-76.32	SS10		2.0	35	2.6
	SP-SAND, fine to medium grained, trace silt, grey, moist to wet, medium density,	-77.32					
30			SS11		2.0	4	3.9
	SM-SANDY SILT, grey, wet, very soft	-79.32					
32	- becomes fine sand with silt, dense, moist to wet @ 32.2 ft BGS		SS12		2.0	10	13.9
	SP-SAND, fine to medium grained, trace silt, grey, moist to wet, dense	-81.32					
34	Not Sampled	-82.32	SS13		1.0	32	5.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-3
DATE COMPLETED: September 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace silt, fine to medium grained sand, grey, moist to wet, dense	-83.32					
36			SS14		2.0	40	1.7
38			SS15		2.0	50	8.6
		-86.82					
	SM-SAND, some silt, grey, dry to moist, very stiff	-87.12					
	Not Sampled	-87.32					
40	ML-SILT, trace sand, dark grey, moist, very stiff	-88.12	SS16		1.4	71	9.7
	- becomes less stiff with more sand below 39.7 ft BGS	-88.72					
	SP-SAND, little silt, fine grained, dark grey, moist, medium density, odor	-89.32					
42	Not Sampled	-89.92	SS17		1.8	36	19.6
	ML-SILT, trace sand, dark grey, dry to moist, stiff	-91.12					
	SP-SAND, fine grained, moist, medium density, odor	-91.32					
44	Not Sampled	-92.22	SS18		1.8	30	20.2
	SP-SAND, fine grained, moist to wet, medium density, odor	-93.12					
	SM-SAND, some silt, fine grained, grey, dry to moist, stiff/dense, odor	-93.32					
46	Not Sampled	-93.62	SS19		1.2	42	14.6
	SM-SAND, some silt, fine grained, dry to moist, stiff/dense, grey, odor	-94.52					
	ML-SILT, little fine sand, dark grey, dry to moist, very dense	-95.32					
48	- gravel @ 46 ft BGS		SS20		1.3	46	13
	Not Sampled	-96.62					
	SP-SAND, fine grained, grey with abundant red grains, moist to wet, compact	-97.32					
50	Not Sampled	-98.32	SS21		1.4	24	9.8
	SP-SAND, fine grained, grey with abundant red grains, moist to wet, compact	-98.82					
	SM-SAND, little silt, fine grained sand, dry to moist, very dense	-99.32					
52	Not Sampled	-99.82					
	SP-SAND, trace silt, trace shells, fine to medium grained sand, dark grey with trace red and white grains, wet, very dense, poorly graded	-100.32					
		-101.32	SS22		2.0	66	25
54	SM/ML-SANDY SILT, fine grained sand, slight plasticity, dark grey, moist, very dense						
	SM-SILTY SAND, very dense, fine grained sand, dark grey, wet, poorly graded		SS23		1.8	49	0.0
56	- 0.16' sand lense, trace silt						
	SP-SAND, trace silt, dense, fine to medium grained sand, dark grey with trace red and white grains, wet, poorly graded	-105.32	SS24		1.4	53	3.5
	- 0.04' organics lense, very dense, black @ 55.2 ft BGS						
58	- odor, no red or white grains @ 56 ft BGS						
	- 0.2' silty sand lense, very dense, fine grained, moist @ 56.1 ft BGS	-107.32	SS25		1.3	61	5.0
	SP-SAND with SILT, fine grained sand, dark grey, moist, poorly graded, very dense						
60	- 0.3' silt with sand lense, very dense, dark grey, dry to moist @ 58.3 ft BGS		SS26		1.0	51	3.5
	ML-SILT, little fine sand, dark grey, dry to moist, very dense						
62	- 0.1' sand lense, fine grained, trace silt @ 60.5 ft BGS	-110.32					
	- 0.3' sand lense, fine grained, trace silt @ 60.7 ft BGS		SS27		1.6	38	4.3
	SP-SAND, trace silt, fine grained sand, dark grey, moist, dense, poorly graded						
64	- 0.2' silty sand lense with wood debris @ 62.7 ft BGS						
	- sand becomes fine grained below 62.9 ft BGS		SS28		1.0	44	6.0
	- 0.2' silt lense, very dense, dry to moist, little fine grained sand @ 64.6 ft BGS						
66		-114.32					
	ML-SILT, little fine grained sand, very dense, dark grey, dry to moist, strong odor		SS29		1.8	43	4.1
68		-116.32					
	SM-SILTY SAND, fine grained, dark grey, moist, compact, poorly graded		SS30		1.8	17	3.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-3
DATE COMPLETED: September 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT with fine grained sand, slight plasticity, dark grey, compact, rapid dilatancy	-118.32	SS31		2.0	27	1.0
	- 0.1' clay lense, dark grey and brown, medium "stickiness" @ 70.5 ft BGS						
72	- 0.3' sand with silt lense, fine grained, dark grey @ 70.6 ft BGS	-120.32					
	- 0.1' wood debris/organic lense @ 71.8 ft BGS		SS32		1.7	27	1
	SP-SAND with SILT, fine grained, dark grey with dark brown layers throughout, moist to wet, compact, poorly graded						
74	- 0.3' silty sand lense @ 72.5 ft BGS		SS33		1.7	19	1.3
	- organic lense @ 72.6 ft BGS						
76	- 0.2' silt lense @ 72.8 ft BGS	-124.32					
	- 0.2' silty sand lense @ 73.1 ft BGS		SS34		2.0	24	1.1
	SM-SILTY SAND, fine grained sand, dark grey, wet, compact, poorly graded	-125.82					
78	SP-SAND with SILT, fine grained sand, dark grey, wet, compact, poorly graded		SS35		1.5	11	
	- 0.16' silt lense, with organics (wood) @ 79.3 ft BGS						
80	SM-SILTY SAND, fine grained sand, dark grey, wet, compact, poorly graded	-128.32	SS36		1.8	12	0.3
	- 0.16' sandy silt lense @ 81.3 ft BGS						
82							
	ML-SANDY SILT, trace woody organics, fine grained sand, non-plastic, dark grey, wet, compact	-130.82	SS37		1.8	27	0.1
84	OL-SILT, with clay, low to non-plastic, dark grey, moist to wet, very soft	-132.32					
		-133.62	SS38		1.5	1	0.1
	SM-SILTY SAND, fine grained sand, dark grey, wet, compact, poorly graded						
86	OL-SILT, with clay, low to non-plastic, medium grey, moist, soft	-134.32	SS39			4	0.0
88		-136.32					
	SP-SAND, trace silt, trace shell fragments, fine grained sand, dark grey, wet, loose, poorly graded	-136.92	SS40		1.8	7	0.2
	ML-SILT, trace fine grained sand, trace clay, medium grey, moist, firm, non-plastic	-137.82					
90	- with clay, low to non-plastic below 89.2 ft BGS		SS41		1.9	32	0.2
	SP-SAND, trace silt, trace shell fragments, fine grained, dark grey, wet, loose, poorly graded						
92	- dense @ 90 ft BGS						
	- compact, trace medium to coarse grained @ 92 ft BGS		SS42		1.7	21	0.3
	- with woody organic material @ 93.4 ft BGS						
94							
	- fine grained @ 95 ft BGS		SS43		1.5	18	0.0
96		-144.32					
	ML-SILT, with clays, trace fine grained sand, medium grey, moist, very stiff, non-plastic		SS44		2.0	12	0.1
	- trace clays and fine grained sand @ 96.5 ft BGS	-145.82					
98	SP-SAND, with silts, trace shell fragments, fine grained sand, dark grey, wet, compact, poorly graded		SS45		1.7	16	0.0
	- fine to medium grained sand, trace white grains @ 98 ft BGS						
100	- fine grained @ 98.4 ft BGS						
	- 0.02' sandy silt lense @ 99 ft BGS						
	- trace fine grained sub-rounded gravel @ 99.1 ft BGS	-149.32	SS46		2.0	80	0.0
102	Not Sampled						
104		-152.32					
	SP-SAND, coarse to medium grained, grey, moist to wet, medium density						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-3
DATE COMPLETED: September 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	GP-GRAVELLY SAND (TILL), grey, moist to wet, very dense	-153.52	SS47	X	1.5	74	1.7
	Not Sampled	-154.32					
108							
110	GP-GRAVELLY SAND (TILL), grey and brown, sub-angular to sub-rounded gravel, moist to wet, very dense	-157.32	SS48	X	0.9	81	0.3
	Not Sampled	-159.32					
112							
114	GP-GRAVELLY SAND (TILL), grey and brown, sub-angular to sub-rounded gravel, moist to wet, very dense	-162.32	SS49	X	0.8	134	0.
116	END OF BOREHOLE @ 116.0ft BGS	-164.32					
118	This log is a combination of the stratigraphy from 5106-3 and WW-B1. The stratigraphy has an accuracy of +/- 1 foot.						
120	Chemical analyses refer to groundwater.						
	Ground Surface = Mudline						
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS48, SS49)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-5
DATE COMPLETED: September 12, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715909 EASTING: 1167876 GROUND SURFACE	-48.42					
	ML-SILT, loose, gray, wet						
	SP-SAND, trace silt, medium density, fine grained, brown, moist to wet	-49.32	SS		1.6	8	0.0
2	ML-SILT, loose, gray, wet	-50.42					
	SP-SAND, some silt, medium density, fine grained, brown, moist to wet	-51.32	SS		1.9	13	0.7
4	SP-SAND, trace silt, medium density, fine to medium grained sand, brown, moist to wet	-52.42	SS1		1.4	7	1.6
6	Not Sampled	-54.42					
8							
	SP-SAND, trace silt, medium density, fine to medium grained, brown, moist to wet	-57.42					
10	SP/SM-SAND and SILT, loose, fine grained, gray, wet	-58.22	SS2		1.4	16	0.4
	Not Sampled	-59.42					
12							
14	SP-SAND, trace silt, loose, fine grained, gray, wet	-62.42					
	SP-SAND, trace silt, medium density, fine grained, brown, moist to wet	-63.12	SS3		1.7	10	15.6
16	Not Sampled	-64.42					
18							
	SM/SP-SILT and SAND, loose, fine grained sand, gray, wet	-67.42					
20	SP/SM-SAND and SILT, medium density, fine grained, gray, moist to wet	-68.42	SS4		2.0	37	2.6
	Not Sampled	-69.42					
22							
24	No Recovery	-72.42	SS7		0.0	8	
26	Not Sampled	-74.42					
28							
	SP-SAND, some silt, compact, fine grained, dark grey, moist to wet	-77.42					
30	- dense, fine to medium grained, moist below 30 ft BGS		SS8		1.0	17	
	Not Sampled	-79.42					
32							
34	SP-SAND, dense, fine to medium grained, dark grey, moist	-82.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-5
DATE COMPLETED: September 12, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
			SS9			30	
36	Not Sampled	-84.42					
38							
	SP-SAND, dense, fine to medium grained, dark grey with red grains, moist	-87.42					
40	- trace gravel, debris @ 40 ft BGS	-88.62	SS10		2.0	19	1.3
	SM-SAND, stiff, fine grained, slightly cohesive, brownish-grey, moist to wet, slight odor, slight dilatant	-89.42					
42	- wet, dilatant @ 40.8 ft BGS Not Sampled						
44	SP-SAND, very dense, fine to medium grained, non-cohesive, non-plastic, dark grey with red grains interbedded, moist, slight odor	-92.42					
	- fine grained @ 45.5 ft BGS		SS11			59	0.5
46	Not Sampled	-94.42					
48							
	ML-SANDY SILT, trace clay, firm, fine grained sand, cohesive, slightly plastic, dark grey, moist	-97.42					
50			SS12		2.0	8	0.8
	Not Sampled	-99.42					
52							
	SP-SAND, dense, fine to medium grained, dark grey with red grains interbedded, moist	-102.42					
54			SS13		2.0	17	0.0
	ML-SANDY SILT, firm, fine grained sand, dark grey, moist	-103.82					
56	Not Sampled	-104.42					
58							
	SP-SAND, dense, fine to medium grained, dark grey with red grains interbedded, moist	-107.42					
60		-108.42	SS14		2.0	15	2.4
	ML-SANDY SILT, firm, fine grained, dark grey, moist	-109.42					
62	Not Sampled						
64	ML-SANDY SILT, trace clay, very firm, fine grained, dark grey, moist	-112.42					
			SS15		2.0	10	0.0
66	Not Sampled	-114.42					
68							
	SM-SAND and SILT, loose, grey, wet	-117.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-5
DATE COMPLETED: September 12, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
			SS16		2.0	38	3.6
	SP-SAND, very dense, fine to medium grained, grey with red grains, moist to wet	-119.02					
	Not Sampled	-119.42					
72							
74	SP-SAND, very dense, fine to medium grained, grey with red grains, moist to wet (cobble in spoon)	-122.42	SS17		1.4	37	0.0
76	Not Sampled	-124.42					
78							
	SP-SAND, trace silt, very dense, fine to medium grained, grey with red grains, moist to wet	-127.42	SS18		1.4	79	0.0
80							
82	END OF BOREHOLE @ 81.5ft BGS	-129.92					
	Chemical analyses refer to both groundwater and sediment samples.						
84	Ground Surface = Mudline						
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-6
DATE COMPLETED: October 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

NORTHING: 715836
EASTING: 1167951

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-48.92					
0	ML-SILTY SAND, very loose, fine grained, gray, wet		SS1		1.0	0	7.3
2		-51.92	SS2		2.0	1	9.1
	SM-SILTY SAND, very loose, fine grained, gray, moist to wet	-52.92					
4	ML-SILTY SAND, very loose, fine grained, gray, wet	-53.42					
	SM-SILTY SAND, fine grained, very loose, gray, moist to wet	-54.92	SS3		1.0	2	29.4
6	ML-SILTY SAND, very loose, fine grained, gray, wet	-55.52					
	SM-SAND with SILT, loose, fine grained, gray, moist to wet	-56.92	SS4		1.8	5	11.2
8	ML-SILTY SAND, very loose, fine grained, gray, wet	-57.42					
	SP-SAND, trace silt, compact, fine grained, gray, moist to wet	-58.92	SS5		2.0	16	10.7
10	Not Sampled						
12		-61.92					
	SM-SILTY SAND, wood debris, loose, fine grained, dark gray, moist to wet	-63.12	SS6		2.0	24	45.2
14	SP-SAND, trace silt, compact, fine to medium grained, red/gray grains, mostly dark gray, odor present	-63.92					
	- increasing silt content below 14.9 ft BGS						
16	Not Sampled						
18		-66.92					
	SP-SAND, trace silt, compact, fine to medium grained, red/gray grains, mostly dark gray, odor present	-68.92	SS7		0.9	14	36.4
20	Not Sampled						
22		-71.92					
	SP-SAND, fine to medium grained, grey/red grains, moist to wet	-73.92	SS8		2.0	9	7.6
24	Not Sampled						
26		-76.92					
	SP-SAND, trace silt, compact, medium grained, poorly graded, dark grey with red grains, wet	-78.92	SS9		2.0	17	5.7
28	- fine grained below 29 ft BGS						
30	Not Sampled						
32		-81.92					
	SP-SAND, trace silt, compact, medium grained, poorly graded, dark grey with red grains, wet		SS10		1.6	17	5.1
34	- 0.1' lense of fine grained sand @ 33.8 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5, SS6, SS7, SS8, SS9)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-6
DATE COMPLETED: October 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	Not Sampled	-83.92					
38	ML-SILT, trace sand, very loose, fine grained, dark grey, moist to wet, strong odor	-86.92	SS11	X	2.0	0	1.0
	- 0.05' silty sand lense below 39.6 ft BGS						
40	Not Sampled	-88.92					
42	ML-SILT, trace sand, very loose, fine grained, dark grey, moist to wet, strong odor	-91.92					
44	SP-SAND, trace silt, compact, fine grained, grey, moist to wet	-92.92	SS12	X	2.0	19	5.7
	Not Sampled	-93.92					
46							
48	- 0.05' silty sand lense @ 48.1 ft BGS	-96.92					
	SP-SAND, trace silt, compact, fine grained, grey, moist to wet		SS13	X	2.0	19	4.9
50	Not Sampled	-98.92					
52	SP-SAND, trace silt, fine to medium grained, compact, dark grey, moist to wet	-101.92					
54			SS14	X	2.0	22	1.2
	Not Sampled	-103.92					
56							
58	SM-SILTY SAND, loose, fine grained, grey, wet	-106.92					
	SP-SAND, trace silt, compact, fine grained, grey, moist to wet	-107.92	SS15	X	2.0	23	0.0
60	Not Sampled	-108.92					
62	SP-SAND, trace silt, fine to medium grained, compact, grey with red grains, moist to wet	-111.92					
64			SS16	X	1.8	24	0.0
	Not Sampled	-113.92					
66							
68	SP-SAND, trace silt, fine to medium grained, compact, grey with red grains, moist to wet	-116.92					
	- 0.2' silt lense @ 69.2 ft BGS		SS17	X	1.5	13	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-6
DATE COMPLETED: October 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	Not Sampled	-118.92					
74	ML-SILT, trace sand, shell fragments, wood debris, fine grained, slight plasticity, dark grey, moist to wet	-121.92	SS18	X	0.6	0	0.0
76	Not Sampled	-123.92					
78	SP-SAND, trace silt, compact, fine grained, poorly sorted, dark grey, wet	-126.92	SS19	X	0.6	53	0.0
80	Not Sampled	-128.92					
82	SP-SAND, trace silt, compact, fine grained, poorly graded, dark grey, wet	-131.92	SS20	X	1.4	50	0.0
84	Not Sampled	-133.92					
86	ML-SILT with SAND, white shell fragments, compact, dark grey, wet - 0.3' vertical x 0.05' horizontal sand lense, trace silt, trace white shell fragments @ 88.6 ft BGS	-136.92	SS21	X	1.4	20	0.0
88	Not Sampled	-138.92					
90	SM-SAND and SILT, dense, fine grained, grey, moist to wet	-141.92	SS22	X	1.0	35	0.0
92	Not Sampled	-143.92					
94	SP-SAND, shell fragments, compact, medium to fine grained, red grains, grey, moist to wet	-146.92	SS23	X	1.8	9	0.0
96	Not Sampled	-148.92					
98	SM-SILTY SAND, stiff, fine grained, grey, moist	-151.92	SS24	X	2.0	8	0.0
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-6
DATE COMPLETED: October 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	END OF BOREHOLE @ 105.0ft BGS	-153.92					
	Chemical analyses refer to both groundwater and sediment samples.						
108	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-7
DATE COMPLETED: August 12, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715748 EASTING: 1167984 GROUND SURFACE	-48.05					
	SM-SILT and SAND, loose, fine grained, gray, moist to wet	-49.05	SS1		2.0	1	0
	SP-SAND, medium dense, fine to medium grained, gray, moist to wet	-49.95					
2	SM-SILT and SAND, fine grained sand, gray, moist to wet	-50.05					
	SP-SAND, medium dense, fine to medium grained, moist to wet - silt (SM) layer from 2.6 to 2.9 ft BGS		SS2		2.0	1	0
4	- silt (SM) layer from 3.6 to 4.0 ft BGS	-52.05					
	SM-SILT and SAND, medium dense, fine grained, gray, moist to wet		SS3		2.0	13	0
6	SP-SAND, trace silt, medium dense, fine to medium grained, gray, moist to wet	-54.05					
			SS4		1.5	15	0
8	Not Sampled	-56.05					
10							
	SM-SILT and SAND, medium dense, fine grained, gray, moist to wet	-59.05					
12			SS6		1.6		0
	Not Sampled	-61.05					
14							
16	SP-SAND, little silt, loose, fine grained sand, black, wet	-64.05					
			SS7		1.0	37	0
18	Not Sampled	-66.05					
20							
	SP-SAND, some silt, fine grained, black, moist	-69.05					
22			SS8			24	0
	Not Sampled	-71.05					
24							
26	SM-SAND, some silt, medium stiff, fine grained, dark grey, moist	-74.05					
			SS9		2.0	15	0
28	Not Sampled	-76.05					
30							
	SM-SILT and SAND, stiff, fine grained, dark grey, moist	-79.05					
32			SS10		1.5	15	0
	Not Sampled	-81.05					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-7
PROJECT NUMBER: 07843
DATE COMPLETED: August 12, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: B. Sinclair, J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, fine to medium grained sand	-84.05	SS11				0
38	Not Sampled	-86.05					
40							
42	SP-SAND, with silt, fine to medium grained	-89.05	SS12				0
44	Not Sampled	-91.05					
46	ML-SILT, trace sand, fine grained	-94.05	SS13				0
48	Not Sampled	-96.05					
50							
52	SM-SILT and SAND, stiff, fine grained, dark grey, moist	-99.05	SS14		1.8	17	0
54	Not Sampled	-101.05					
56	SM-SILT and SAND, stiff, fine grained, dark grey, moist	-104.05	SS15		2.0	27	0
58	Not Sampled	-106.05					
60							
62	SM-SANDY SILT, slightly dense, fine to medium grained, dark grey, moist to wet	-109.05	SS16		0.7	21	1.2
64	Not Sampled	-111.05					
66	SP-SAND, trace silt, dense, grey, moist	-114.05	SS17		1.3	59	0.3
68	Not Sampled	-116.05					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-7
DATE COMPLETED: August 12, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SP-SAND, medium to coarse grained	-119.05	SS18				0
74	Not Sampled	-121.05					
76	ML-SILT, some clay	-124.05	SS19				0
78	Not Sampled	-126.05					
80							
82	SP-SAND, medium to coarse grained	-129.05	SS20				0
84	END OF BOREHOLE @ 83.0ft BGS	-131.05					
86	Chemical analyses refer to both groundwater and sediment samples.						
88	BGS = Below Mudline						
90	Ground Surface = Mudline						
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-8
DATE COMPLETED: August 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

NORTHING: 715688
EASTING: 1167938

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-31.52					
0	FILL, silt with sand and precipitant intermixed, loose, beige to black, moist		SS1		2.0	0	0
2	- fibrous, odor (non-chemical) below 2.4 ft BGS		SS2		1.8	0	0
4			SS3		2.0	4	0
6	- becoming more silty @ 6 ft BGS		SS4		2.0	15	0
8	- more silt with fine to medium sand, brown below 8 ft BGS		SS5		2.0	20	0
10	SM-SILTY SAND, loose, brown, wet to moist	-41.52					
	SP-SAND, fine to medium grained, poorly graded	-42.52	SS6		2.0	41	0
12	SM-SILTY SAND, loose, brown, wet to moist	-43.52	SS7		2.0	67	0
14	- silt lense between 13.7 and 13.9 ft BGS	-45.52					
	SP-SAND, medium dense, fine to medium grained, poorly graded, brown with red grains		SS8		2.0	30	0
16	Not Sampled	-47.52					
18							
	SP-SAND, medium dense, fine to medium grained, poorly graded, brown with red grains	-50.52	SS9		2.0	26	0
20	Not Sampled	-52.52					
22							
24	SP-SAND, medium dense, fine to medium grained, some silt, brown, moist to wet	-55.52	SS10		1.6	44	0
26	Not Sampled	-57.52					
28							
	SP-SAND, some silt, medium dense, fine to medium grained, brown, moist to wet	-60.52	SS11		1.6	24	0
30	Not Sampled	-62.52					
32							
34	SP-SAND, some silt, medium dense, fine to medium grained, brown, moist to wet	-65.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS8, SS9, SS10, SS11)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-8
DATE COMPLETED: August 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36			SS12		2.0	46	0
	Not Sampled	-67.52					
38							
	SP-SAND, some silt, medium dense, fine to medium grained, brown, moist to wet	-70.52					
40	- silt lenses @ 40.5, 40.6, and between 40.7 and 40.8 ft BGS		SS13		2.0	48	0
	Not Sampled	-72.52					
42							
44	SP-SAND, dense, medium to fine grained, trace silt, brown, moist to wet	-75.52	SS14		1.5	154	0
46	Not Sampled	-77.52					
48							
	SM-SAND and SILT, fine grained, brown, moist to wet, dense	-80.52					
50			SS15		1.5	180	0
	Not Sampled	-82.52					
52							
54	SP-SAND, medium to fine grained, trace silt, brown, moist to wet, dense	-85.52	SS16		1.6	60	0
56	Not Sampled	-87.52					
58							
	SP-SAND, fine grained, ~2" silt lenses	-90.52					
60			SS17				
	Not Sampled	-92.52					
62							
64	SP-SAND, fine to medium grained, some silt, black, moist, hard	-95.52					
	ML-SILT, trace sand, grey, moist, stiff	-96.52	SS18				
66	Not Sampled	-97.52					
68							
	ML-SILT, grey, moist, soft	-100.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-8
DATE COMPLETED: August 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
			SS19				
		-102.52					
	Not Sampled						
72							
74		-105.52					
	ML-SILT, grey, moist, soft		SS20			21	
76		-107.52					
	Not Sampled						
78							
		-110.52					
	SM-SILT and SAND, fine grained, grey, moist to wet, medium dense						
80		-111.62	SS21		2.0	33	0
	SP-SAND, fine to medium grained, brown, moist to wet, medium dense	-112.52					
	Not Sampled						
82							
84		-115.52					
	SP-SAND, fine to medium grained, brown, moist to wet, medium dense						
	- silt between 85.3 and 85.5 ft BGS		SS22		2.0	37	0
86		-117.52					
	Not Sampled						
88							
		-120.52					
	SP-SAND, fine to medium grained, moist to wet, medium dense						
90		-121.52	SS23		1.6	50	0
	ML-SILT, trace sand, grey, moist, stiff	-122.72					
	Not Sampled						
92							
94		-125.52					
	ML-SILT, grey, soft, moist		SS24			21	
96		-127.52					
	Not Sampled						
98							
		-130.52					
	SM-SAND, fine grained, some silt, black, moist, hard						
100			SS25				
		-132.52					
	END OF BOREHOLE @ 101.0ft BGS						
102							
	BGS = Below Mudline						
104							
	Ground Surface = Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-9
DATE COMPLETED: October 31, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

NORTHING: 716263
EASTING: 1167618

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-42.42					
	SM-SILTY SAND, very loose, gray, wet	-43.42	SS1		1.9	0	0.0
2	SP-SAND, trace silt, fine to medium grained sand, very loose, gray, wet - gray sand with red grains below 2 ft BGS		SS2		1.0	0	0.0
4	Not Sampled	-46.42					
6		-49.42					
8	SP-SAND, trace silt, shell fragments, and wood debris, fine to medium grained sand, loose, gray with red grains,		SS3		1.3	18	377
	Not Sampled	-51.42					
10							
12		-54.42					
	SM-SILTY SAND, loose, fine grained sand, dark gray, wet - silt lense @ 12.8 ft BGS	-55.32	SS4		1.2	8	303
14	SP-SAND, trace silt, medium to fine grained sand, dark gray with red and white grains, wet	-56.42					
	Not Sampled						
16							
18	SP-SAND, trace silt, medium to fine grained sand, dark gray with red and white grains, wet	-59.42	SS5		1.0	19	99.9
	Not Sampled	-61.42					
20							
22	SP-SAND, trace silt, medium to fine grained sand, dark gray with red and white grains, wet	-64.42	SS6		1.2	13	217
24	Not Sampled	-66.42					
26							
28	SP-SAND, trace silt, medium to fine grained sand, dark gray with red and white grains, wet - 0.04' silt lense @ 27.4 ft BGS	-69.42	SS7		1.2	17	33.4
	- 0.04' silt lense @ 27.6 ft BGS	-71.42					
30	Not Sampled						
32	MH-SILT with SAND, loose, dark grey, wet, faint odor	-74.42	SS8		1.7	9	138
34	Not Sampled	-76.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-9
DATE COMPLETED: October 31, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark grey, wet	-79.42					
38	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark grey with red grains, wet	-80.32	SS9		1.5	12	350
	- 0.08' silt lense @ 38.4 ft BGS	-81.42					
40	Not Sampled						
42	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, wet	-84.42					
	- 0.24' sand lense, with trace silt @ 42.8 ft BGS		SS10		1.2	15	46.6
44	- 0.08' sandy silt lense @ 43.5 ft BGS	-86.42					
	Not Sampled						
46							
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark grey with trace red grains, wet	-89.42					
48	- 0.24' silty sand lense @ 47.4 ft BGS		SS11		1.4	18	63.3
	Not Sampled	-91.42					
50							
52	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark grey with trace red grains, wet	-94.42	SS12		1.1	22	48.6
54	Not Sampled	-96.42					
56							
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark grey with trace red grains, wet	-99.42 -99.92					
58	SM-SILTY SAND, dense, fine grained sand, poorly graded, dark grey, moist		SS13		1.6	42	115
	Not Sampled	-101.42					
60							
62	SP-SAND, shell fragments, medium grained sand, dense, grey, wet	-104.42 -104.82					
	SP-SAND, medium to fine grained, dense, grey, moist to wet		SS14		1.5	31	22.8
64	Not Sampled	-106.42					
66							
	SM-SILTY SAND	-109.42 -109.62					
68	SP-SAND, medium to fine grained, compact, grey, moist to wet		SS15		1.0	22	18.0
	Not Sampled	-111.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-9
DATE COMPLETED: October 31, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SP-SAND, shell fragments, dense, fine to medium grained, dark grey with red/grey grains, moist	-114.42	SS16		1.2	31	52
74	Not Sampled	-116.42					
76							
78	SP-SAND, shell fragments, dense, fine to medium grained, dark grey with red/grey grains, moist, odor - silt becomes present below 77.4 ft BGS	-119.42	SS17		1.8	22	250
80	Not Sampled	-121.42					
82	MH-SILT, compact, low plasticity, dark grey, rapid dilatancy, moist to wet - 0.2' fine grained sand lense @ 82.9 ft BGS	-124.42 -125.02	SS18		2.0	14	0.0
84	SM-SAND and SILT, wood debris, shell fragments, fine grained sand, compact, dark grey, moist to wet - 0.1' fine grained sand lense @ 83.5 ft BGS	-126.42					
86	Not Sampled						
88	ML-SILT with sand, shell fragments, fine grained, soft, dark grey, wet - 0.2' silty sand lense, fine grained @ 88.2 ft BGS	-129.42	SS19		1.8	9	0.0
90	Not Sampled	-131.42					
92	SP-SAND, trace silt, compact medium grained, poorly graded, dark grey with white shell fragments - increase in silt content below 93.2 ft BGS	-134.42	SS20		1.4	34	0.0
94	Not Sampled	-136.42					
96							
98	SW-GRAVELLY SAND, dense, fine to coarse grained sand, well rounded fine gravel, yellowish-brown, wet	-139.42	SS21		0.6	118	0.0
	END OF BOREHOLE @ 99.0ft BGS	-141.42					
100	Chemical analyses refer to both groundwater and sediment.						
102	Groundwater sampling continued at 10-foot intervals to 110 ft BGS.						
104	Ground Surface = Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS16)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-10
DATE COMPLETED: November 2, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716119 EASTING: 1167763 GROUND SURFACE	-43.22					
	SP-SAND, very loose, fine to medium grained, gray, wet	-44.02	SS1		1.7	0	0.0
2	SM-SILTY SAND, very loose, medium to fine grained, gray, wet	-45.22					
	SP-SAND, medium to fine grained, very loose, gray with red grains, wet		SS2		1.2	1	0.0
4	Not Sampled	-47.22					
6		-50.22					
	ML-SILT and SAND, loose, very fine grained sand, wet	-50.52					
8	SP-SAND, trace silt, loose, fine to medium grained sand, dark gray with red/gray grains, wet		SS3		1.2	8	7.8
	Not Sampled	-52.22					
10							
12	SP-SAND, trace silt, wood debris, loose, fine to medium grained, dark gray with red/gray grains, wet	-55.22	SS4		1.0	12	1.1
14	Not Sampled	-57.22					
16							
	SP-SAND, trace silt, wood debris, shell fragments, loose, fine to medium grained sand, dark gray with red/gray grains, wet	-60.22	SS5		1.1	10	10.7
18							
	Not Sampled	-62.22					
20							
22		-65.22					
	SP-SAND, trace silt, loose, fine to medium grained sand, dark gray with red/gray grains, wet	-65.52	SS6		1.8	9	88.1
	SM-SILTY SAND, loose, fine to medium grained sand	-66.52					
24	SP-SAND, trace silt, loose, fine to medium grained sand, dark gray with red/gray grains, wet	-67.22					
	Not Sampled						
26							
	ML-SILT, with fine grained sand, compact, dark grey, wet	-70.22	SS7		1.9	17	35.0
28		-71.42					
	SP-SAND, trace silt, white shell fragments, compact, medium grained sand, poorly graded, dark grey with red grains, wet, odor present	-72.22					
30	Not Sampled						
32		-75.22					
	SP-SAND, trace silt, white shell fragments, compact, medium grained sand, poorly graded, dark grey with red grains, wet, odor present		SS8		1.3	24	2.8
34	Not Sampled	-77.22					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS2, SS3, SS4, SS5, SS6, SS7, SS8)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-10
DATE COMPLETED: November 2, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
	SP-SAND, trace silt, trace white shell fragments, compact, medium grained sand, poorly graded, dark grey, trace red grains, wet - 0.05' fine grained sand lense @ 37.5 ft BGS	-80.22	SS9		1.6	28	0.0
38	Not Sampled	-82.22					
40							
42	SP-SAND, trace silt, trace white shell fragments, compact, medium grained sand, poorly graded, dark grey, trace red grains, trace white shell fragments, wet	-85.22	SS10		2.0	76	1.1
	SM-SILTY SAND, dense, very fine grained sand, poorly graded, dark grey, wet, faint odor	-86.12					
44	Not Sampled	-87.22					
46							
	SP-SAND, medium to fine grained, poorly graded, grey, red grains, dense, moist to wet - 0.1' silty sand lense @ 47.3 ft BGS	-90.22	SS11		0.9	77	0.3
48	Not Sampled	-92.22					
50							
52	SP-SAND, medium to fine grained, poorly graded, dark grey with red grains, dense, moist to wet	-95.22	SS12		0.9	53	0.3
54	END OF BOREHOLE @ 54.0ft BGS	-97.22					
56	Chemical analyses refer to both groundwater and sediment samples.						
	Groundwater sampling continued at 10-ft intervals to a depth of 125 ft BGS.						
58	Ground Surface = Mudline						
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-11
PROJECT NUMBER: 07843
DATE COMPLETED: October 13, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

NORTHING: 715965
EASTING: 1167928

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-44.32					
0	SM-SILTY SAND, loose, fine grained sand, poorly graded, dark gray, wet		SS1		1.2	7	0
2	SP-SAND, trace silt, trace white shells, compact, medium grained sand, poorly graded, dark gray, wet	-46.32	SS2		1.0	10	0
4	- 0.25' lense of silty sand, loose, dark gray, very moist @ 2.7 ft BGS	-48.32					
6	Not Sampled	-51.32					
8	MH-SILT, with sand, loose, dark gray, very moist to wet	-52.32	SS3		1.6	4	3.8
	SM-SILTY SAND, loose, fine grained sand, poorly graded, dark gray, wet	-53.32					
10	Not Sampled						
12	SM-SILTY SAND, loose, fine grained sand, poorly graded, dark gray, wet	-56.32					
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray, wet	-56.52	SS4		1.8	3	5.8
14	Not Sampled	-58.32					
16	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, red with dark gray grains, wet	-61.32	SS5		1.5	18	1.3
18	- 0.2' lense of silty sand @ 17.5 ft BGS	-63.32					
20	Not Sampled						
22	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark gray, wet, odor	-66.32 -66.62	SS6		2.0	20	1.7
	MH-SANDY SILT, compact, dark gray, wet, rapid dilatancy	-67.22					
24	SM-SILTY SAND, compact, fine grained sand, poorly graded, wet, odor	-68.32					
	- 0.1' sand layer, trace silt @ 23.9 ft BGS						
26	Not Sampled						
28	SP-SAND, compact, fine to medium grained sand, moist to wet, grey, odor	-71.32	SS7		1.5	22	4.7
	Not Sampled	-73.32					
30							
32	SP-SAND, compact, fine to medium grained, moist to wet, grey with red grains, odor	-76.32	SS8		1.3	23	6.6
34	Not Sampled	-78.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS2, SS3, SS4, SS5, SS6, SS7, SS8)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-11
DATE COMPLETED: October 13, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
	SP-SAND, dense, fine to medium grained, moist to wet, grey with red grains, odor	-81.32	SS9		1.5	41	1.2
38		-83.32					
	Not Sampled						
40							
42	SM-SILTY SAND, loose to firm, fine grained sand, moist to wet, grey	-86.32	SS10		1.6	6	9.9
44		-88.32					
	Not Sampled						
46							
	MH-SILT with SAND, fine grained, soft, grey, moist to wet	-91.32	SS11		0.2	13	3.2
48		-93.32					
	Not Sampled						
50							
52	SP-SAND, with silt, shell fragments, decreasing silt content with depth, compact, fine to medium grained sand, dark grey, moist to wet	-96.32	SS12		1.9	20	0
	- 0.1' silt lense @ 52.9 ft BGS						
54		-98.32					
	Not Sampled						
56							
	ML-SILT, trace fine sand, wood pieces near bottom, soft, grey, moist to wet	-101.32	SS13		0.1	3	0
58		-103.32					
	Not Sampled						
60							
62	ML-SILT, with fine sand, wood pieces, compact, dark grey, moist to wet	-106.32					
	SP-SAND, trace silt, compact, fine grained sand, dark grey, moist to wet	-106.52	SS14		1.4	13	0
64		-108.32					
	Not Sampled						
66							
	ML-SILT, trace sand, firm, dark grey, dilatant, medium plasticity, moist to wet	-111.32					
68	- wood pieces @ 67.95 ft BGS	-112.22	SS15		2.0	25	6
	SP-SAND, trace silt increasing with depth, compact, fine to medium grained sand, dark grey with grey/red grains, moist to wet	-113.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-11

PROJECT NUMBER: 07843
DATE COMPLETED: October 13, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	Not Sampled						
72	SP-SAND, trace silt increasing with depth, dense, fine to medium grained sand, dark grey with grey/red grains, moist to wet, no wood	-116.32	SS16	X	1.6	35	0
74	Not Sampled	-118.32					
76							
78	SP-SAND, with trace silt increasing with depth, trace wood, dense, fine to medium grained sand, dark grey with grey/red grains, moist to wet	-121.32	SS17	X	1.2	17	0
80	Not Sampled	-123.32					
82	SP-SAND with trace silt, trace wood, dense, fine to medium grained sand, dark grey with grey/red grains, moist to wet	-126.32	SS18	X	1.3	17	0
	MH-SILT, trace find sand, soft, dark grey, medium plasticity, moist to wet	-126.62					
84	Not Sampled	-128.32					
86							
88	MH-SILT with trace fine sand, soft, dark grey, medium plasticity, moist to wet	-131.32	SS19	X	1.3	57	NA
	SP-SAND, white shells, medium to fine grained, very dense, grey, moist	-132.32					
90	Not Sampled	-133.32					
92	SP-SAND, fine to medium grained, dense, grey, moist interbedded planar white coarse grains	-136.32	SS20	X	1.3	32	1.2
94	Not Sampled	-138.32					
96							
98	SP-SAND, fine to medium grained, dense, dark grey, moist - white coarse grains, layered @ 97.4 ft BGS - white coarse grains, layered @ 97.8 ft BGS	-141.32	SS21	X	1.4	21	0
100	Not Sampled	-143.32					
102	- 1 cm thick white coarse grained lense @ 102.3 ft BGS	-146.32	SS22	X	0.9	44	NA
	SP-SAND, fine to medium grained, dark grey with red grains and white coarse grains throughout, dense, dry to moist	-147.12					
104	SW-SAND with GRAVEL, poorly sorted, fine gravels, fine to medium grained sand, very dense, brown/grey/yellow color, red/dark grey gravel	-148.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-11

PROJECT NUMBER: 07843
DATE COMPLETED: October 13, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	END OF BOREHOLE @ 104.0ft BGS						
	Chemical analyses refer to groundwater and sediment.						
108	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-12
DATE COMPLETED: October 10, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715795 EASTING: 1168073 GROUND SURFACE	-42.52					
	ML-SILT with SAND, very loose, dark gray, wet	-43.12					
2	SP-SAND, trace silt, very loose, fine to medium grained sand, poorly graded, dark gray, wet - sand becomes coarse grained below 2 ft BGS		SS1		0.9		0
4			SS2		1.2		0
	END OF BOREHOLE @ 4.0ft BGS	-46.52					
6	Groundwater sampling continued at 10-foot intervals to 115.0 ft BGS.						
	Ground Surface = Mudline						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-13
DATE COMPLETED: November 28, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

NORTHING: 716318
EASTING: 1167669

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-41.02					
	(Bottom Sediment)	-41.42					
	ML-SILT, trace clay, dark gray, wet, low plasticity	-41.72	SS1		1.1		0.0
2	SP-SAND, fine grained, negligible silt, dark gray/black with red grains, shell fragments present - increasing silt content between 2 and 3 ft BGS		SS2		0.8	0	0.0
4	Not Sampled	-45.02					
6							
	SP-SAND, trace silt, compact, fine grained sand, black with no red grains, silt in spoon tip	-48.02	SS3		2.0	19	0.0
8							
10	Not Sampled	-50.02					
	SP-SAND, trace silt, compact, fine grained sand, black with no red grains, slightly dilatant at tip, wet, 0.02' silt veneers	-53.02	SS4		1.3	13	90.2
12							
14	Not Sampled	-55.02					
16							
	SP-SAND, trace silt, compact, fine grained sand, black with red grains, slightly dilatant at tip, wet - 0.02' silt seams interbedded	-58.02	SS5		2.0	25	403
18							
20	Not Sampled	-60.02					
22							
	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, black with red grains, slightly dilatant at tip, moist	-63.02 -63.52	SS6		1.5	11	1826
	ML-SILT, trace fine grained sand, slightly cohesive, slightly plastic, moist, gray	-64.02 -64.22					
24	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, black with red grains, slightly dilatant at tip, moist	-65.02					
	ML-SILT, trace fine grained sand, slightly cohesive, slightly plastic, moist, grey						
26	Not Sampled						
	SM/ML-SILTY SAND, compact/stiff, fine to medium grained sand, slightly cohesive, dark grey with red grains, moist to wet	-68.02	SS7		1.0	13	927
28							
30	Not Sampled	-70.02					
32	ML-SILT, trace to little sand, firm, fine grained sand, dark grey, moist, slightly cohesive	-73.02 -73.52	SS8		1.0	20	535
34	SM-SILTY SAND, fine to medium grained sand, dark grey with red grains, compact, moist to wet, slightly dilatant						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-13
DATE COMPLETED: November 28, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	Not Sampled	-76.02					
	SP-SAND, trace to little silt, fine to medium grained sand, dark grey with red grains, moist to wet	-78.02	SS9		0.6	19	92.3
38							
	Not Sampled	-80.02					
40							
42	SP-SAND, trace to little silt, compact, fine to medium grained sand, dark grey with red grains, moist to wet	-83.02	SS10		1.4	24	35.1
	Not Sampled	-85.02					
44							
46							
	SP-SAND, trace to little silt, compact, fine to medium grained sand, dark grey with red grains, moist to wet	-88.02	SS11		1.3	28	135
48							
	Not Sampled	-90.02					
50							
52	SP-SAND, trace to little silt, compact, fine to medium grained sand, dark grey with red grains, moist to wet	-93.02	SS12		0.8	15	38
	Not Sampled	-95.02					
54							
56							
	SP-SAND, trace to little silt, compact, fine to medium grained sand, dark grey with red grains, moist to wet	-98.02	SS13		2.0	34	182
58							
	ML-SILT, trace clay, trace fine sand, slightly plastic, hard, dark grey, moist	-99.52					
	Not Sampled	-100.02					
60							
62	SP-SAND, negligible silt, compact, fine to medium grained sand, black with red grains	-103.02					
	SM-SILTY SAND, silt seam, very dense, dark grey, non-plastic	-104.02	SS14		1.9	33	85
64	Not Sampled	-105.02					
66							
	SP-SAND, negligible silt, fine grained sand, dark grey-black with red grains, wet, dense	-108.02	SS15		2.0	48	8.0
68							
	Not Sampled	-110.02					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-13
DATE COMPLETED: November 28, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SP-SAND, trace silt, compact, fine grained sand, dark grey-black with red grains, wet	-113.02	SS16		2.0	12	55
74	Not Sampled	-115.02					
76							
78	SP-SAND, trace wood debris, compact, fine to medium grained, dark grey with trace red grains, moist - no wood @ 77.5 ft BGS - fine grained @ 78.5 ft BGS	-118.02 -120.02	SS17		2.0	11	503
80	Not Sampled						
82	SP-SAND, compact, fine to medium grained, dark grey, trace red grains, moist to wet - increasing silt content below 83.5 ft BGS	-123.02	SS18			20	164
84	Not Sampled	-125.02					
86							
88	SP-SAND, with silt, compact, fine to medium grained sand, dark grey with trace red grains, wet	-128.02	SS19		0.8	28	2.0
90	Not Sampled	-130.02					
92	GW-GRAVEL and SAND, very dense, fine to coarse grained sub-rounded gravel, well graded, wet	-133.02	SS20		0.6	83	0.5
94	Not Sampled	-135.02					
96							
98	SP-SAND with GRAVEL, trace silt, compact, fine to coarse gravel, poorly graded, light brown, wet	-138.02	SS21		0.6	26	0.0
100	Not Sampled	-140.02					
102	SP-SAND with GRAVEL, silt, compact, fine to coarse gravel, poorly graded, light brown, wet	-143.02	SS22		0.8	71	0.0
104	END OF BOREHOLE @ 104.0ft BGS	-145.02					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-13
PROJECT NUMBER: 07843
DATE COMPLETED: November 28, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: W. Best
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	Groundwater sampling continued at 5-foot intervals to a depth of 115 ft BGS.						
	Chemical analyses refer to both groundwater and sediment samples.						
108	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-14
DATE COMPLETED: December 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

NORTHING: 716175
EASTING: 1167816

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-43.32					
	ML-SILT, trace clay, bottom sediment, medium plasticity, dark gray	-43.52					
	SM-SILTY SAND, black	-44.12	SS1		1.3	4	1.2
2	SP-SAND, trace silt, fine grained sand, black with red grains, very loose, wet		SS2		2.0	4	1.1
4	Not Sampled	-47.32					
6							
	SP-SAND, trace silt, fine grained sand, black with red grains, becoming dense, wet	-50.32					
8			SS3			35	1.8
	Not Sampled	-52.32					
10							
12	SP-SAND, trace silt, fine grained sand, black with red grains, becoming dense, wet, compact	-55.32					
	- fine grained below 12.5 ft BGS	-56.42	SS4		1.5	10	2.5
14	ML-SILT, gray, non-plastic	-57.32					
	Not Sampled						
16							
	SP-SAND, fine grained, trace silt, dark gray with red grains, compact	-60.32					
18	- 0.1' layer of silty sand, dark gray, non-plastic @ 17.8 ft BGS		SS5		1.6	21	27
	Not Sampled	-62.32					
20							
22	SP-SAND, trace to little silt, dark gray with red grains, moist to wet, compact	-65.32					
		-66.32	SS6		1.8	13	372
	ML-SILT with SAND, gray, moist, slightly cohesive	-66.62					
24	SM-SILTY SAND, fine grained, dark grey, moist to wet, compact	-67.32					
	Not Sampled						
26							
	ML-SILT, trace to little fine sand, very stiff, moist, grey, slightly cohesive, slightly plastic	-70.32					
28		-71.22	SS7		1.3	18	303
	- trace to little silt, fine to medium grained @ 28.2 ft BGS						
	SM-SILTY SAND, fine grained, dark grey, moist to wet	-72.32					
30	Not Sampled						
32	SP-SAND, trace silt, fine to medium grained, compact, dark grey with red grains, moist to wet	-75.32					
			SS8		1.6	20	38.3
34	Not Sampled	-77.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS2, SS3, SS4, SS5, SS6, SS7, SS8)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-14
PROJECT NUMBER: 07843
DATE COMPLETED: December 1, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: W. Best
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
	- 0.02' thick silt seam, grey, moist @ 37.2 ft BGS	-80.32					
38	SP-SAND, trace silt, fine to medium grained, compact, dark grey with red grains, moist to wet, sulphur odor		SS9		1.2	18	47.0
	- trace shell fragments @ 38.2 ft BGS	-82.32					
40	Not Sampled						
42	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark grey with red grains, wet	-85.32	SS10		0.7	17	28.8
44	Not Sampled	-87.32					
46							
48	SP-SAND, trace silt, shell fragments, compact, fine to medium grained, poorly graded, dark grey with trace red grains, wet	-90.32	SS11		1.3	13	4.5
	Not Sampled	-92.32					
50							
52	MH-SANDY SILT, compact, fine grained sand, dark grey, wet, rapid dilatancy	-95.32					
	- 0.02' fine sand lense @ 52.3 ft BGS	-96.52	SS12		1.9	11	1.8
54	- 0.1' fine to medium grained sand lense @ 52.6 ft BGS	-97.32					
	SP-SAND, trace silt, trace shell fragments, compact, medium grained, poorly graded, dark grey, trace red grains, wet						
56	- 0.07' sandy silt lense @ 53.8 ft BGS Not Sampled						
	SP-SAND, trace silt, trace shell debris, compact, fine to medium grained, dark grey with red grains, moist	-100.32	SS13		2.0	28	5.3
58	- fine grained with silt @ 58.4 ft BGS						
	- becoming wet with slight dilatancy @ 59.92 ft BGS	-102.32					
60	Not Sampled						
62	SP-SAND, trace silt, trace shell debris, compact/dense, fine to medium grained, dark grey with red grains, moist	-105.32	SS14		1.8	43	1.0
	- fine grained with silt @ 63.3 ft BGS						
64	Not Sampled	-107.32					
66							
	SM-SILTY SAND, dark grey, fine grained, compact, occasional sandy silt seams	-110.32	SS15		1.2	25	0.2
68	END OF BOREHOLE @ 69.0ft BGS	-112.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-14
DATE COMPLETED: December 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	Chemical analyses refer to both groundwater and sediment.						
	BGS = Below Mudline						
72	Ground Surface = Mudline						
74							
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-15
DATE COMPLETED: November 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 716020 EASTING: 1167978 GROUND SURFACE	-41.22				
	Not Sampled					
2	MH-SILT with SAND, very loose, dark gray, wet	-43.22				
	SM-SILTY SAND, trace white shell fragments, very loose, fine grained, dark gray, wet	-44.12	SS1		1.2	1
4	SP-SAND, trace silt, loose, fine to medium grained, poorly graded, dark gray, wet, trace white shell fragments	-45.22	SS2		1.0	4
6	END OF BOREHOLE @ 6.0ft BGS	-47.22				
	Groundwater sampling continued at 10-foot intervals to 75.0 ft BGS.					
8	Ground Surface = Mudline					
10						
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-16
DATE COMPLETED: November 14, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715864 EASTING: 1168139 GROUND SURFACE	-41.42					
0	ML-SILT	-42.02					
	SM-SILTY SAND, shell fragments, fine to medium grained sand, very loose, dark gray with red/white grains, wet	-42.42	SS1	X	1.9	3	0.0
2	SP-SAND, trace silt, fine to medium grained, dark gray with red/white grains, wet	-43.42					
	END OF BOREHOLE @ 2.0ft BGS						
4	Groundwater sampling continued at 10-foot intervals to a depth of 104 ft BGS.						
	Ground Surface = Mudline						
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-19
DATE COMPLETED: January 13, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levangie, Z. Ferriara, W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716094 EASTING: 1167901 GROUND SURFACE	-44.42					
	No Recovery	-44.92					
	ML-SILT, soft, plastic, dark gray, moist (mud)	-45.22					
2	SP-SAND, trace to negligible silt, trace red grains, trace white shell fragments, medium grained sand, dark gray, moist, dilatant, loose	-46.92	001		1.3	4	0.0
	Not Sampled						
4							
6							
8							
10							
	SP-SAND, trace to negligible silt, trace white shell fragments, poorly graded, medium grained, dark gray with trace red grains, moist, dilatant, loose	-54.92					
12	- 1-inch silt with fine grained sand, trace clay lense @ 10.8 ft BGS		002		1.1	8	0.0
	- wood fragments present @ 10.9 ft BGS	-56.92					
	Not Sampled						
14							
16							
18							
20							
	SP-SAND, trace to negligible silt, trace white shell fragments, poorly graded, medium to fine grained, dark gray with trace red grains, moist, dilatant, loose	-64.92					
22			003		0.5	14	0.0
	Not Sampled	-66.92					
24							
26							
28							
30							
	SP-SAND, trace to negligible silt, poorly graded, trace white shell fragments, medium to fine grained, dark gray with trace red grains, moist, dilatant, loose	-74.92					
32	- silt veneers @ 31.1 ft BGS		004		1.1	12	0.0
	Not Sampled	-76.92					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-19
DATE COMPLETED: January 13, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Levangie, Z. Ferriara, W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
	SM-SILTY SAND, fine grained, dark gray, moist, compact, odor	-84.92	005	X	1.4	12	0.0
42	ML-SANDY SILT, dark gray	-86.12					
	END OF BOREHOLE @ 42.5ft BGS	-86.92					
44	Chemical analyses refer to both groundwater and sediment.						
46	Groundwater sampling continued at 10-ft intervals to a depth of 113.5 ft BGS						
	Ground Surface = Mudline						
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-20
PROJECT NUMBER: 07843
DATE COMPLETED: January 4, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: W. Best, D. Deitner, J. Levangie
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716369 EASTING: 1167716 GROUND SURFACE	-40.82					
	Not Sampled	-41.32					
2	MH-SILT, with CLAY, trace fine grained sand, very loose, dark gray (bottom sediment)	-43.32	1		0.7		0.0
	Not Sampled	-44.32					
4	SP-SAND, negligible silt, fine grained, dark gray with red grains, wet, very loose	-46.32	2		0.4	1	0.0
6	Not Sampled						
8		-49.32					
10	SP-SAND, trace silt, dark gray with red grains, wet, compact	-51.32	3		0.9	11	0.0
12	Not Sampled						
		-54.32					
14	SP-SAND, trace silt, dark gray with red grains, wet, compact	-55.02					
	ML-SILT, with fine grained sand, with clay, gray, wet, firm, medium plasticity	-56.32	4		1.2	7	37
16	Not Sampled						
18		-59.32					
20	SP/SM-SAND, trace silt, fine grained, gray with red grains, wet, compact	-61.32	5		1.1	11	20
22	Not Sampled						
		-64.32					
24	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, wet	-66.32	6		0.6	18	11.6
26	Not Sampled						
28		-69.32					
30	SP-SAND, trace silt, trace white shell fragments, compact, fine grained, poorly graded, dark gray, wet - 0.02' silt lense @ 28.7 ft BGS - 0.04' silt lense @ 29.1 ft BGS	-71.32	7		1.2	14	49.1
32	Not Sampled						
		-74.32					
34	SP-SAND, trace silt, trace white shell fragments, compact, fine grained sand, poorly graded, dark grey, wet, odor		8		0.7	21	71.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-20

PROJECT NUMBER: 07843
DATE COMPLETED: January 4, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: W. Best, D. Deitner, J. Levangie

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	Not Sampled	-76.32					
38		-79.32					
40	SP-SAND, trace silt, trace white shell fragments, compact, medium grained sand, dark grey with trace red grains, poorly graded, wet, odor		9		1.1	26	36.1
42	Not Sampled	-81.32					
44	SP-SAND, trace silt, trace white shell fragments, poorly graded, dark grey with trace red grains, moist	-84.32					
		-85.22	10		1.6	21	126
	ML-SILT, trace sand, poorly graded, dark grey, moist	-85.62					
46	SP-SAND, trace silt, trace white shell fragments, poorly graded, dark grey switch trace red grains, moist	-86.32					
	Not Sampled						
48							
50	SP-SAND, trace silt, trace white shell fragments, poorly graded, dark grey with trace red grains, moist	-89.32	11		0.5	16	51.7
	Not Sampled	-91.32					
52							
54	SP-SAND, trace silt, trace white shell fragments, poorly graded, dark grey with trace red grains, moist	-94.32					
		-95.02	12		2.0	22	128
	ML-SILT with SAND, fine grained, poorly graded	-95.62					
56	SP-SAND, trace silt, trace white shell fragments, poorly graded, dark grey with trace red grains, moist	-96.32					
	Not Sampled						
58							
	ML-SILT, grey, trace fine sand, trace clay, medium plasticity	-99.32					
	SP-SAND, fine grained, dark grey with red grains, trace silt	-99.52					
60	ML-SILT, with fine sand, stiff, low plasticity, grey	-99.72	13			10	
	SM-SAND, with silt, fine grained sand, grey	-100.82					
	Not Sampled	-101.32					
62							
64	SP/SM-SAND, with silt, compact, fine grained, dark grey with red grains, wet	-104.32	14		1.8	25	15
	Not Sampled	-106.32					
66							
68							
	ML-SILT, with clay, trace fine sand, stiff, medium plasticity, grey, wet	-109.32					
	ML-SILT, trace clay, with fine sand, low plasticity	-110.02					
		-110.42	15		2.0	10	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-20
DATE COMPLETED: January 4, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, D. Deitner, J. Levangie

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT, with clay, trace fine sand, stiff, medium plasticity, grey, wet	-111.32					
	Not Sampled						
72							
	ML-SILT, with clay, trace fine sand, firm, medium plasticity, grey	-114.32					
74	- clayey silt @ 74 ft BGS		16		2.0	5	0.0
	Not Sampled	-116.32					
76							
78							
	GM-SILTY, SANDY GRAVEL, very dense, fine grained sand, subrounded gravel, poorly graded, light grey, wet	-119.32					
80			17		0.6	87	0.1
	Not Sampled	-121.32					
82							
	GM-SILTY, SANDY GRAVEL, very dense, fine grained sand, subrounded gravel, poorly graded, light grey, wet, trace orange oxidized lenses	-124.32					
84			18		0.7	87	0.0
	Not Sampled	-126.32					
86							
88							
	SM-SILTY SAND, trace fine grained subrounded gravel, very dense, fine grained sand, poorly graded, light yellowish brown, wet	-129.32					
90			19		0.8	55	0.0
	Not Sampled	-131.32					
92							
	GM-GRAVEL, with sand, trace silt, very dense, fine to medium grained sand, well graded, dark grey, moist	-134.32					
94	- more silt, light brown, well rounded gravels present @ 93.9 ft BGS		20		1.1	75	0.0
	END OF BOREHOLE @ 95.5ft BGS	-136.32					
96							
	Chemical analyses refer to both groundwater and sediment.						
98							
	Ground Surface = Mudline						
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-21
PROJECT NUMBER: 07843
DATE COMPLETED: January 6, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera, J. Levangie

NORTHING: 716226
EASTING: 1167865

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-43.42					
	Not Sampled	-43.92					
	ML-SILT, trace fine grained sand, very soft, poorly graded, dark gray, moist	-44.82	SS1		1.8	4	0.0
2	SP-SAND, trace silt, trace white shell fragments, very soft, trace red grains, poorly graded, dark gray, moist	-45.92					
	Not Sampled						
4							
	SP-SAND, trace silt, loose fine grained sand, dark gray with red grains, wet	-48.92	SS2		2.0	7	20
6		-50.82					
	SM-SILTY SAND, fine grained sand, dark gray, wet	-50.92					
8	Not Sampled						
10							
	ML-SILT, sandy, gray, moist	-53.92					
	SP-SAND, trace silt, loose, fine grained sand, dark gray with red grains, moist	-54.12	SS3		1.5	7	27
12	- 0.3' silty sand later, dark gray @ 11.4 ft BGS	-55.92					
	Not Sampled						
14							
	SM-SILTY SAND, loose, fine grained sand, dark gray, wet, dilatant	-58.92					
16		-60.02	SS4		1.9	8	12
	SP-SAND, trace silt, compact, fine grained sand, dark gray with red grains, wet	-60.92					
18	Not Sampled						
20							
	SM-SILTY SAND, dark gray	-63.92					
	SP-SAND, negligible silt, compact, fine grained sand, dark grey with red grains	-64.02					
22	SM-SILTY SAND, compact, very fine grained sand, dark grey, moist, 1 to 5 mm silt layers having a "varved" appearance	-64.82	SS5		1.9	18	57
	Not Sampled	-65.92					
24							
	ML-SILT with SAND, low plasticity, fine grained, dark grey	-68.92					
26	SM-SAND with SILT, compact, very fine grained sand, dark grey, wet	-69.32	SS6		1.1	10	95
	- black, stained appearance @ 26.5 ft BGS	-70.92					
28	Not Sampled						
30							
	SP-SAND, negligible silt, compact, fine grained sand, dark grey with red grains, possibly "washed"	-73.92	SS7		1.0	14	3.7
32		-75.92					
	Not Sampled						
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-21
DATE COMPLETED: January 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera, J. Levangie

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, trace white shell fragments, compact, fine grained sand, poorly graded, dark grey, wet, odor	-78.92	SS8		0.6	13	105
38	Not Sampled	-80.92					
40							
42	SP-SAND, some silt, trace white shell fragments, compact, very fine grained sand, poorly graded, dark grey, wet, odor - 0.02' silt lense @ 40.6 ft BGS - 0.02' silt lense @ 40.8 ft BGS - 0.24' silt with sand lense @ 41.1 ft BGS	-83.92 -85.92	SS9		1.5	13	114
44	Not Sampled						
46	SP-SAND, trace silt, trace shell fragments, compact, fine grained sand, poorly graded, dark grey, wet	-88.92 -89.72	SS10		1.2	21	12.4
48	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark grey, wet Not Sampled	-90.92					
50							
52	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained sand, poorly graded, dark grey, wet - 0.24' silty sand lense @ 51.6 ft BGS	-93.92 -95.92	SS11		1.9	10	10.4
54	Not Sampled						
56	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained sand, poorly graded, dark grey, wet	-98.92 -99.12	SS12		1.0	25	5.4
58	SM-SILTY SAND, wood debris, compact, fine to medium grained sand, dark grey with red/white grains, moist Not Sampled	-100.92					
60							
62	SP-SAND, trace silt, compact, medium grained above silt lense @ 61.1, fine grained below lense, dark grey with red/white grains, moist - 0.1' silt lense @ 61.1 ft BGS	-103.92	SS13		1.5	24	4.1
64	Not Sampled	-105.92					
66	SM-SAND and SILT, compact, very fine grained sand, dark grey, wet - 0.2' silt with sand layer, fine grained, slight plasticity, rapid dilatancy, dark grey @ 66.2 ft BGS	-108.92	SS14		2.0	19	0.9
68	Not Sampled	-110.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-21
DATE COMPLETED: January 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera, J. Levangie

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT with SAND, fine grained sand, slight plasticity, rapid dilatancy, dark grey	-113.92					
72	SM-SILTY SAND, compact, fine grained sand, dark grey, moist - wood debris @ 72.3 ft BGS - wood debris @ 72.4 ft BGS	-114.92 -115.92	SS15		2.0	18	0.0
74	Not Sampled						
76	SM-SILTY SAND, compact, fine grained sand, dark grey, moist	-118.92					
	ML-SILT, with sand and clay, medium plasticity, very stiff, fine grained sand, dark grey,	-119.62	SS16			21	0.0
78	- trace clay, low plasticity @ 76.7 ft BGS	-120.72					
	SP-SAND, trace silt, fine grained sand, dark grey with red grains	-120.92					
80	Not Sampled						
	GM-SANDY GRAVEL, with silt, very dense, fine to coarse grained sand, fine to coarse gravel, green grey with yellow, grey, and black stones, moist	-123.92	SS17		1.0	118	0.0
82		-125.92					
	Not Sampled						
84							
	SP-SAND, trace silt, trace gravel, dense, fine sub-angular gravel, fine grained sand, poorly graded, light yellowish/brown, wet	-128.92					
86		-129.82	SS18		1.4	44	0.0
	GM-SANDY GRAVEL, with silt, dense, fine grained sand, sub-rounded gravel, poorly graded, yellowish brown, wet	-130.92					
88	Not Sampled						
	END OF BOREHOLE @ 89.5ft BGS	-132.92					
90	Chemical analyses refer to both groundwater and sediment samples.						
92	Ground Surface = Mudline						
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-22
DATE COMPLETED: January 25, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716112 EASTING: 1168025 GROUND SURFACE	-35.52					
0	ML-SILT, trace sand, very loose, dark gray, wet						
	SM-SAND with SILT, very loose, fine grained sand, poorly graded, dark gray, wet	-36.52	1		1.7	0	0.1
2	SP-SAND, trace silt, loose, fine grained sand, poorly graded, dark gray, wet	-37.52					
	SM-SILTY SAND, loose, fine grained sand, poorly graded, dark gray, trace red and white grains, wet	-38.02	2		2.0	5	0.0
4	Not Sampled	-39.52					
6							
8							
10	SM-SAND with silt, loose, fine grained sand, poorly graded, dark gray, wet	-45.52					
	ML-SANDY SILT, loose, fine grained sand, dark gray, wet	-46.02	3		1.1	6	0.0
12	Not Sampled	-47.52					
14							
16							
18							
20	SP-SAND, trace silt, compact, medium grained sand, poorly graded, dark gray, trace red grains, wet	-55.52					
	SM-SILTY SAND, compact, fine grained sand, poorly graded, gray, wet	-56.22	4		2.0	11	0.0
22	- 0.08' lense of sand with trace silt @ 21.7 ft BGS	-57.52					
	Not Sampled						
24							
26							
28							
30	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, trace white grains, wet	-65.52	5		1.1	16	0.0
32	Not Sampled	-67.52					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-22
DATE COMPLETED: January 25, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
40	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark gray, trace white grains, wet - 0.04' sandy silt lense @ 41.2 ft BGS	-75.52	6	X	1.5	23	0.0
42	Not Sampled	-77.52					
50	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark grey, trace white grains, wet	-85.52	7	X	1.0	27	0.0
52	Not Sampled	-87.52					
60	SP-SAND, trace silt, shell fragments, compact, fine grained sand, poorly graded, dark grey, trace white grains, wet - 0.16' silty sand lense @ 60.4 ft BGS	-95.52	8	X	1.3	24	0.0
62	- 0.16' silty sand lense @ 60.8 ft BGS Not Sampled	-97.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (6) (7) (8)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-22
DATE COMPLETED: January 25, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT with SAND, compact, slight plasticity, dark grey, rapid dilatancy	-105.52					
		-106.82	9		1.7	9	0.0
72	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark grey, moist	-107.52					
	Not Sampled						
74							
76							
78							
80	ML-SILT, trace fine grained sand, compact, dark grey, rapid dilatancy	-115.52					
	- increase in sand to sandy silt @ 81.2 ft BGS		10		2.0	25	0.0
		-117.02					
82	SP-SAND, trace silt, compact, fine grained sand, poorly graded, dark grey with red/white grains, moist	-117.52					
	Not Sampled						
84							
86							
88							
90	GM-GRAVEL, sandy silty, very dense, sub-rounded to sub-angular coarse gravel, medium to coarse grained sand, poorly sorted, greenish-grey to olive grey color, wet	-125.52					
		-126.02	11		0.7	>50	0.0
92	GW-GRAVEL, trace silt with sand, poorly sorted, very dense, angular to very angular gravel, coarse grained sand, fine to coarse gravel, greenish-grey with pale yellow color	-127.52					
	Not Sampled						
94							
96							
98							
100	GW-GRAVELLY SAND, medium to coarse grained sand, some angular cobbles, dense, well graded, brown, moist to wet	-135.52					
			12		1.1	41	0.0
102	Not Sampled	-137.52					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-22
DATE COMPLETED: January 25, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110	GW-GRAVELLY SAND, medium to coarse grained sand, some angular cobbles, dense, well graded, brown, moist to wet	-145.52	13	X	1.0	86	0.0
112	END OF BOREHOLE @ 112.0ft BGS	-147.52					
114	Chemical analyses refer to both groundwater and sediment.						
116	Groundwater sampling continued at 10-ft intervals to a depth of 113 ft BGS.						
118	Ground Surface = Mudline						
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-23
DATE COMPLETED: February 10, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

NORTHING: 716459
EASTING: 1167807

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-8.92					
0	SP-SAND, trace silt, trace shells, very loose, medium grained sand, poorly graded, dark gray with trace red/white grains, wet		SS1		0.2	0	0.0
2	- 0.16' sandy silt lense @ 2.7 ft BGS		SS2		0.9	0	0.0
4	Not Sampled	-12.92					
6		-15.92					
8	SP-SAND, trace silt, trace shells, very loose, medium grained sand, poorly graded, dark gray with trace red/white grains, wet		SS3		1.5	7	0.0
10	Not Sampled	-17.92					
12	SP-SAND, trace silt, trace shells, very loose, medium grained sand, poorly graded, dark gray with trace red/white grains, wet	-20.92	SS4		1.1	11	
14	Not Sampled	-22.92					
16		-25.92					
18	SP-SAND, trace silt, trace shells, compact, fine grained sand, poorly graded, dark gray with trace red/white grains, wet		SS5		0.4	12	0.0
20	Not Sampled	-27.92					
22	SM-SILTY SAND, fine grained, loose, poorly graded, dark gray with trace red/white grains, wet	-30.92	SS6		0.6	5	0.0
24	- 0.04' sand lense @ 22.4 ft BGS - 0.04' sand lense @ 22.5 ft BGS Not Sampled	-32.92					
26		-35.92					
28	SP-SAND, fine to medium grained, compact, poorly graded, dark gray with red/white grains, wet	-36.72	SS7		1.1	15	0.0
30	SP-SAND with SILT, compact, striations, fine to medium grained sand, poorly graded, dark gray with red/white grains, wet Not Sampled	-37.92					
32	SP-SAND with SILT, wood debris, loose, fine to medium grained sand, poorly graded, dark grey with red and white grains, wet	-40.92	SS8		1.5	9	15
34	Not Sampled	-42.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-23
DATE COMPLETED: February 10, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
		-45.92					
38	SM-SILTY SAND, fine grained sand, loose, poorly graded, dark grey, wet - 0.08' sand lense @ 37.5 ft BGS - 0.08' sand lense @ 37.7 ft BGS - 0.08' sand lense @ 37.9 ft BGS		SS9		1.0	7	3.4
		-47.92					
40	Not Sampled						
42		-50.92					
	SM-SILTY SAND, loose, fine grained sand, poorly graded, dark grey, wet		SS10		1.4	9	17.1
44		-52.92					
	Not Sampled						
46							
	SP-SAND, trace silt, compact, poorly graded, dark grey with red/white grains, moist	-55.92					
48			SS11		1.2	27	13.9
		-57.92					
50	Not Sampled						
52		-60.92					
	SP-SAND, trace silt, compact, poorly graded, dark grey with red/white grains, moist		SS12		0.9	26	52.5
54		-62.92					
	Not Sampled						
56							
	SP-SAND, trace silt, trace shells, dense, compact, poorly graded, dark grey with red/white grains, moist	-65.92					
58			SS13		1.2	50	18.4
		-67.92					
60	Not Sampled						
62		-70.92					
	SP-SAND, trace silt, trace shells, wood debris, dense, compact, poorly graded, dark grey with red/white grains, moist - 0.04' silt lense, dark grey @ 62.5 ft BGS		SS14		0.7	25	57.4
64		-72.92					
	Not Sampled						
66							
	SP-SAND, trace silt, trace shells, wood debris, dense, compact, poorly graded, dark grey with red/white grains, moist, slight odor	-75.92					
68		-76.92	SS15		1.0	21	91.7
	- 1/16" silt lense, light grey - 0.04' silt lense, light grey @ 67.8 ft BGS	-77.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-23
DATE COMPLETED: February 10, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND with SILT, compact, poorly graded, dark grey, wet						
	Not Sampled						
72		-80.92					
	ML-SILT with SAND, compact, fine grained sand, poorly graded, dark grey, wet, odor present	-81.22	SS16		1.4	28	129
	SM-SILTY SAND, compact, fine grained sand, poorly graded, dark grey, trace white grains, wet, odor	-82.92					
74	Not Sampled						
76							
	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, wet	-85.92	SS17		1.6	19	0.0
78		-87.92					
	Not Sampled						
80							
82	ML-SANDY SILT, very loose, dark grey, wet	-90.92	SS18		0.8	2	0.0
		-92.92					
84	Not Sampled						
86							
	ML-SILT, trace sand, trace shell fragments, loose, dark grey, wet	-95.92	SS19		1.0	4	0.0
88		-97.92					
	Not Sampled						
90							
92	GM-SAND and GRAVEL, with silt, dense, coarse grained sand, sub-rounded gravel, grey, moist	-100.92	SS20			46	0.0
94	END OF BOREHOLE @ 94.0ft BGS	-102.92					
	Chemical analyses refer to both groundwater and sediment.						
96	Ground Surface = Mudline						
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-24
DATE COMPLETED: February 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, L. Huntoon, D. Dietner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716318.5 EASTING: 1167952.9 GROUND SURFACE	-8.52					
2	SP-SAND, very loose, fine to medium grained, poorly graded, gray, wet		SS1	X	0.1	0	NR
	SM-SILTY SAND, very loose, fine grained sand, light gray, wet	-11.22	SS2	X	1.3	1	0.0
4	Not Sampled	-12.52					
6							
8	SP-SAND, loose, fine to medium grained, poorly graded, gray, wet	-15.52	SS3	X	1.4	7	0.0
	Not Sampled	-17.52					
10							
12	SP-SAND, compact, medium to fine grained, gray	-20.52	SS4	X	1.4	16	NR
14	Not Sampled	-22.52					
16							
18	SP-SAND, trace shells, fine to medium grained sand, dark gray, red and white grains, dense, moist	-25.52	SS5	X	1.8	33	0.0
	Not Sampled	-27.52					
20							
22	SP-SAND, trace shells, loose, fine to medium grained, dark gray, red and white grains, wet	-30.52	SS6	X	0.5	7	0.0
24	Not Sampled	-32.52					
26							
28	SM-SAND with SILT, compact, fine grained sand, dark gray with red and white grains, wet	-35.52	SS7	X	0.6	21	0.6
	Not Sampled	-37.52					
30							
32	SP-SAND, trace silt, trace shells, wood debris, compact, fine to medium grained sand, poorly graded, dark gray, white and red grains	-40.52	SS8	X	0.8	16	0.0
34	Not Sampled	-42.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS2, SS3, SS4, SS5, SS6, SS7, SS8)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-24
DATE COMPLETED: February 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, L. Huntoon, D. Dietner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
	SP-SAND, trace silt, compact, fine to medium grained sand, poorly graded, dark grey with white and red grains	-45.52	SS9		0.5	15	15
38		-47.52					
	Not Sampled						
40							
42	SP-SAND, trace silt, compact, medium grained sand, poorly graded, dark grey with white and red grains	-50.52	SS10		0.6	19	108
		-52.52					
44	Not Sampled						
46							
	SP-SAND, trace silt, medium grained sand, compact, poorly graded, dark grey with white and red grains	-55.52					
48		-56.12	SS11		0.9	17	118
	SM-SILTY SAND, compact, fine grained sand, dark grey, wet	-57.52					
	Not Sampled						
50							
52	ML-SILT, trace sand, very loose, slight plasticity, dark grey, moist	-60.52					
	- 0.02' sand lense, medium grained @ 52.4 ft BGS		SS12		1.7	2	151
	SM-SILTY SAND, compact, fine grained sand, dark grey, wet	-61.92					
54	Not Sampled	-62.52					
56							
	SM-SILTY SAND, compact, fine grained sand, dark grey, wet	-65.52					
58			SS13		1.1	12	210
		-67.52					
	Not Sampled						
60							
62	SM-SAND with SILT, compact, fine grained sand, dark grey, wet	-70.52					
			SS14		1.3	15	9.4
64		-72.52					
	Not Sampled						
66							
	SP-SAND, trace silt, trace shells, compact, medium grained sand, poorly graded,	-75.52					
	dark grey with trace red grains, wet	-75.82					
68			SS15		1.4	13	22.4
	SM-SILTY SAND, compact, fine grained sand, dark grey, wet						
	- 0.08' sand lense, medium grained @ 67.9 ft BGS	-77.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-24
DATE COMPLETED: February 8, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, L. Huntoon, D. Dietner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	Not Sampled						
72	SP-SAND, trace silt, compact, medium grained sand, poorly graded, dark grey, wet	-80.52					
	SM-SILTY SAND, compact, fine grained sand, dark grey, wet	-81.52	SS16		1.2	31	5.2
74	Not Sampled	-82.52					
76							
78	SP-SAND, trace silt, compact, fine to medium grained sand, dark grey, wet - 0.08' silty sand lense @ 77.3 ft BGS	-85.52	SS17		1.2	22	38.4
	Not Sampled	-87.52					
80							
82	SP-SAND, trace silt, compact, fine to medium grained sand, dark grey, wet - 0.08' silty sand lense @ 82.7 ft BGS	-90.52	SS18		1.0	20	1.6
84	Not Sampled	-92.52					
86							
88	SM-SILTY SAND, fine grained sand, compact, dark grey, moist to wet	-95.52	SS19		1.6	9	0.9
	Not Sampled	-97.52					
90							
92	SM-SILTY SAND, compact, fine grained sand, dark grey, moist to wet	-100.52					
	ML-SILT, trace sand, compact, fine grained sand, poorly graded, dark grey, wet	-100.82	SS20		1.0	11	3.2
94	Not Sampled	-102.52					
96							
	ML-SILT with SAND, dense, fine grained, poorly graded, dark grey, wet	-105.52					
98	- 0.1' silty sand lense, loose, poorly graded, dark grey, wet @ 97.2 ft BGS	-106.42	SS21		2.0	42	0.0
	SP-SAND, trace silt, trace shells, dense, fine to medium grained sand, poorly graded, dark grey with red and white grains	-107.42					
100	GM-SILTY GRAVEL, with sand, subangular gravel, dense, dark grey, wet	-107.52					
	Not Sampled						
102	END OF BOREHOLE @ 102.0ft BGS	-110.52					
	Chemical analyses refer to both groundwater and sediment samples.						
104	~~Ground Surface = Mudline~~						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-25
DATE COMPLETED: April 14, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716301 EASTING: 1168120 GROUND SURFACE	-8.52					
2	ML-SILT, some shells, fine grained, black (mud)		SS1		1.7		1.9
4	Not Sampled	-12.52					
6							
8							
10	SP-SAND, some organic matter, trace silt, loose, fine to medium grained, black, saturated	-18.52	001				
12			SS2		2.5		4.5
14	Not Sampled	-22.52					
16							
18							
20	SP-SAND, some silt, trace organic matter, loose, fine to medium grained, black, saturated	-28.52	002				
22			SS3		4.0		11.2
24	Not Sampled	-32.52					
26							
28							
30	ML-SILT, some sand, trace organic matter, loose to compact, fine grained, gray, saturated	-38.52	003				
32			SS4		2.7		7.7
34	Not Sampled	-42.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001, 002, 003)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-25
DATE COMPLETED: April 14, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	ML-SILT, trace sand, compact, fine grained, gray, saturated	-48.52	004	SS5	3.0		1.7
44	Not Sampled	-52.52					
50	ML-SILT, compact, saturated, gray	-58.52	005	SS6	4.0		0.0
54	Not Sampled	-62.52					
60	ML-SILT, compact, gray, saturated	-68.52	006/007	SS7	2.9		0.0
64	Not Sampled	-72.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-25
DATE COMPLETED: April 14, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SM-SAND with SILT, compact, fine grained, black, saturated	-78.52	008 SS8		4.0		0.0
74	Not Sampled	-82.52					
76							
78							
80	GM-GRAVEL with SILT, with SAND, trace shell, compact, fine to coarse gravel, medium to fine grained black sand, grey silt, saturated	-88.52	009 SS9		2.8		0.0
82	SM-SAND, minor silt, minor gravel, black with red sand	-91.52					
	SM-SAND/ML-SILT, some shells, minor gravel, compact, fine grained, saturated	-91.92					
84	Not Sampled	-92.52					
86							
88							
90	END OF BOREHOLE @ 90.0ft BGS	-98.52					
92	Refusal at 90 ft BML.						
	Chemical analyes refer to both groundwater and sediment sample.						
94	Ground Surface = Mudline						
96	NR = Not Recorded						
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-26
DATE COMPLETED: February 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon, R. Bayne

NORTHING: 716426
EASTING: 1168059

GROUND SURFACE -4.42

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND with SILT, some organics (shell, wood), very loose, medium grained, poorly graded, dark brown, saturated	-4.62	SS1		0.8	4	34.5
2	SM-SILTY SAND, some organics (shell, wood), very loose, medium to fine grained, poorly graded, dark brown, saturated	-6.62	SS2		0.9	8	72.3
	SP-SAND with SILT, loose, medium to fine grained, poorly graded, dark brown, trace red and white grains, saturated						
4	- occasional areas of coarse grained sand below 4 ft BGS		SS3		1.7	3	34.5
	- 0.2' silty sand lense, fine grained, slight plasticity, saturated @ 4.6 ft BGS						
6	- decrease in silt content below 6 ft BGS		SS4		2.0	3	0.2
8			SS5		2.0	3	0.0
	ML-SILT with SAND, soft, fine grained, slight plasticity, homogenous, dark gray, saturated, occasional shells and wood	-13.72					
10	SP-SAND, trace silt, trace shell fragments, very loose, medium to fine grained, dark gray, with red and white grains, saturated	-14.42	SS6		2.0	4	0.0
12	- 0.1' silty sand layer, loose, fine grained, dark gray, saturated @ 11.3 ft BGS		SS7		2.0	3	0.0
	- occasional shell fragments below 12 ft BGS						
14	- increase in silt content, more dense below 14 ft BGS		SS8		1.6	37	0.0
	- silt lense @ 15.2 ft BGS						
16							
	SP-SAND with SILT, compact, fine grained, trace medium grained, dark gray, trace red and white grains, saturated	-21.42	SS9		0.8	18	133
18	- poorly graded below 19 ft BGS						
20			SS10		1.3	25	24.7
22	- fine to medium grained below 22 ft BGS		SS11		2.0	24	1.3
24	- dense below 24 ft BGS		SS12		1.5	40	250
26							
28	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, saturated	-32.42	SS13		1.5	21	218
30			SS14		1.5	29	178
32			SS15		1.6	21	526
34	SP-SAND, trace silt, compact, fine grained, trace medium grained, poorly graded,	-38.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: 5106-26
PROJECT NUMBER: 07843
DATE COMPLETED: February 14, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: L. Huntoon, R. Bayne
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	dark grey, saturated		SS16		1.5	22	326
	- fine to medium grained below 37 ft BGS						
		-41.92					
38	SM-SAND with SILT, compact, fine grained, poorly graded, dark grey, saturated		SS17		1.5	16	318
		-43.42					
40	SP-SAND, trace silt, compact, fine grained, poorly graded, dark grey, wet - 0.02' silt lense below 39.4 ft BGS		SS18		2.0	34	313
42			SS19		1.1	22	NR
44	- fine to medium grained, trace red grains below 44 ft BGS		SS20		1.3	26	385
46							
		-51.42					
	SM-SILTY SAND, compact, fine grained, dark grey, wet	-52.02					
48	ML-SILT with SAND, loose, slight plasticity, dark grey, wet, rapid dilatancy		SS21		1.7	2	107
		-53.42					
	SP-SAND, trace silt, compact, fine grained, poorly graded, dark grey, wet	-54.42					
50	SM-SILTY SAND, compact, fine grained, dark grey, wet		SS22		3.0	12	16.5
52	- loose below 52 ft BGS		SS23		1.3	5	6.0
54		-58.42					
	ML-SILT, trace sand, loose, fine grained, slight plasticity, dark grey, wet, rapid dilatancy		SS24		0.8	4	0.0
56							
58			SS25		2.0	6	0.1
		-63.12					
	SM-SILTY SAND, compact, fine grained, dark grey, wet	-63.62					
60	ML-SILT, trace sand, loose, fine grained, slight plasticity, dark grey, wet, rapid dilatancy	-64.62	SS26		2.0	16	0.0
	SM-SILTY SAND, compact, fine grained, dark grey, wet						
62		-66.42					
	ML-SILT, trace sand, loose, fine grained, poorly graded, dark grey, wet		SS27		2.0	7	0.0
64	- becoming silty sand, slight plasticity, rapid dilatancy below 63.8 ft BGS	-68.42					
	ML-SILT, trace sand, compact, fine grained, non-plastic, dark grey, saturated - with fine grained sand below 65.2 ft BGS		SS28		2.2	12	0.1
66							
	- loose below 67 ft BGS						
68			SS29		1.2	4	0.1
	- compact below 69 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-26
DATE COMPLETED: February 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon, R. Bayne

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	- with fine grained sand to fine sub-rounded gravel below 71.5 ft BGS		SS30		2.8	10	0.3
72	ML-SILT with SAND, compact, fine grained, fine sub-rounded gravel, non-plastic, green-brown, saturated	-76.42	SS31		1.0	18	0.3
74	GM-SANDY GRAVELS with SILT, compact, fine to coarse sand, fine sub-rounded gravel, poorly graded, brown, saturated	-78.42	SS32		1.5	11	0.3
76							
78			SS33		1.0	16	0.0
	GM-SILTY SAND and GRAVEL, very dense, fine grained sand, sub-rounded gravel, poorly graded, brown, wet	-83.42					
80			SS34		1.5	95+	0.0
82							
			SS35		0.4	77+	0.0
84							
86			SS36		0.2	67	0.0
88			SS37		0.4	79	0.0
	- fine grained with trace coarse grained, sub-rounded gravel below 89 ft BGS						
90			SS38		0.5	73+	0.0
92	GM-SILTY GRAVEL with SAND, very dense, fine grained to coarse grained, sub-rounded gravel, light brown, moist	-96.42	SS39		0.6	82	0.0
94	END OF BOREHOLE @ 94.0ft BGS	-98.42					
	Chemical analyses refer to both groundwater and sediment samples.						
96	Ground Surface = Mudline						
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-27
DATE COMPLETED: April 11, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716567.13 EASTING: 1167909.7 GROUND SURFACE	-6.72					
2	SM-SAND with SILT, loose, fine to medium grained, gray, saturated		001 SS1		0.8		0.0
	Not Sampled	-8.72					
4	No Recovery	-10.72					
6							
8	Not Sampled	-14.72					
	SM-SAND, trace silt, loose to compact, fine to medium grained, black, saturated	-15.72					
10			SS2 002		2.8		1.4
12							
	Not Sampled	-19.72					
14							
	SM-SAND, minor silt, compact, fine to medium grained, black, saturated	-21.72					
16			003 SS3		3.5		2.8
18							
	Not Sampled	-25.72					
20	SM-SAND, minor silt, compact, fine to medium grained, black, saturated	-26.72					
			004 SS4		4.0		1.8
22							
24	Not Sampled	-30.72					
26							
28							
30	ML-SILT, minor black sand, compact, saturated	-36.72					
			005 SS5		4.0		12.2
32	SM-SAND, trace silt, compact, fine to medium grained, black, saturated	-38.97					
34	Not Sampled	-40.72					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-27
DATE COMPLETED: April 11, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	SM-SILT with SAND, compact, fine grained, gray, black sand, saturated	-46.72	006/007 SS6		3.0		14.1
44	Not Sampled	-50.72					
50	SM-SAND/ML-SILT, trace sand, compact, fine grained, grey, saturated	-56.72	008 SS7		3.0		0.1
54	Not Sampled	-60.72					
60	SM-SAND/ML-SILT, compact, fine grained, grey, saturated, traces of hard silt nodules	-66.72	009 SS8		4.0		0.0
62	SM-SAND/ML-SILT, minor gravel, loose, coarse to fine grained silt, coarse to fine grained gravel, saturated	-69.12					
64	Not Sampled	-70.72					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-27
DATE COMPLETED: April 11, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	GM-SILT with GRAVEL, with SAND, loose to compact, medium grained sand, coarse grained gravel, saturated	-76.72	SS9	X	2.0		0.8
74	Not Sampled	-80.72					
76							
78							
80	GM-SAND with GRAVEL, minor silt, compact to dense, coarse grained gravel, saturated	-86.72	SS10	X	1.0		0.0
82							
84	Not Sampled	-89.72					
86							
88							
90	GM-SANDY SILT with GRAVEL, compact to dense, medium to coarse grained gravel, saturated	-96.72	SS11	X	2.7		0.0
92	END OF BOREHOLE @ 92.5ft BGS	-99.22					
94	Refusal at 92.5 ft BML.						
96	Chemical analyses refer to both groundwater and sediment.						
98	Ground Surface = Mudline						
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-28
DATE COMPLETED: April 20, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

NORTHING: 716773
EASTING: 1167862

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-4.90					
2	No Recovery		SS1		0.0		NR
4		-8.90					
	Not Sampled						
6							
8							
10		-14.90					
	GM-SAND with GRAVEL, loose, coarse grained sand, saturated		SS2		0.3		0.5
12							
14		-18.90					
	Not Sampled						
16							
18							
20		-24.90					
	SM-SAND with SILT, some gravel, loose, brown, saturated		SS3		2.3		0.3
22							
24		-28.90					
	Not Sampled						
26							
28							
30		-34.90					
	SM-SAND with SILT, with GRAVEL, fine gravel, loose, brown, saturated		SS4		2.0		0.6
32							
34		-38.90					
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-28
DATE COMPLETED: April 20, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	GM-GRAVEL with SAND, minor silt, loose to compact, coarse grained gravel, saturated	-44.90	SS5		2.4		0.3
44	Not Sampled	-48.90					
50	GP-GRAVEL with SAND, compact, coarse grained gravel, medium to coarse grained sand, saturated	-54.90	SS6		2.0		1
52	END OF BOREHOLE @ 52.0ft BGS	-56.90					

Refusal at 52 ft BML.

Chemical analyses refer to both groundwater and sediment samples.

Ground Surface = Mudline

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-29
DATE COMPLETED: April 21, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716676 EASTING: 1167982 GROUND SURFACE	-4.67					
2	SM-SANDY SILT, loose, fine grained, black, saturated		SS1 001		2.0		0.0
4	Not Sampled	-8.67					
6							
8							
10	SM-SAND with SILT, compact to loose, medium to fine grained, black, saturated	-14.67					
12			SS2 / 002		3.0		0.0
14	Not Sampled	-18.67					
16							
18							
20	GM-GRAVEL with SAND, compact, fine to coarse grained gravel, fine to medium grained sand, brown, saturated	-24.67					
22			SS3		1.5		0.0
24	Not Sampled	-28.67					
26							
28							
30	GM-GRAVEL with SAND, with SILT, compact, fine to coarse grained gravel, brown sand, saturated	-34.67					
32			SS4 / 003,004		2.7		0.0
34	Not Sampled	-38.67					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-29
DATE COMPLETED: April 21, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	SW-GRAVEL with SAND, compact, coarse grained gravel, coarse grained sand, saturated	-44.67	005 SS5		1.8		0.3
44	Not Sampled	-48.67					
50	GW-GRAVEL and COBBLES, coarse grained gravel, saturated	-54.67	SS6		1.0		NR
54	END OF BOREHOLE @ 54.0ft BGS	-58.67					

Refusal at 54 ft BML.

Chemical analyses refer to both groundwater and sediment samples.

Ground Surface = Mudline

NR = Not Recorded

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (005)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-30
DATE COMPLETED: April 25, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

NORTHING: 716521.21
EASTING: 1168215.97

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	0.60					
0	SLUDGE, fine grained sand, gray, saturated (mud)	0.10					
0	SM-SAND with SILT, compact, fine to medium grained, black, moist to saturated		001 SS1		2.9		0.0
4	Not Sampled	-3.40					
10	SM-SAND with SILT, compact, fine to medium grained, black, moist to saturated	-9.40	002 SS2		3.8		0.0
14	Not Sampled	-13.40					
20	GM-SILT with GRAVEL and SHELLS, loose to very loose, fine grained gravel, trace fine grained sand, saturated	-19.40	003 SS3		1.8		0.0
24	Not Sampled	-23.40					
30	GM-GRAVEL with SAND, with SILT, loose, fine to coarse grained gravel, fine to medium grained sand, saturated	-29.40	004 SS4		1.8		0.0
34	Not Sampled	-33.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-30
DATE COMPLETED: April 25, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40	GM-GRAVEL with SAND, with SILT, loose, fine to coarse grained gravel, fine to medium grained sand, saturated	-39.40	005 / SS5		1.4		0.0
42							
44	Not Sampled	-43.40					
46							
48							
50	GM-GRAVEL with SAND, with SILT, loose, fine to coarse grained gravel, fine to medium grained sand, saturated	-49.40	006 / SS6		1.2		0.0
52							
54	Not Sampled	-53.40					
56							
58							
60	GM-GRAVEL with SAND, with SILT, compact, saturated	-59.40	007 / 008 / SS7 / SS8		1.8		0.0
62							
64	Not Sampled	-63.40					
66							
68	GM-GRAVEL with SAND, some silt, coarse to fine grained gravel, brown	-67.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-30
DATE COMPLETED: April 25, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS9-009		2.7		0.3
	END OF BOREHOLE @ 73.0ft BGS	-72.40					
74	Chemical analyses refer to both groundwater and sediment analyses.						
76	Ground Surface = Mudline						
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-31
DATE COMPLETED: April 28, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

NORTHING: 716463.64
EASTING: 1168336.31

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-3.22					
2	SM-SILTY SAND, very loose, saturated		001 SS1		0.5		NR
4		-7.22					
6	Not Sampled						
8							
10		-13.22					
12	No Recovery (very loose, saturated)		SS2		0.0		
14		-17.22					
16	Not Sampled						
18							
20		-23.22					
22	SM-SILTY SAND with GRAVEL, very loose, fine grained gravel, brown, saturated		002 SS3		4.0		6.0
24		-27.22					
26	Not Sampled						
28							
30		-33.22					
32	GM-SILTY SAND with GRAVEL, very loose, fine to coarse gravel, saturated		SS4 / 003		4.0		0.0
34		-37.22					
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-31
DATE COMPLETED: April 28, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	GM-SILTY SAND with GRAVEL, loose, fine to medium grained sand, fine to coarse grained gravel, rounded gravel, moist to wet, brown	-43.22	SS5 / 004,005		2.0		1.0
44	Not Sampled	-47.22					
50	GP-GRAVEL, trace silt, loose, medium grained gravel, well graded, multicolor, moist	-53.22					
	GM-SILTY SAND with GRAVEL, some cobbles, dense to compact, fine to medium grained sand, fine to coarse grained, sub-rounded to rounded gravel, angular, poorly sorted, brown, moist to wet	-53.72	SS6 / 006		4.0		0.5
54	Not Sampled	-57.22					
60	GM-SILTY SAND with GRAVEL, medium to fine grained sand, trace cobbles, very loose, brown, wet	-63.22	SS7 / 007		4.0		0.4
64	END OF BOREHOLE @ 64.0ft BGS	-67.22					
	Chemical analyses refer to both groundwater and sediment samples.						
	Ground Surface = Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-32
DATE COMPLETED: May 3, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Sinclair

NORTHING: 716271.74
EASTING: 1168252.36

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-20.82					
2	No Recovery		SS1		0.0		
4		-24.82					
6	Not Sampled						
8							
10		-30.82					
12	SP-SAND, compact, fine to medium grained, brown/gray with red grains, moist, wet		SS2 / 001		2.0		0.0
14		-34.82					
16	Not Sampled						
18							
20		-40.82					
22	SM-SAND, some silt, firm, fine grained sand, gray, moist to wet	-42.82	SS3 / 002		3.0		0.0
24	ML-SILT, trace sand, firm, fine grained, dark gray, moist to wet	-44.82					
26	Not Sampled						
28							
30		-50.82					
32	SM-SILTY SAND, fine grained, firm to soft, dark gray, wet, silt lenses throughout		SS4 / 003		3.0		0.0
34		-54.82					
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: 5106-32
DATE COMPLETED: May 3, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40	No Recovery	-60.82					
42			SS5		0.0		
44	Not Sampled	-64.82					
46							
48							
50	GM-SILTY, GRAVELLY SAND with COBBLES, loose, light brown, multi-color stones (red and green), wet	-70.82					
52			SS6 / 004		1.5		0.0
54	END OF BOREHOLE @ 54.0ft BGS	-74.82					
56	Chemical analyses refer to both groundwater and sediment samples.						
58	Ground Surface = Mudline						
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-1-98
DATE COMPLETED: MARCH 23, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-5.1					
	GP/SP/ML-GRAVEL, SAND and SILT (FILL), few shells and glass pieces, loose, gray and black, wet			1SS		2	
-2.5	- little silt			2SS		4	
			8" Ø BOREHOLE	3SS		2	
		-9.6					
-5.0	MH-CLAYEY SILT (AREA 5106 MATERIAL), very soft, low plasticity, moderate chemical odour, wet	-9.9		4SS		8	
	SP/SM-SAND (NATIVE), fine to medium, trace silt, trace clay, compact to dense, black, wet			5SS		41	
-7.5				6SS		41	
-10.0	- with silt, dark gray		CEMENT/ BENTONITE GROUT	7SS		35	
				8SS		21	
-12.5		-17.5		9SS		-	
	SM-SAND, with silt and clay, very dense, brown to gray, moist	-18.6					
	SP-SAND, fine, some silt, dense, dark gray, moist			10SS		44	
-15.0		-20.1					
	END OF HOLE @ 15.0ft BGS NOTES: 1. Moisture content 24% in sample 7SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

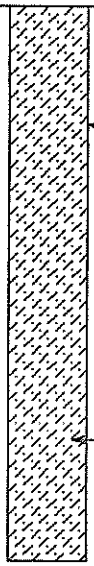
NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-2-98
DATE COMPLETED: MARCH 23, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-6.5					
	SM-SAND (FILL), with silt and clay, very loose, fine grained, gray, wet			1SS		WR	
		-8.0					
-2.5	PRECIPITANT LIKE MATERIAL, very soft, very fine to coarse grained sand, brown and white, wet			2SS		WH	
		-10.6					
-5.0	SM-SAND (FILL), with silt and clay, trace gravel, trace vegetation, compact, gray and tan, moderate chemical odour, moist			3SS		23	
	- becoming layered			4SS		3	
-7.5				5SS		12	
				6SS		38	
-10.0	- silty sand with clay (9.0 to 10.5ft BGS)			7SS		11	
				8SS		20	
-12.5		-19.6		9SS		>50	
	SP-SAND (NATIVE), fine to medium, trace silt, very dense, black, wet	-20.6		10SS		16	
-15.0	END OF HOLE @ 14.1ft BGS						
	NOTES:						
	1. Moisture content 181% in sample 7SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▽
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-3-98
DATE COMPLETED: MARCH 30, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-8.9					
-2.5	SLAG (FILL), hard, metallic, sand to gravel size grains, red brown, wet – large piece of red brick			1SS		8	
				2SS		2	
		-11.9	8" Ø BOREHOLE	3SS		WR	
-5.0	MH-CLAYEY SILT (AREA 5106 SEDIMENT), trace fibers, very soft, gray to tan, wet, reacts strongly with dilute HCl, PID to 145ppm			4SS		WR	
		-15.1		5SS		9	
-7.5	PRECIPITANT LIKE MATERIAL, very fine, firm, brown, dry to moist			6SS		1	
		-16.6		7SS		4	
-10.0	MH-CLAYEY SILT (NATIVE), trace roots, very moist, black, wet			8SS		19	
		-19.2	CEMENT/ BENTONITE GROUT	9SS		21	
-12.5	SP-SAND (NATIVE), fine, some silt, dense, dark gray to black, moist			10SS		18	
-15.0		-23.9					
	END OF HOLE @ 15.0ft BGS						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-30)
Page 1 of 1

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-4-98
DATE COMPLETED: MARCH 24, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	.3					
	Auger w/o sampling, very hard - brick fragments, yellow and red			1SS			
-2.5				2SS		>50	
	GP/SP/ML-GRAVEL, SAND and SILT (FILL), some red brick fragments, loose, black, wet	-2.7	8" Ø BOREHOLE	3SS		63	
-5.0				4SS		64	
	- less gravel and brick			5SS		25	
-7.5				6SS		30	
	SP-SAND (NATIVE), medium to coarse, trace silt and shells, dense to very dense, black, moist	-8.9		7SS		53	
-10.0	- becoming fine grained		CEMENT/ BENTONITE GROUT	8SS		49	
-12.5				9SS		61	
-15.0		-14.7		10SS		51	
	END OF HOLE @ 15.0ft BGS NOTES: 1. Moisture content 36% in sample 4SS. 2. Moisture content 27% in sample 9SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-5-98
DATE COMPLETED: MARCH 20, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-3.4					
	Auger w/o sampling, concrete and riprap						
		-4.9					
-2.5	GP/SP-GRAVEL and SAND (FILL), with silt and trace shell fragments, occasional yellow brick fragments, loose, black, wet		← 8" Ø BOREHOLE	2SS		14	
				3SS		21	
-5.0				4SS		23	
	- concrete (moved borehole approxomately 4.5ft)			5SS		>50	
-7.5	- auger w/o sampling in new borehole, very hard			6SS		0	
		-12.4					
-10.0	GP/SP-GRAVEL and SAND (FILL), trace wood, fine to coarse sand, very dense, gray and black, wet	-14.1		7SS		>50	
	PRECIPITANT LIKE MATERIAL, soft, very fine grained, brown and white, wet	-14.9	← CEMENT/ BENTONITE GROUT	8SS		>50	
-12.5	SP-SAND (NATIVE), fine to medium, with silt, dense, dark gray, wet	-16.0		9SS		47	
	SP-SAND, some silt, compact to dense, dark gray to black, wet			10SS		19	
-15.0		-18.4					
	END OF HOLE @ 15.0ft BGS NOTES: 1. Moisture content 56% in sample 4SS. 2. Moisture content 141% in sample 8SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-7-98
DATE COMPLETED: MARCH 23, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-6.9					
	Auger w/o sampling, very hard	-8.4					
2.5	GP/SP-GRAVEL and SAND (FILL), fine to coarse sand, with silt and trace fibrous material, loose, brown and black, wet		8" Ø BOREHOLE	1SS		14	
				2SS		9	
5.0	CL-CLAY, and white precipitant like material, very soft, gray, wet, fibrous	-12.0		3SS		28	
7.5				4SS		>50	
				5SS		>50	
10.0				6SS		>50	
	MH-SILTY CLAY (NATIVE), very soft, black, wet	-17.4	CEMENT/ BENTONITE GROUT	7SS		35	
12.5	SM-SILT, some clay, gray, moist	-19.3		8SS		36	
	SP-SAND, fine, some silt, very dense, dark gray, wet	-20.0		9SS		36	
15.0	END OF HOLE @ 15.0ft BGS	-21.9					
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ▭

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-8-98
DATE COMPLETED: MARCH 23, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-3.4					
	Auger w/o sampling, very hard						
		-4.9					
-2.5	GP/SP-GRAVEL and SAND (FILL), some shells, with silt, loose, black, wet		8" Ø BOREHOLE	1SS		14	
				2SS		9	
-5.0	- silty and vegetation, concrete fragments			3SS		28	
				4SS		>50	
-7.5	- with silt, becoming dense			5SS		>50	
		-12.4		6SS		>50	
-10.0	SP-SAND and SILT (NATIVE), medium to fine, shell fragments, dense, black, wet		CEMENT/ BENTONITE GROUT	7SS		35	
	- becoming medium to coarse sand			8SS		36	
-12.5							
				9SS		36	
-15.0		-18.4					
	END OF HOLE @ 15.0ft BGS NOTES: 1. Moisture content 22% in sample 7SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: TACOMA EMBANKMENT CHARACTERIZATION
PROJECT NUMBER: 7842-20
CLIENT: GLENN SPRINGS HOLDINGS
LOCATION: HYLEBOS WATERWAY, TACOMA WASHINGTON

HOLE DESIGNATION: BH-9-98
DATE COMPLETED: MARCH 20, 1998
DRILLING METHOD: 4 ¼" ID HSA
CRA SUPERVISOR: J. WILLIAMS

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. MLLW	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-1.6					
	Auger w/o sampling			1SS		1	
		-3.1					
-2.5	SP-SAND (NATIVE), medium to coarse, some gravel, little silt and shells, black, wet - no gravel		8" Ø BOREHOLE	2SS		7	
				3SS		8	
-5.0				4SS		14	
				5SS		62	
-7.5				6SS		47	
		-11.2		7SS		37	
-10.0	SP/ML-SAND and SILT, dense, dark gray, wet						
		-12.7	CEMENT/ BENTONITE GROUT	8SS		7	
-12.5	SM-SILT, with fine sand and clay, compact, gray, wet						
		-15.1		9SS		21	
	SP-SAND, fine grained, with silt, dense, dark gray to black, wet			10SS		41	
-15.0		-16.6					
	END OF HOLE @ 15.0ft BGS NOTES: 1. Moisture content 26% in sample 4SS. 2. Moisture content 33% in sample 9SS.						
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▽
GRAIN SIZE ANALYSIS ☐

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-1
DATE COMPLETED: July 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715577 EASTING: 1168123 GROUND SURFACE	-49.22					
0	SM-SAND, little silt, trace mussel shells, soft, fine grained sand, dark gray with white pasty material at surface, moist to wet, slight H2S odor	-49.82	SS1		1.4	22	0.2 0.4
2	SP-SAND, medium dense, fine grained, dark gray, moist to wet	-51.52	SS2		1.4	16	0.5 0.3 0.4
	ML-SILT, little fine sand, stiff, dark gray, moist, slight H2S odor	-51.82					
	SP-SAND, medium dense, fine grained, dark gray, moist to wet	-52.22					
4	SP-SAND, trace shell fragments, loose, fine to medium grained sand, dark gray with abundant red grains, H2S odor	-53.72	SS3		1.5	18	1.4
	- becoming medium dense @ 4.5 ft BGS						
6	Not Sampled		001				
8	SP-SAND, trace shell fragments, medium dense, fine to medium grained sand, dark gray with some red grains, moist to wet, H2S odor	-57.22	002 SS4		1.5	23	2.7
10	END OF BOREHOLE @ 9.5ft BGS	-58.72					
12	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -90.2 ft NGVD.						
14	BGS = Below Mudline						
	Ground Surface = Mudline						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-3
DATE COMPLETED: July 26, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715400 EASTING: 1168307 GROUND SURFACE	-48.92					
0	SP-SAND, fine to medium grained, dark gray, moist to wet, medium dense, slight H2S odor		SS1		1.5	19	0.2
	- thin 0.5" silt lenses @ 0.15, 0.4, and 1.1 ft BGS	-50.42					
2	SP-SAND, fine to medium grained, dark gray with approximately 10% red grains, moist to wet, medium dense, slight H2S odor		SS2		1.5	33	1.5
	- coarse sediment @ 3.0 ft BGS		001 SS3		1.5	21	NR
4	END OF BOREHOLE @ 4.5ft BGS	-53.42					
6	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -79.9 ft NGVD.						
8	BGS = Below Mudline						
	Ground Surface = Mudline						
10	NR = Not Recorded						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-4
DATE COMPLETED: July 28, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715330 EASTING: 1168378 GROUND SURFACE	-48.52					
0	SP-SAND, medium dense, fine to medium grained, gray, moist to wet - 0-3" silt layers/lenses @ 0.8 and 1.5 ft BGS		SS1		1.6	38	0
2	- silt layer between 2.9 and 3.3 ft BGS		SS2		2.0	19	0
4	- red grains below 4 ft BGS		001 SS3		1.5	69	0
6	END OF BOREHOLE @ 5.5ft BGS	-54.02					
8	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -85.5 ft NGVD.						
10	BGS = Below Mudline						
12	Ground Surface = Mudline						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-6
DATE COMPLETED: September 6, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715456 EASTING: 1168358 GROUND SURFACE	-42.42					
	Not Sampled		001 SS1		1.7	9	NR
	SP-SAND, loose, fine grained, dark gray, moist to wet	-43.12					
2	END OF BOREHOLE @ 2.0ft BGS	-44.42					
	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -86.1 ft NGVD. BGS = Below Mudline						
4	Ground Surface = Mudline						
6	NR = Not Recorded						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-7
DATE COMPLETED: September 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Carra

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715507 EASTING: 1168410 GROUND SURFACE	-43.02					
0	SP-SAND, some silt, loose, very fine grained sand, dark gray, moist to wet		SS1		1.0	5	0
2	- fine to coarse grained sand with some red grains below 3 ft BGS		001 SS2		1.0	6	NR
4	END OF BOREHOLE @ 4.0ft BGS	-47.02					
6	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -82.0 ft NGVD.						
8	BGS = Below Mudline						
	Ground Surface = Mudline						
10	NR = Not Recorded						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-10
DATE COMPLETED: September 13, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715318 EASTING: 1168503 GROUND SURFACE	-41.72					
2	ML-SILT, trace fine sand, very soft, dark gray, wet		SS1		0.2	<1	0.7
	SP-SAND, loose, medium grained, dark gray with abundant red grains, moist to wet	-44.32	001 SS2		1.8	6	6.8
4	END OF BOREHOLE @ 4.0ft BGS	-45.72					
6	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -82.3 ft NGVD.						
8	BGS = Below Mudline						
	Ground Surface = Mudline						
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Dock2-11

PROJECT NUMBER: 07843
DATE COMPLETED: October 19, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: B. Sinclair, N. Redwood, Z. Ferreira, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715683 EASTING: 1168120 GROUND SURFACE	-41.82					
0	ML-SILT, very soft, wet	-42.22					
	SP-SAND with SILT, trace wood debris, loose, fine grained sand, gray and red grains, wet, odor		SS1		1.4	5	0
2	- trace silt, trace shell fragments below 2 ft BGS		SS2		1.2	9	0
4	END OF BOREHOLE @ 4.0ft BGS	-45.82					
6	Groundwater sampling continued at 5-foot intervals to a depth of 105 ft. BGS.						
	BGS = Below Mudline						
8	Ground Surface = Mudline						
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-12
DATE COMPLETED: November 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715677 EASTING: 1168224 GROUND SURFACE	-42.92					
	ML-SILT, trace sand, very loose, dark gray, wet		SS1		1.8	2	NR
2	SP-SAND, trace silt, very loose, medium grained, poorly graded, dark gray with trace white shell fragments increasing with depth, wet	-44.12	SS2		1.2	4	NR
4	END OF BOREHOLE @ 4.0ft BGS	-46.92					
	Groundwater sampling continued at 5-foot intervals to 75.0 ft. BGS.						
	BGS = Below Mudline						
	Ground Surface = Mudline						
	NR = Not Recorded						
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-13
DATE COMPLETED: November 11, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715620 EASTING: 1168287 GROUND SURFACE	-42.62					
	ML-SILT, trace shell fragments, very soft, wet	-43.32					
2	SM-SILTY SAND, trace shell fragments, fine grained sand, dark gray, wet, increasing sand content with depth - 0.4' silt lense @ 2 ft BGS		SS1		1.3	0	10
			SS2		1.0	4	7.9
4	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet	-46.62					
	SM-SILTY SAND, loose, fine grained, dark gray, wet	-47.52	SS3		2.0	6	0.0
6	- 0.3' silt lense @ 4.9 ft BGS	-48.62					
	END OF BOREHOLE @ 6.0ft BGS						
8	Groundwater sampling continued at 10-foot intervals to 97.0 ft. BGS.						
	BGS = Below Mudline						
10	Ground Surface = Mudline						
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-14
DATE COMPLETED: October 28, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715113 EASTING: 1168607 GROUND SURFACE	-41.12					
2	SM-SILTY SAND, very loose, fine grained sand, poorly graded, dark gray, wet	-42.62	SS1	X	1.0	2	NR
4	SP-SAND, trace silt, loose, fine grained sand, poorly graded, dark gray, wet	-45.12	SS2	X		5	NR
6	END OF BOREHOLE @ 4.0ft BGS						
8	Groundwater sampling continued at 10-foot intervals to 115.0 ft. BGS.						
10	BGS = Below Mudline						
12	Ground Surface = Mudline						
14	NR = Not Recorded						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Dock2-9
DATE COMPLETED: September 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715632 EASTING: 1168179 GROUND SURFACE	-42.52					
2	ML-SILT, very loose, gray, wet		SS1		0.9	0	0
4	SP-SAND, trace silt, loose, fine to medium grained, gray with red grains, moist to wet	-45.52	SS2		2.0	8	0
6	END OF BOREHOLE @ 6.0ft BGS	-48.52	001 SS3		2.0	7	0
8	Chemical analyses refer to groundwater. Groundwater sampling continued at 5-foot intervals to -104.5 ft NGVD.						
10	BGS = Below Mudline						
12	Ground Surface = Mudline						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HW-1
DATE COMPLETED: January 24, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715952 EASTING: 1167777 GROUND SURFACE	-48.62				
0	SILT	-48.92	001			
	SP-SAND, some sandy silt seams, compact, fine to medium grained, gray, wet		SS1 002		1.2	52
		-50.12				
2	SP-SAND, trace silt, fine to medium grained, gray, wet	-50.62	SS2 003		1.1	12
	Not Sampled					
4						
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						
	END OF BOREHOLE @ 25.0ft BGS	-73.62				
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HW-2
DATE COMPLETED: January 25, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 716300 EASTING: 1167435 GROUND SURFACE	-48.22				
0	ML-SILT, trace fine sand, very loose, gray, saturated (mud)		001, 002 SS1, SS2		1.0	4
2			003			
	SP-SAND, trace silt, loose, compact, fine to medium grained, gray, wet	-50.72	SS3		1.5	26
4			SS4		1.5	7
	Not Sampled	-52.72				
6						
8						
10						
12						
14						
16						
18						
20						
22	END OF BOREHOLE @ 22.0ft BGS	-70.22				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HW-3
DATE COMPLETED: January 22, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 716489 EASTING: 1167332 GROUND SURFACE	-43.12				
0	ML-SILT, gray, saturated (mud)	-43.62	SS1, SS2 001, 002		0.6	12
	SP-SAND, silt, loose, fine to medium grained, gray, wet					
2	- trace silt, compact below 1 ft BGS		SS3 003		0.6	19
4						
6						
8	- trace white shells below 8 ft BGS		SS4 004		0.6	15
			SS5 005		0.8	29
10	Not Sampled	-53.12				
12						
14						
16						
18						
20						
22	END OF BOREHOLE @ 22.0ft BGS	-65.12				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HW-4
DATE COMPLETED: January 23, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715353 EASTING: 1168513 GROUND SURFACE	-42.32				
	ML-SILT, very loose, gray, wet	-42.82	SS2		0.9	
	SP-SAND, some silt, loose to compact, fine to medium grained sand, gray, wet		SS3		0.6	
2	Not Sampled	-44.32				
4						
6						
8	SP-SAND, some silt, compact, fine to medium grained sand, gray, wet	-50.32	SS4		0.4	
	No Recovery	-51.32	SS5		0.0	
10	Not Sampled	-52.32				
12						
14						
16						
18						
20						
22	END OF BOREHOLE @ 22.0ft BGS	-64.32				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-1
DATE COMPLETED: September 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-42.62					
	OL-CLAY, very soft, black, wet (recent sediment)						
	SP-SAND, little silt, loose, fine grained sand, dark gray to black, wet	-43.52	SS1		2.0	11	
2	- some silt below 2.7 ft BGS		SS2		1.2	6	
4			(SS3)		1.5	7	
6			SS4		1.0	8	
	SM-SAND, some silt, soft, fine grained sand, dark gray, wet	-49.42					
8			SS5		1.0	11	
10			SS6		1.2	8	
	SP-SAND, little silt, loose, fine grained sand, dark gray, wet	-53.22					
12			SS7		1.8	8	
14			(SS8)		1.9	6	
		-58.42					
16	ML-SILT, little fine sand, firm, dark gray, moist	-58.62					
	SM/ML-SAND and SILT, dense, fine grained, dark gray, moist	-59.02	SS9		1.3	9	
	SP-SAND, little silt, loose, dark gray, wet						
18			SS10		1.4	8	
20	- medium grained, trace silt @ 20 ft BGS		SS11		0.8	13	
22			SS12		2.0		
	SM-SAND, some silt, dense, fine grained, dark gray, moist	-66.42					
24			(SS13)		1.8	23	
26	- 0.1' silt seam, stiff, trace fine sand, moist @ 27.1 ft BGS		SS14		2.0	40	
28	- silt seam, trace fine sand, stiff, moist @ 27.7 ft BGS						
	ML-SILT, some fine sand, stiff, dark gray, moist	-71.32	SS15		1.1	8	
30			SS16		2.0	6	
32							
	SM/ML-SAND and SILT, dense, fine grained sand, dark gray, moist	-74.62	SS17		1.7	11	
34	- more sand than silt, slightly dense below 34 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS3, SS8, SS13)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-1
DATE COMPLETED: September 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
			SS18		1.3	21	
36	- 0.32' to 0.54' silt lense, medium dense, moist between 36.7 and 37.2 ft BGS		SS19			27	10
38	SM/ML-SAND and SILT, trace wood (root), compact, fine grained sand, dark grey, moist to wet	-80.62	SS20		1.1	15	89
40	ML/SM-SILT and SAND, very dense, stiff, fine grained sand, dark grey, moist	-82.62	SS21		1.1	22	130
42	SP-SAND, very dense, fine grained, dark grey, moist	-84.62	SS22		1.5	8	945
44	- looser with chemical odor below 45.2 ft BGS		(SS23)		1.5	22	260
46	Not Sampled	-88.62					
48							
50							
52							
54	SM-SAND, little silt, dense, fine grained, dark grey, moist to wet, slight odor	-96.62	(SS24)		1.0	39	113
56	Not Sampled	-98.62					
58							
60							
62							
64	SM-SAND, some silt, trace wood (root), compact, fine grained sand, dark grey, moist to wet, slight odor	-106.62	(SS25)		0.9	25	47
66	Not Sampled	-108.62					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-1
DATE COMPLETED: September 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SM-SAND, some silt, compact, fine grained sand, dark grey, moist to wet	-116.62					
	ML-SILT, little fine grained sand, very stiff, dark grey, fissile/chunky silt, slight odor	-117.32	SS26		1.7	34	
76	Not Sampled	-118.62					
78							
80							
82							
84	ML-SILT, little fine grained sand, very stiff, dark grey, fissile/chunky silt, slight odor	-126.62					
		-128.12	SS27		1.8	11	
86	SM-SAND and SILT, stiff, fine grained sand, dark grey, moist	-128.62					
	ML-SILT, trace fine grained sand, stiff, dark grey, moist						
	Not Sampled						
88							
90							
92							
94	ML-SILT, trace very fine grained sand, stiff, dark grey, moist	-136.62					
	ML-SILT, some clay, little or no sand, very stiff, dark grey, moist	-137.72	SS28		2.0	51	
96	Not Sampled	-138.62					
98							
100							
102							
104	GP-GRAVEL, some sand, some silt, hard, angular to subrounded, olive to dark	-146.62					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-1
DATE COMPLETED: September 1, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	grey, moist		SS29		0.4	111	
	Not Sampled	-148.62					
108							
110							
112							
114	GP-GRAVEL, some sand, some silt, hard, angular to subrounded, olive to dark grey, moist	-156.62	SS30		0.4	168	
116	Not Sampled	-158.62					
118							
120							
122							
124	ML-SILT, little fine sand, very stiff, dark grey, dry to moist, laminated	-166.62					
	- green, medium grained sand layer @ 125.2 ft BGS		SS31			28	
126	ML-SILT, trace sand, stiff, brown, dry to moist, laminated, very distinct break	-168.12					
	END OF BOREHOLE @ 126.0ft BGS	-168.62					
128	BGS = Below Mudline						
	Ground Surface = Mudline						
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS30, SS31)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-2
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch, D. Carra

NORTHING: 716472
EASTING: 1167176

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-44.12					
0	OL-CLAY, soft, black, wet (recent sediment)	-44.82					
	SP-SAND, little silt, loose, fine grained, black with red grains, wet (NATIVE)		SS1		1.4	4	
2			SS2		1.0	8	
4			SS3		1.1	6	
6			SS4		1.6	17	
8	- becomes compact, medium grained below 8 ft BGS		SS5		2.0	25	
10			SS6		1.7	20	
12			SS7		1.0	21	
14			SS8		2.0	30	
16			SS9		2.0	30	
18			SS10		2.0	22	
20	SM-SAND, some silt, soft, fine grained, dark brown to gray, wet	-64.02					
	SP-SAND, little silt, compact, medium grained, dark gray to black, wet	-64.12	SS11		2.0	28	
22	SM-SAND, some silt, trace decayed wood, compact, fine grained, dark gray, wet	-66.12	SS12		0.7	26	
24	SP-SAND, little silt, compact, fine grained, dark gray, wet	-68.12	SS13			23	
26	- some silt below 26 ft BGS		SS14		0.9	40	
28			SS15		1.0	24	
30	- little silt below 30 ft BGS		SS16		0.6	34	
32			SS17		0.7	18	
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-2
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch, D. Carra

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- some silt, moist to wet below 35 ft BGS		SS18		1.7	8	0.4
			SS19		0.7	10	6.5
38	SM/ML-SAND and SILT, compact, fine grained, dark gray, moist to wet	-82.12	SS20		1.8	22	105
40							360
			SS21		1.2	18	
42	SP-SAND, compact, medium grained, dark gray with red-brown grains, moist to wet	-85.62					200
	SM/ML-SAND and SILT, medium stiff, fine grained sand, dark gray, moist to wet, some thin platy intervals, slight chemical odor	-86.82	SS22		2.0	13	650
44			SS23		1.1	20	500
46							
	SP-SAND, compact, fine to medium grained, dark gray, moist to wet	-90.62	SS24		1.2	19	1400
48			SS25		1.8	29	1013
50	SM/ML-SAND and SILT, medium stiff, fine grained sand, dark gray, moist to wet, some thin platy intervals, slight chemical odor	-93.42					
			SS26		0.0	16	600
52	ML-SILT, trace sand, medium stiff, dark grey, moist to wet	-96.12					
	- trace wood @ 52.4 ft BGS		SS27		1.5	5	800 +
54							
	SP-SAND, little silt, compact, fine grained, dark grey, moist to wet	-98.82	SS28		1.5	16	350
56	ML-SILT, little fine sand, stiff, dark grey, moist	-100.12					670
	SP-SAND, compact, fine grained, dark grey, wet	-100.72	SS29		1.4	31	430 670
58	SM-SAND and SILT, compact, fine grained, dark grey, moist to wet	-102.12	SS30			8	208
60							
			SS31		0.9	26	340
62	ML-SILT, little fine sand, stiff, dark grey, moist	-106.12					
			SS32		2.0	12	322
64	SP-SAND, little silt, loose, fine grained, dark grey, wet	-107.82					
			SS33		2.0	7	112
66							
			SS34		2.0	29	
68	ML-SILT, little fine sand, stiff, dark grey, moist	-112.12					
	SP-SAND, compact, fine grained, dark grey, moist to wet	-112.52	SS35		0.5	8	

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-2
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch, D. Carra

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	SP-SAND, loose, fine grained, dark grey, moist to wet	-114.12	SS36		2.0	12	51.2
		-116.92	SS37		1.1	19	
74	ML-SILT, stiff, trace fine sand, dark grey, moist						
			SS38		2.0	59	
76		-119.72					
	SP-SAND, little silt, compact, fine grained, dark grey, moist	-120.12					
	Not Sampled						
78		-122.12					
	ML/SM-SILT and SAND, compact, fine grained sand, dark grey, moist	-122.32					
	SP-SAND, dense, fine grained, dark grey, moist to wet		SS39		1.1	49	
80		-124.12					
	Not Sampled						
82							
84							
86							
88		-132.12					
	SP-SAND, dense, fine grained, dark grey, moist to wet	-132.92	SS40		1.0	49	
	ML-SILT, very stiff, dark grey, moist	-134.12					
90	Not Sampled						
92							
94							
96							
98		-142.12					
	SP-SAND, loose, fine grained, dark grey with few red grains, moist		SS41		1.1	4	115
100		-144.12					
	Not Sampled						
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-2
DATE COMPLETED: August 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Williams, K. Lynch, D. Carra

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108	SP-SAND, very dense, fine grained, dark grey with few red grains, dry to moist	-152.12	SS42	X	1.1	>86	39
110	- some medium rounded gravel @ 109.8 ft BGS Not Sampled	-154.12					
112							
114	SP-SAND, very dense, little fine to medium rounded gravel, brown, dry to moist - auger refusal @ 114 ft BGS	-158.12	SS43	X	0.8	>67	12
116	END OF BOREHOLE @ 116.0ft BGS	-160.12					
118	Chemical analyses refer to groundwater sampling.						
120	BGS = Below Mudline						
122	Ground Surface = Mudline						
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-4
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferraira

NORTHING: 716004
EASTING: 1167657

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-51.12					
0	ML-SILT, very soft, dark gray, wet, mud-like		SS1		1.1		3.5
2	- sheen @ 2.3 ft BGS						
	SP-SAND, trace silt, loose, dark gray, abundant red grains, trace white grains, wet	-54.12	SS2		1.4		110
4							
			SS3		1.5	9	413
6	- trace shell fragments below 6 ft BGS						
			SS4		1.4	15	103
8	SP-SAND, loose, fine to medium grained, dark gray, interbedded red grains, wet	-59.12					
			SS5		2.0	34	58.6
10	- trace silt, very dense, moist to wet below 9.7 ft BGS - loose, wet below 10 ft BGS						
	SM-SAND and SILT, firm, fine grained, gray, wet	-62.12	SS6		2.0	9	709
12	SP-SAND, trace silt, dense, fine to medium grained, gray, moist to wet	-62.32					
	- loose, red grains, wet below 12 ft BGS						
	- dense, moist to wet below 13.5 ft BGS		SS7		2.0	10	3492
14	No Recovery	-65.12					
			SS8		0.0	15	
16	SP-SAND, loose, dense, medium to fine grained, gray with red grains, wet	-67.12					
			SS9		1.8	10	143
18							
			SS10		0.4	27	1.5
20							
	SP-SAND, trace silt, dense, fine grained, gray, moist	-72.12	SS11		2.0	12	77.6
22	- fine to medium grained below 22 ft BGS						
			SS12		1.4	14	9999
24	SP-SAND, loose, fine to medium grained, grey with red grains, wet	-75.12					
			SS13		2.0	15	9999
26	- trace silt, dense below 25.3 ft BGS - loose below 26 ft BGS						
	- dense, moist below 27 ft BGS		SS14		2.0	20	1649
28	- loose, moist to wet below 28 ft BGS						
	SM-SAND and SILT, stiff, fine grained, grey, moist to wet	-80.12	SS15		2.0	12	429
30	SP-SAND, dense, fine to medium grained, grey, moist to wet	-81.12					
	- trace silt below 31 ft BGS		SS16		1.7	23	168
32	SM-SAND and SILT, stiff, fine grained, grey, moist to wet	-83.22					
			SS17		1.9	18	48.3
34	SP-SAND, trace silt, medium to fine grained, grey, moist to wet	-84.82					
	SM-SAND and SILT, stiff, fine grained, grey, moist to wet	-85.12					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-4
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferraira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- loose below 36 ft BGS		SS18		2.0	10	36.8
	SP-SAND, trace silt, medium density, fine to medium grained, grey, moist to wet	-87.92	SS19		1.5	9	15.3
38	- loose, dark grey, red and white grains, moist below 38 ft BGS	-89.72					
	ML-SILT, little sand, stiff, fine grained, moist	-90.12	SS20		2.0	38	13
40	SP-SAND, little to trace silt, fine grained, moist to wet, odor	-92.12	SS21		1.4	43	5
	ML-SILT, little sand, very dense, fine grained, dark grey, dry to moist, brittle, odor	-93.12					
42	SM-SAND, some silt, compact, fine grained, dark grey, dry to moist		SS22		1.2	64	11.6
44	ML-SILT, very hard, dark grey, dry to moist	-95.12	SS23		1.2	51	6.4
46	- little fine sand, moist below 46 ft BGS						
	SP-SAND, trace silt, compact, fine grained, dark grey, abundant red grains, moist, odor	-97.52	SS24		1.3	69	8.8
48	SM-SAND, some silt, fine grained, dark grey, moist, odor	-99.12	SS25		1.3	39	7.6
50	SP-SAND, little silt, compact, fine grained, grey, moist	-101.12					
	ML-SILT, dense, dark grey, dry to moist	-101.62					
	SP-SAND, little silt, compact, fine grained, grey, moist	-102.22	SS26		1.7	46	9.2
52			SS27		1.6	98	19
54	- 0.1' thick stiff silt lense @ 54.5 ft BGS		SS28		1.2	60	23.4
56	ML-SILT, dense, grey, dry to moist	-107.12	SS29		0.8	57	18.2
58	SP-SAND, dense, fine to medium grained, grey, moist to wet	-109.12	SS30		0.8	62	18
	ML-SILT, very dense, grey, dry to moist	-110.32					
60			SS31		1.4	71	5.2
62	SP-SAND, dense, fine to medium grained, grey, wet	-113.12					
	ML-SILT, very dense, grey, dry to moist	-113.72	SS32		1.9	28	10.8
64	- firm, moist to wet below 63.2 ft BGS						
	SM-SAND and SILT, fine grained, grey, moist to wet	-116.12	SS33		2.0	0	11.2
66	SP-SAND, little silt, dense, fine grained, moist to wet	-117.82	SS34		1.6	15	2.2
68	SM-SAND and SILT, fine grained, moist to wet, grey	-119.12					
	SP-SAND, little silt, very dense, fine grained, moist to wet	-120.32	SS35		2.0	40	2.7

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-4
DATE COMPLETED: September 22, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferraira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	SM-SAND and SILT, soft, grey, wet	-121.12	SS36		2.0	22	63.8
72	SP-SAND, little silt, dense, fine grained, moist	-122.72					
	ML-SILTY SAND, soft, slightly plastic, grey, wet	-123.12	SS37		2.0	7	11.9
74	SM-SAND and SILT, dense, fine grained, moist to wet	-124.62					
	END OF BOREHOLE @ 74.0ft BGS	-125.12					
76	All chemical analyses refer to groundwater.						
	BGS = Below Mudline						
78	Ground Surface = Mudline						
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-6
DATE COMPLETED: September 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferrinara, D. Deitner, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 715514 EASTING: 1168183 GROUND SURFACE	-48.01					
	ML-SILT, very soft, with fine sand, wet (muck)	-49.01	SS1		1.7	6	0
2	SM-SILTY SAND, trace shell fragments, loose, fine grained, dark gray, red/gray/black grains, moist	-50.31					
	SP-SAND, trace silt, trace shell fragments, compact, fine to medium grained, dark gray with red/gray/black grains, moist to dry		SS2		1.3	18	7.8
4	- silt increasing with depth below 4 ft BGS		SS3		1.1	6	0
6	- moist to wet below 6.9 ft BGS		SS4		1.3	4	0
8	SM-SILTY SAND, soft to firm, fine grained, dark gray, dry to moist	-56.51	SS5		1.4	3	0
10	- moist to wet below 10.4 ft BGS	-58.61					
	ML-SILT, trace sand, soft, slight plasticity, dark gray, moist		SS6		1.6	0	0
12							
	SP-SAND, with SILT, compact, fine grained, dark gray, moist	-61.11	SS7		2.0	8	0
14	- trace silt, fine to medium grained below 13.8 ft BGS	-62.01					
	ML-SILT, trace sand, loose, dark gray, moist to very moist	-63.01	SS8		1.5	17	0
16	SP-SAND, with silt, compact, fine grained, poorly graded, dark gray, moist - slight decrease in silt content below 16 ft BGS		SS9		1.4	17	0
18	- 0.5-inch silt lense @ 18.3 ft BGS	-66.01					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-67.21	SS10		1.6	13	0
20	- 1.0-inch silt lense @ 18.7 ft BGS SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark grey, wet		SS11		1.1	15	0
22	- 0.5-inch silt lense @ 20.8 ft BGS SP-SAND with SILT, loose, fine grained, poorly graded, dark grey, wet	-70.01					
	- 0.12' silty sand lense @ 23.5 ft BGS		SS12		1.4	18	0
24	- 0.16' sandy silt lense @ 25 ft BGS		SS13		1.9	9	0
26	SM-SILTY SAND, loose, fine grained, poorly graded, dark grey, wet	-74.01					
	ML-SILT, with sand, compact, dark grey, moist	-74.91 -75.21	SS14		1.9	3	0
28	SP-SAND, with silt, loose, fine grained, poorly graded, dark grey, decreasing silt content with depth.	-77.01	SS15		1.8	16	0
	ML-SILT, trace sand, compact, dark grey, moist	-77.51					
30	SP-SAND, with SILT, compact, fine grained, poorly graded, dark grey, wet - increase in silt content below 30 ft BGS	-78.61	SS16		1.5	13	0
	ML-SILT, with sand, compact, dark grey, very moist	-79.31					
32	- decrease in silt content below 31.2 ft BGS SP-SAND, with SILT, compact, fine grained, poorly graded, dark grey, wet		SS17		1.7	18	0
	- 2-inch lense of fine grained sand, trace white grains (<3%) @ 32.6 ft BGS						
34	- 2-inch silt layer with sand, moist @ 33.1 ft BGS - trace medium grained white sand (<3%) below 34.2 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-6
DATE COMPLETED: September 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferrinara, D. Deitner, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SM-SILTY SAND, compact, fine grained, poorly graded, dark grey, very moist	-82.91	SS18		1.9	25	0
36	SP-SAND, trace silt, compact, fine grained, poorly graded, dark grey, wet	-83.31					
	ML-SANDY SILT, compact, dark grey, moist	-84.81	SS19		1.3	31	0
38	SP-SAND with SILT, trace wood pieces, compact, fine grained, poorly graded, dark grey, very moist	-85.11					
	- no wood present, trace fine red grains and medium white grains, wet below 38 ft BGS		SS20		1.4	29	0
40							
			SS21		0.9	28	0
42	- 1.5-inch layer of trace white shells @ 42 ft BGS						
			(SS22)		1.3	28	0
44	- no shells, no white grains below 44 ft BGS						
			SS23		2.0	11	0
46							
			SS24		1.6	28	0
48							
			SS25		1.6	18	0
50	SM-SILT, little fine sand, medium plasticity, dry to moist, soft	-97.61					
	SP-SAND, little silt, medium density, fine grained, dark grey, moist to wet	-98.01					
	- 2-inch silt lense @ 50.6 ft BGS		SS26		1.9	6	0
52	- 2-inch silt lense @ 51.6 ft BGS						
	- 2-inch sit layer @ 51.8 ft BGS	-100.01	(SS27)		2.0	0	0
	MH-SILT, little fine sand, very soft, dark grey, wet, grades to unit below						
54	SP-SAND, little silt, slightly dense, fine to medium grained, grey, moist to wet	-101.71					
	MH-SILT, with fine sand, stiff, dark grey, dry to moist	-102.31	SS28		1.3	2	0
56							
	- very soft, wet below 56.3 ft BGS	-104.51					
	SM-SILTY SAND, compact, fine grained, dark grey, moist, decreasing silt with depth	-105.01	SS29		1.4	25	0
58	SP-SAND, trace silt, fine to medium grained, red/grey/black grains, dark grey, moist						
	- dense, wet below 58 ft BGS		SS30		1.6	34	0
60	- with silt, trace shell fragments, soft, wet below 58.4 ft BGS						
	- very dense, dry to moist below 60 ft BGS		SS31		2.0	40	0
	- very soft, saturated between 60.6 and 60.9 ft BGS						
62							
			(SS32)		1.7	40	0
64							
			SS33		1.4	52	0
66	No Recovery	-114.01					
			SS34		0.0	10	0
68	SP-SAND, trace silt, loose, fine grained, dark grey, wet	-116.01					
			SS35		1.4	9	1.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS##)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-6
DATE COMPLETED: September 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, Z. Ferrinara, D. Deitner, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS36		1.5	6	6.7
	No Recovery	-120.01	SS37		0.0	7	
74	Not Sampled	-122.01					
76							
78							
80							
82	SP-SAND, trace silt, dense, medium grained, poorly graded, dark grey, white particles	-130.01	SS38		1.6	38	0.7
84	END OF BOREHOLE @ 84.0ft BGS	-132.01					
86	Refusal at 122.3 ft BGS.						
	Chemical analyses refer to groundwater.						
88	Groundwater sampling continued in 10-ft intervals to 122.3 ft BGS.						
	BGS = Below Mudline						
90	Ground Surface = Mudline						
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-8
DATE COMPLETED: September 14, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 715198 EASTING: 1168584 GROUND SURFACE	-44.42					
2	ML-SILT		SS1		3.0	1	0.2
	SP-SAND with trace silt, dense, fine to medium grained, brown, moist to wet	-46.42					
4			001 SS2		2.0	6	9.6
6			SS3		3.0	6	19.2
8	SM-SAND, some SILT, dense, fine grained, gray, moist - moist to wet below 8 ft BGS	-51.72	SS4		1.3	4	0.3
10	SM-SILTY SAND, medium density, gray, moist to wet	-54.42	SS5		2.0	1	0.3
12	SP-SAND, very dense, fine to medium grained, gray with red grains, moist to wet	-56.42					
14	- 0.4' silt lense @ 13.3 ft BGS		002 SS6		3.0	40	5.6
16			SS7		2.0	14	4.6
18	GP-GRAVEL with SAND, dense, gray, moist to wet	-62.62	SS8		2.2	27	7.0
20							
	SM-SAND with SILT, dense, gray, moist to wet	-65.42	SS9		1.6	42	1.6
22	SM-SILTY SAND, loose, soft, gray, wet	-66.42					
			003 SS10		2.2	32	0.6
24	SM-SAND with SILT, dense, fine grained, gray, moist to wet	-68.02					
26			SS11		2.0	3	9.0
28			SS12		2.7	<1	0.2
30	- black discoloration @ 29.5 ft BGS - soft below 30 ft BGS - dense below 30.9 ft BGS		SS13		2.0	5	0
32	- soft below 32 ft BGS - dense below 33 ft BGS		004 SS14		3.0	<1	0
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-8
DATE COMPLETED: September 14, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36			SS15		1.8	8	0
	SP-SAND, loose, fine to medium grained, grey, moist to wet	-80.82					
38	- wood (roots) below 36.8 ft BGS - dense with white grains throughout below 37 ft BGS - 0.04' layer of white grains below 37.9 ft BGS - 0.04' layer of white grains below 38.2 ft BGS		SS16		2.7	12	0
40	- 0.16' silt lense, moist, grey below 38.3 ft BGS		SS17		1.8	11	0
42							
	SM-SAND, little silt, very soft, fine grained, brown and grey, wet	-87.02	005 SS18		2.1	24	
44	SP-SAND, some roots, loose, fine to medium grained, grey, moist to wet	-88.02					
	END OF BOREHOLE @ 44.1ft BGS	-88.52					
46	Chemical analyses refer to groundwater.						
	Groundwater samples taken at 10-ft intervals to 44.0 ft BGS						
48	BGS = Below Mudline						
	Ground Surface = Mudline						
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (005)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-9
DATE COMPLETED: September 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

NORTHING: 715158
EASTING: 1168546

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-41.67					
	ML-SILT	-42.57					
	SP-SAND, trace silt, dense, fine to medium grained, gray with red grains, moist to wet		SS1		2.0	2	4.6
2	- silt lense @ 2.6 ft BGS		001 SS2		1.8	5	0.0
4	- trace wood (root), hydrogen sulfide odor below 4.7 ft BGS		SS3		2.0	10	0.0
6			SS4		1.8	4	9.8
8			SS5		1.5	0	0.0
10	- silty sand lense, medium dense, fine grained from 9.4 to 9.6 ft BGS		SS6		2.0	0	0.0
12	- silty sand lense, fine grained from 11.6 to 11.8 ft BGS - becomes fine to medium grained below 12.6 ft BGS		002 SS7		1.8	12	0.0
14	- silty sand lense, soft, fine grained, wet from 14.7 to 15 ft BGS		SS8		1.7	16	0.0
16	- fine sand layers from 16.4 to 17.1 ft BGS		SS9		2.0	0	0.0
18	- fine sand layers from 18.5 to 19.0 ft BGS		SS10		2.0	9	0.0
20	- fine sand layers from 19.6 to 20.0 ft BGS - fine sand from 20.2 to 21.6 ft BGS		SS11		2.0	21	0.0
22	- soft below 22 ft BGS - medium density below 23 ft BGS		003 SS12		2.0	13	0.0
24			SS13		2.0	17	0.0
26	- dense below 26 ft BGS - loose, white grains, wet from 27.2 to 27.4 ft BGS		SS14		1.9	22	0.0
28	- wood (root) below 29.1 ft BGS		SS15		1.4	14	0.0
30	- dense below 30 ft BGS		SS16		1.5	13	0.0
32	- silty sand lense from 32.3 to 32.7 ft BGS		004 SS17		1.8	28	0.0
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-9
DATE COMPLETED: September 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- several thin silt lenses, slightly dense, finer grained below 36.4 ft BGS		SS18		2.0	16	0.0
			SS19		2.0	2	0.0
38	- 1-inch silt lense @ 38.6 ft BGS		SS20		2.0	0	0.0
	- 1-inch silt lense @ 39.5 ft BGS						
40	- silt lense, medium stiffness from 40.9 to 41.6 ft BGS		SS21		2.0	0	0.0
42	SM-SAND, little silt, soft, grey, moist to wet	-83.67					
	- becomes stiff with higher sand content below 42.7 ft BGS		005 SS22			0	NR
	SP-SAND, trace silt, medium density, fine grained, grey, moist	-85.07					
44	SM-SANDY SILT, soft, grey	-85.67					
	SM-SILT with SAND, stiff, fine grained, grey, moist	-86.57	SS23		2.0	2	1.9
46			SS24		2.0	0	0.6
48			SS25		2.0	11	0.2
50			SS26		2.0	0	0.0
52			006 SS27		2.0	13	0.0
54			SS28		2.0	24	0.0
56							
	SP-SAND, trace silt, medium density, fine to medium grained, grey, moist	-98.17	SS29		2.0	21	0.7
58			SS30		1.0	51	0.0
60			SS31		2.0	46	0.0
62	- interbedded white grains 62 ft BGS		007 SS32		2.0	40	0.0
64			SS33		2.0	30	0.0
66			SS34		2.0	37	0.0
68			SS35		2.0	26	0.0
	- dense, fine grained 69.3 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-9
DATE COMPLETED: September 15, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72	- fine to medium grained, interbedded planar white grains 71.4 ft BGS		SS36		2.0	31	0.0
			008 SS37		2.0	29	0.0
74			SS38		2.0	35	0.2
76			SS39		2.0	36	0.0
78			SS40		2.0	66	0.0
80	END OF BOREHOLE @ 80.0ft BGS	-121.67					
82	Chemical analyses refer to groundwater.						
	Groundwater samples taken at 10-ft intervals to 80.0 ft BGS.						
84	BGS = Below Mudline						
	Ground Surface = Mudline						
86	NR = Not Recorded						
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-10
DATE COMPLETED: September 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 715107
EASTING: 1168499

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-22.92					
0	ML-SILT, little sand, little gravel, soft, fine grained, angular gravel, black, wet		SS1		1.2		13.2
2	- glass, shell fragments, black plastic below 2 ft BGS		SS2		0.5		4.0
4	- coal present below 4 ft BGS						
	FILL, concrete, coal, gravel, hard, moist to wet	-27.42	SS3		1.8	31	5.5
	SP-SAND, slightly dense, fine to medium grained, dark gray, red grains, moist to wet	-28.22	001 SS4		1.6		0.2
6							
8			SS5		1.9	4	0.0
10			SS6		2.0	10	0.0
12	- medium density, fine grained, light gray, wet below 12.9 ft BGS		SS7		2.0	6	0.0
14	- trace wood, moist to wet below 14.3 ft BGS		SS8		1.5	6	0.0
16			002 SS9		1.7	5	0.0
18			SS10		1.8	7	0.0
20	- trace fine gravel below 20.9 ft BGS		SS11		2.0	10	0.0
22			SS12		2.0	28	0.0
24	- 0.2' silt lense @ 25.2 ft BGS		SS13		1.5	5	0.0
26	- 0.1' medium grained sand lense @ 25.4 ft BGS	-48.92					
	SM-SAND, little silt, soft, fine grained, gray, moist to wet	-49.92	003 SS14		2.0	0	0.0
28	SP-SAND, medium density, fine grained, light gray, moist to wet	-50.92					
	SM-SAND and SILT, soft, gray, wet	-51.92	SS15		2.0	24	0.7
30	SP-SAND, trace silt, medium density, fine grained, light gray, moist to wet	-52.92					
	SM-SANDY SILT, soft, gray, wet	-53.92	SS16		2.0	6	0.0
32	SP-SAND, trace silt, medium density, fine grained, grey, moist to wet	-54.92					
	SM-SILT with SAND, firm, fine grained, grey, moist to wet		SS17		2.0	0	0.0
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-10
DATE COMPLETED: September 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
		-58.12	SS18		2.0	23	0.0
36	SP-SAND, medium density, fine to medium grained, grey, moist - white shells and white grains present below 36 ft BGS		004 SS19		2.0	17	2.0
38	- dense, coarse to medium grained, grey/white/red below 38 ft BGS		SS20		2.0	11	0.0
	- trace silt, medium density, fine grained, grey, moist to wet below 39 ft BGS						
40	- dense, coarse to medium grained, grey/white/red, moist below 40 ft BGS		SS21		2.0	30	0.0
42			SS22		2.0	13	0.0
44	- medium density, fine to medium grained, grey, moist to wet below 43.7 ft BGS		SS23		1.8	12	0.0
46			005/006 SS24		2.0	25	0.0
48			SS25		2.0	43	0.0
50			SS26		2.0	18	0.0
52			SS27		2.0	31	0.0
54			SS28		2.0	29	0.0
56			007 SS29		1.9	20	0.0
58			SS30		2.0	42	0.0
60			SS31		2.0	27	0.0
62			SS32		1.7	18	0.0
64			SS33		2.0	2	0.0
66	SM-SAND and SILT, dense, fine grained, grey, wet	-87.92	008 SS34		2.0	6	0.0
68	END OF BOREHOLE @ 68.0ft BGS	-90.92					
	Chemical analyses refer to groundwater.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: HYD-10
DATE COMPLETED: September 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	Groundwater sampling continued at 10 ft intervals to 108.3 BGS.						
74	BGS = Below Mudline						
76	Ground Surface = Mudline						
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (O)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-13
DATE COMPLETED: December 20, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, W. Best

NORTHING: 715209
EASTING: 1168375

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-8.12					
0	FILL, silt, trace coarse grained angular gravel, trace wood debris and wood fibers, trace shell fragments, trace asphalt debris, loose, dark gray, wet		SS1 001		0.5	6	0.0
		-9.62					
2	Not Sampled						
		-11.12					
4	FILL, silty sandy gravel, shells present, compact, fine grained and coarse grained angular gravel, poorly graded, dark gray, wet, odor present		SS2 002		0.5	13	0.0
		-12.62					
	Not Sampled						
6		-14.12					
	FILL, silty sandy gravel, coarse sand, fine gravel, large (coarse gravel sized) pieces of black asphalt, "rock" (bituminous looking material), black, compact, wet, odor (possible sulfur)	-15.12	SS3 003		1.2	22	0.5
		-15.62					
8	ML-SILT, with fibrous material, black and brown, with fine gravel						
	Not Sampled						
		-17.12					
	FILL, silty sandy gravel, coarse sand, fine gravel, large (coarse gravel sized) pieces of black asphalt, "rock" (bituminous looking material), compact, black, wet, odor	-17.82	SS4 004		0.8	14	0.0
10	FILL, silt with fibrous material, fine gravel, and shell fragments, black and brown	-18.62					
	Not Sampled						
		-20.12					
	FILL, silty sandy gravel, coarse sand, fine gravel, large (coarse gravel sized) pieces of black asphalt, "rock" (bituminous looking material), black, compact, wet, odor	-20.72	SS5 005		0.8	3	1.0
12	ML-SILT, with coarse gravel sized stones, dark gray, medium plasticity	-21.62					
	Not Sampled						
		-23.12					
	SP-SAND, trace silt, trace wood fibers, trace shell fragments, compact, medium grained sand, poorly graded, dark gray with red grains, wet		SS6 006		1.5	22	0.0
14	- fine grained sand @ 15.8 ft BGS	-24.62					
	Not Sampled						
		-26.12					
	SP-SAND, trace silt, compact, medium grained, wet, poorly graded, dark grey with red grains, trace shell fragments		SS7 007/008		1.5	21	0.1
16	- sand with silt, fine to medium grained	-27.62					
	- wood fragments @ 19.3 ft BGS						
	Not Sampled						
		-29.12					
	SP-SAND, trace silt, dense, fine to medium grained sand, black with red grains	-29.32					
18	SM-SAND, silty, fine grained sand, dark grey	-29.42	SS8 009		1.2	42	1.3
	SP-SAND, with silt, dense, fine grained sand, dark grey with red grains	-30.62					
	Not Sampled						
		-32.12					
	SP-SAND, with silt, dense, fine grained sand, dark grey with red grains	-32.52					
20	SM-SAND, silty, compact, fine grained sand, dark grey	-32.72	010 SS9		1.1	34	0.5
	SP-SAND, with silt, dense, fine grained sand, dark grey with red grains	-33.62					
	Not Sampled						
		-35.12					
	SM-SAND, silty, compact, fine grained sand, dark grey		SS10 011		1.0	23	0.0
22		-36.62					
	END OF BOREHOLE @ 28.5ft BGS						
	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
	Ground Surface = Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-14
DATE COMPLETED: December 14, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best,

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 715272 EASTING: 1168324 GROUND SURFACE	-10.42					
	MH-SILT, with coarse sand, fibrous wood bits, black		001 SS1		0.4	0	0.0
2	Not Sampled	-12.42					
4	SP-SAND, loose, coarse grained, black	-14.42					
		-15.22	002 SS2		1.1	>55	0.0
	FILL, fibrous wood material, dark gray	-15.42					
6	FILL, solid material, black, "rock-like"	-15.92					
	Not Sampled	-17.42					
	SP-SAND, trace silt, fibrous material present, loose, coarse grained sand, black	-17.82	003 SS3		0.5	34	0.0
8	FILL, solid material, black, "rock-like", bituminous, odor, oily sheen	-17.92					
	No Recovery	-18.92					
	Not Sampled	-20.42					
10	FILL, sand, with fibrous material, trace silt, black solid "rock-like" bituminous material, cobble size, metal strips, loose, coarse grained, black, oily sheen	-20.82	004 SS4		0.9	15	0.0
		-21.12					
	ML-SILT, with sand, slight plasticity, medium to fine grained sand, wet	-21.92					
12	SM-SAND/SILT mixture, compact, coarse grained sand, dense, friable chunks (layered), light whitish-brown, wet	-23.42					
	Not Sampled		SS5		0.5	114	
14	GM-GRAVEL with SAND, silty, cobbles, fine to coarse gravel, metal fragments, dark gray, very wet	-24.92					
	Not Sampled	-26.42					
16	ML-SILT, trace clay, trace fine grained sand, trace coarse angular gravel (Embankment Fill?), trace wood fibers and shell fragments, compact, dark grey, moist		006 SS6		1.5		1.5
18		-27.92					
	Not Sampled	-29.42					
	ML-SILT, trace clay, trace fine grained sand, trace coarse angular gravel (Embankment Fill?), trace wood fibers and shell fragments, compact, dark grey, moist	-29.92	007 SS7				1.2
20		-30.92					
	SP-SAND, trace silt, trace shell fragments, compact, medium grained sand, poorly graded, dark grey, trace red grains, wet	-32.42					
22	Not Sampled		008 SS8		1.4		1.1
	SP-SAND, trace silt, trace shell fragments, rusted nails, compact, medium grained sand, poorly graded, dark grey with red and white grains, moist	-33.92					
24	- silt lense, 0.05' thick						
	Not Sampled	-35.42					
	SP-SAND, trace silt, trace shell fragments, rusted nails, compact, medium grained sand, poorly graded, dark grey with red and white grains, moist		009 SS9		1.5		0.1
26		-36.92					
	Not Sampled	-38.42					
28	SP-SAND, trace silt, trace shell fragments, rusted nails, compact, medium grained sand, poorly graded, dark grey with red and white grains, moist	-39.22	010 SS10		1.0		0.6
	ML-SANDY SILT, slight plasticity, fine grained sand, dark grey, rapid dilatancy	-39.92					
30	END OF BOREHOLE @ 29.5ft BGS						
	Chemical analyses refer to both groundwater and sediment samples.						
32	Groundwater sampling continued on 2/24/06 at 5-ft intervals from 35 to 50 ft BGS.						
34	BGS = Below Mudline						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-14
DATE COMPLETED: December 14, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best,

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	Ground Surface = Mudline						
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-15
DATE COMPLETED: December 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferraira, W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 715320 EASTING: 1168275 GROUND SURFACE	-8.12					
	ML-SILT, trace sand, trace shell fragments, trace brick debris, very loose, dark gray, wet		SS1		0.5	8	0.0
		-9.62					
2	Not Sampled						
		-11.12					
	ML-SILT, trace sand, trace shell fragments, trace brick and mortar debris, trace fine rounded gravel, very loose, dark gray, wet		SS2		0.6	71	0.0
4		-12.62					
	Not Sampled						
		-14.12					
6	SM-SILTY SAND, trace fine rounded gravel, trace brick debris, trace wood debris, compact, fine grained, poorly graded, dark gray, wet		SS3		1.5	35	1.7
		-15.62					
8	Not Sampled						
		-17.12					
	SP-SAND, with fine rounded gravel, trace silt, very dense, medium grained sand, poorly graded, dark gray with trace red grains, wet		SS4		1.5	98	
10	- increase in silt @ 10.1 ft BGS	-18.62					
	Not Sampled						
		-20.12					
	SP-SAND, with fine rounded gravel, trace silt, wood debris, rubber pieces, very dense, medium grained sand, poorly graded, dark gray with trace red grains, sheen, wet	-21.12	SS5		1.5		1.6
12		-21.62					
	SP-SAND, with very angular gravel, trace silt, trace white chalk-like material, coarse to medium grained sand, very dense, poorly graded, light gray						
	Not Sampled	-23.12					
	GP-SAND and GRAVEL, trace silt, dense, poorly graded, fine to coarse rounded and angular gravel, coarse grained sand, dark gray/black, wet		SS6				0.5
14	- saturated	-24.62					
	Not Sampled						
		-26.12					
	SP-SAND, trace silt, trace white shell fragments, dense, fine grained sand, poorly graded, dark grey, wet		SS7		1.5	38	0.0
16	- trace wood pieces	-27.62					
	Not Sampled						
		-29.12					
	SM-SILTY SAND, trace white shell fragments, dense, fine grained sand, dark grey, wet		SS8		1.0	60	0.0
18		-30.62					
	Not Sampled						
		-32.12					
	SM-SILTY SAND, dense, fine grained sand, dark grey, wet, sulphur odor		SS9		1.0	43	0.0
20		-33.62					
	Not Sampled						
		-35.12					
	SM-SILTY SAND, trace white shell fragments, dense, fine grained sand, dark grey, wet		SS10		1.0	41	0.0
22	- 0.2' silt with sand, dark grey, low plasticity	-36.62					
	END OF BOREHOLE @ 28.5ft BGS						
24	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
26	Ground Surface = Mudline						
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-16
DATE COMPLETED: May 18, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 715144 EASTING: 1168444 GROUND SURFACE	-15.32					
0	SP-SAND, with vegetation, black, saturated, strong odor (Possible FILL)		001 SS1		0.1	0	0
6	SM-SAND, some silt and vegetation, black, wet to saturated, strong odor (Possible FILL)	-20.32	002 SS2		0.5	4	0
8	SP-SAND, trace gravel, compact, medium to coarse grained sand, massive, black, wet to saturated, slight hydrogen sulfide odor	-23.32	003 SS3		1.5	10	.1
12	CL-CLAY, some silt and shell fragments, trace gravel, very soft, low to medium plasticity, massive, gray, wet, strong hydrogen sulfide odor	-27.32	004 SS4		1.5	0	8
14	SP-SAND, trace gravel, compact, medium grained sand, occasional shell fragments and vegetation, black to gray, wet, strong hydrogen sulfide odor	-29.32	005 SS5		1.0	10	.3
18			006 SS6		1.0	25	4.9
20	SP-SAND, stratified, some vegetation, black with dark brown lamination (NATIVE)	-35.32	007 SS7		1.0	17	.5
22	END OF BOREHOLE @ 22.0ft BGS BGS = Below Mudline	-37.32					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-17
DATE COMPLETED: March 30, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: R. Bayne, G. Harnson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-7.32					
0	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet		SS1	X	0.2	0	0.0
2		-9.32					
	Not Sampled	-10.32					
4	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet		SS2	X	0.3	0	0.2
		-12.32					
	Not Sampled	-13.32					
6	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet		SS3	X	0.4	14	0.2
8		-15.32					
	Not Sampled	-16.32					
10	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet		SS4	X	0.3	11	0.0
		-18.32					
	Not Sampled	-19.32					
12	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet - 0.08' black organic layer @ 12.5 ft BGS		(SS5)	X	1.3	20	0.8
14		-21.32					
	Not Sampled	-22.32					
16	GP-GRAVEL, organics, shells, poorly graded, very loose, medium gravel, black, wet		SS6	X	0.3	7	0.3
		-24.32					
	Not Sampled	-25.32					
18	ML-SILT, stiff, black to gray, moist	-25.82					
	SW-SAND, compact, medium to coarse grained, black with red grains, moist		SS7	X	1.5	29	NR
20		-27.32					
	END OF BOREHOLE @ 20.0ft BGS						
22	BGS = Below Mudline						
	Mudline = Ground Surface						
24	NR = Not Recorded						
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-23
DATE COMPLETED: August 15, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-14.32					
0	No Recovery		SS1		0.0		
2							
4			SS2		0.0		
6	OL-ORGANIC SILT, trace shells, loose, white, saturated (FILL, recent sediment)	-20.32	001 SS3		1.0		0.0
8							
		-23.32					
10	No Recovery		SS4		0.0		
12							
14			SS5		0.0		
		-29.32					
16	ML-SILT, trace fine grained sand, trace shell fragments, trace organic debris, loose, dark gray to black, saturated		002 SS6		0.5		0.1
18	- fibrous debris @ 18 ft BGS		003				
20			SS7		1.5		8.2
	SP-SAND, fine grained, compact, poorly graded, dark brown with red and white grains	-35.02					
22	SM-SAND, some silt, trace shell fragments, fine grained sand, compact, poorly graded, dark brown with red and white grains, moist	-36.32	004 SS8		3.0		6.5
	SP-SAND, fine grained, compact, dark brown with red and white grains	-38.02					
24	SM-SAND, some silt, trace shell fragments, fine grained sand, compact, poorly graded, dark brown with red and white grains, moist	-38.32					
26							
	SP-SAND, fine grained, compact, poorly graded, dark brown with red and white grains, saturated	-40.62 -41.32					
28	END OF BOREHOLE @ 27.0ft BGS						
	BGS = Below Mudline						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-24
DATE COMPLETED: January 15, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-30.71					
0	ML-SILTY MUD, very loose, wet		SS1	X	0.3	2	19.8
		-32.21					
2	ML-SILTY MUD, very loose, wet, wood		SS2	X	0.6	24	36.6
		-33.71					
4	SP-SAND, fine to medium sand, brown with red grains, compact, wet						
6			SS3	X	1.0	31	38
			SS4	X	0.7	34	39.2
8		-38.71					
	Not Sampled						
10		-40.71					
	SP-SAND, fine to medium sand, brown with red grains, compact, wet - trace silt, sea shells (white)		SS5	X	0.8	41	2.5
12			SS6	X	1.0	61	2.5
		-43.71					
	Not Sampled						
14		-45.71					
	SP-SAND, fine to medium sand, trace sea shells, compact, wet, with interlayered SM-SILT seams		SS7	X	1.7	107	--
16			SS8	X	0.8	45	--
18		-48.71					
	Not Sampled						
20		-50.71					
	SP-SAND, fine to medium sand, trace sea shells, compact, wet, with interlayered SM-SILT seams		SS9	X	1.1	82	12.6
22			SS10	X	0.8	51	20
		-53.71					
	END OF BOREHOLE @ 23.0ft BGS						
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-25
DATE COMPLETED: January 18, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, I. L-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715197 EASTING: 1168460 GROUND SURFACE	-33.82				
0	SILT, saturated, very loose	-34.57	SS1	X	1.5	18
2	SP-SAND, trace silt, fine grained sand, gray, wet, loose - some silt, trace wood fiber below 1.5 ft BGS	-36.82	SS2	X	0.3	6
4	Not Sampled	-38.82				
6	SP-SAND, trace wood and shell fragments, trace silt, fine to medium grained sand, dark gray, saturated, loose to compact - more loose below 6.5 ft BGS	-41.82	SS3	X	1.0	22
			SS4	X	0.4	22
8	Not Sampled	-43.82				
10	SP-SAND, trace shell fragments, trace wood fibers, trace silt, fine to medium grained sand, dark gray with white and red sand grains, rotten odor	-45.82	SS5	X	0.7	18
12	SP-SAND, trace silt, compact, very fine grained sand, gray, saturated	-46.82	SS6	X	1.1	23
14	Not Sampled	-48.82				
16	SP-SAND, trace silt, compact, very fine grained sand, gray, saturated, rotten/sulfur odor - dense below 16.5 ft BGS	-51.82	SS7	X	0.6	33
			SS8	X	0.4	46
18	Not Sampled	-53.82				
20	SP-SAND, compact, dense, fine to medium grained (mostly fine), dark gray, odor	-56.82	SS9	X	0.9	27
22			SS10	X	1.1	19
24	END OF BOREHOLE @ 23.0ft BGS					
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-26
DATE COMPLETED: January 17, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715104 EASTING: 1168517 GROUND SURFACE	-26.72				
0	ML-SILT, loose, brown, saturated	-27.02	SS1		0.8	8
	SM-SANDY SILT, trace wood (fibrous), loose, some medium grained sand, black, wet		001			
2	- no wood below 1.5 ft BGS		SS2		0.3	17
	Not Sampled	-29.72				
4		-31.72				
	SM-SILTY SAND, very loose, fine grained sand, dark gray, saturated	-32.42	SS3		1.6	26
6	SP-SAND, compact, fine to medium grained, saturated		002			
	- trace shells below 6.5 ft BGS		SS4		1.4	22
8	Not Sampled	-34.72				
10	SP-SAND, trace shells, trace wood and roots, compact, fine to medium grained sand, saturated	-36.72	SS5		1.1	18
	SM-SILTY SAND, trace wood, loose, fine grained sand, dark gray, saturated	-37.72	003			
12	- wood fragments up to 1" long below 11.5 ft BGS		SS6		1.0	27
	Not Sampled	-39.72				
14		-41.72				
	SP-SAND, trace shells, loose, fine to medium grained sand, dark gray, saturated		SS7		1.2	15
16			004/005			
	SP-SAND, with silt, trace shells, trace wood fragments, compact, fine grained sand, dark gray, saturated	-43.72	SS8		1.1	22
18	Not sampled	-44.72				
	SM-SILTY SAND, trace organic material, fine grained sand, dark gray, saturated	-46.72	SS9		0.6	17
20						
	- trace shells below 21.5 ft BGS		SS10		0.4	20
22	END OF BOREHOLE @ 23.0ft BGS	-49.72				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-27
DATE COMPLETED: January 19, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715152 EASTING: 1168432 GROUND SURFACE	-11.32				
0	Not Sampled					
2	SM-SILTY SAND, with rock, trace fibrous mat, loose, dark gray to black, wet	-13.32	SS1	X	0.4	
			SS2	X	0.1	
4	Not Sampled	-15.32				
6	ML-SILT, trace sand, trace fibrous wood, dark gray to black, wet	-17.32	SS3	X	0.5	
		-18.92	SS4	X	0.4	
8	SP-SAND, trace silt END OF BOREHOLE @ 8.0ft BGS	-19.32				
10						
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-28
DATE COMPLETED: January 17, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715048 EASTING: 1168524 GROUND SURFACE	-9.72				
0	GRAVEL and SILT, black, wet		SS1		0.3	24
2	GRAVEL, trace silt	-11.22	SS2		0.1	36
4	Not Sampled	-12.72				
6	GRAVELLY SAND, trace silt, trace white fragments, coarse grained sand, black, wet, loose - fibrous mat-like material @ 6.5 ft BGS	-14.72	SS5		0.3	>50
			SS6		0.3	>50
8	Not Sampled	-17.72				
10	SP-SAND, trace silt, medium to fine grained sand, dark gray to black, wet	-19.72	SS7		0.6	48
12	- dark gray below 11.5 ft BGS		SS8		1.0	55
14	Not Sampled	-22.72				
16	SP-SAND, trace silt, compact, dense, medium to fine grained sand, dark gray, wet	-24.72	SS9		0.9	34
			SS10		0.7	40
18	Not Sampled	-27.72				
20	SP-SAND, some silt with fine sand seams, compact, dense, fine to medium grained sand, gray, wet	-29.72	SS11		0.7	65
22	SP-SAND, some silt lenses (0.3' thick), compact, dense, fine grained sand, gray, wet	-31.22	SS12		1.0	54
	END OF BOREHOLE @ 23.0ft BGS	-32.72				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS2, SS5, SS7, SS9, SS11)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-29
DATE COMPLETED: January 18, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715007 EASTING: 1168572 GROUND SURFACE	-10.82				
0	SM-SILTY SAND, fine to medium grained sand, gray, wet, loose, concrete piece in tip of shoe		SS1	X	0.1	20
2	SP-GRAVELLY SAND, trace silt, loose, fine to medium grained, gray, wet	-12.32	SS2-3	X	0.2	65/18
4	Not Sampled	-13.82				
6	SP-SAND, some silt, trace white shell fragments, compact, fine to medium grained, gray, wet	-15.82	SS4	X	0.4	13
			SS5	X	0.6	21
8	Not Sampled	-18.82				
10	SP-SAND, trace silt, compact, fine to medium grained sand, gray, wet	-20.82	SS6	X	1.1	34
12			SS7	X	1.0	45
14	Not Sampled	-23.82				
16	SP-SAND, trace silt, compact, fine to medium grained sand, gray, wet - silt and fine sand seam (ML) from 16.5-16.8 ft BGS	-25.82	SS8	X	0.8	43
			SS9	X	0.8	40
18	Not Sampled	-28.82				
20	SP-SAND, with fine sand/silt seams, fine to medium grained, gray, compact-dense, wet	-30.82	SS10	X	0.9	41
22			SS11	X	1.1	40
	END OF BOREHOLE @ 23.0ft BGS	-33.82				
24						
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NL-30
DATE COMPLETED: January 19, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	NORTHING: 715099 EASTING: 1168601 GROUND SURFACE	-29.57				
0	ML-SILT, very loose, dark gray to black, saturated		SS1		1.5	5
		-31.07	001			
2	SP-SAND, compact, fine to medium grained, gray, wet		SS2		0.6	17
		-32.57				
	Not Sampled					
4		-34.57				
	SP-SAND, compact, fine to medium grained, gray to wet		SS3		1.0	37
6			002			
			SS4		0.8	35
8		-37.57				
	Not Sampled					
10		-39.57				
	SM-SILTY SAND, compact, fine grained sand, gray, wet		SS5		1.2	15
			003			
12			SS6		1.2	33
		-42.57				
	Not Sampled					
14		-44.57				
	SM-SILTY SAND, compact, fine grained sand, gray, wet	-45.57	SS7		1.1	36
16	SP-SAND, compact to dense, fine to medium grained, gray, wet - trace wood fragments up to 1/2" below 16.5 ft BGS		004			
			SS8		1.0	21
18		-47.57				
	Not Sampled					
20		-49.57				
	SM-SILTY SAND, trace shells, compact, fine grained sand, gray, wet		SS9		0.8	28
		-51.07	005			
22	SP-SAND, trace silt, loose, fine to medium grained, gray with white and red grains, wet		SS10		0.6	17
		-52.57				
24	END OF BOREHOLE @ 23.0ft BGS					
26						
28						
30						
32						
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-1
DATE COMPLETED: January 11, 2007
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Saunders

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
0	FILL, sand with some cobbles, dark brown, moist						
2							
4			001				
	- concrete material, gray, dry, friable @ 4.5 ft BGS	7.10					
	FILL, sand, trace gravel, red to dark brown	6.60					
6	Not Sampled						
8							
10							
12							
	FILL, debris, metal, copper, wood, rope, glass, black, moist to wet	-1.40					
14			002				
		-3.40 ▽					
	Not Sampled						
16							
18							
20							
22							
	FILL, sand, debris at top, trace shells, black, moist to wet	-11.40	GW001				
24			003				
		-13.40					
	Not Sampled						
26							
28							
30							
32							
	SW-SAND, trace silt, dark brown to black, moist, fishy odor	-21.40					
34			005				
	- silty clay, dark brown, dry @ 35 ft BGS						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-1
DATE COMPLETED: January 11, 2007
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Saunders

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	Not Sampled	-23.40					
38							
40							
42							
44	SP-SAND, fine grained, dark brown to black with red grains, moist	-31.40	GW002 006				63.8
46	Not Sampled	-33.40					
48							
50							
52							
54	SP-SAND, fine grained, dark brown to black with red grains, moist	-41.40					2.9
	ML-SILT with SAND, black, moist to wet, odor present	-42.40	007				2.7
56	Not Sampled	-43.40					
58							
60							
62							
64	ML-SILT, some SAND, black, moist to wet, odor present	-51.40					62.1
	ML-SILT with SAND, trace gravel, black, moist becoming wet with increasing depth	-52.40	008				28.2
66	Not Sampled	-53.40					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-1
DATE COMPLETED: January 11, 2007
DRILLING METHOD: Rotosonic
FIELD PERSONNEL: T. Saunders

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SP-SAND	-61.40	GW003 009				76.3
76	END OF BOREHOLE @ 75.0ft BGS	-63.40					
	Continuation of boring NTD-1a.						
78	Ground surface elevation is estimated.						
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-2
DATE COMPLETED: November 29, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	11.60					
2	Not Sampled						
4	FILL, gravel and sand, pieces of brick, wood, glass, and rusted metal, compact, well graded sand, dark brown and black, moist	8.60					
	Not Sampled	7.10					
6							
8							
10							
12							
	FILL, gravel, sand, and silt, trace wood fragments, trace metal pieces, trace organic matter, black, wet	-1.40					
14		-2.90					
	Not Sampled	-3.40					
	FILL, gravel, sand, and silt, trace wood fragments, trace metal pieces, trace organic matter, black, wet						
16		-4.90					
	Not Sampled	-5.90					
18	FILL, wood with sand, black, wet	-7.40					
	Not Sampled						
20							
22							
	SP-SAND, trace wood fragments, black, wet, solvent-like odor	-10.90					
24	- odor stronger below 23.5 ft BGS	-13.40					
	Not Sampled						
26							
28							
30							
32							
	SP-SAND with SILT, trace shells, loose to compact, black with white and red grains, wet	-21.40	005 SS1	X	1.5	12	0
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-2
DATE COMPLETED: November 29, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	Not Sampled	-23.40					
42	SP-SAND with SILT, trace shells, loose to compact, black with white and red grains, wet	-30.40	SS2		1.1		0
			006/007				
44			SS3		1.2	11	
	Not Sampled	-33.40					
52	SP-SAND, with silt lenses, trace shells, loose to compact, black with white and red grains, wet - trace silt below 53.5 ft BGS	-40.40	SS4		0.5		
54			008 SS5		1.0	22	0
	Not Sampled	-43.40					
64	SP-SAND, trace silt lenses, trace shells, loose to compact, black with white and red grains, wet	-51.40	009 SS6		1.8	9	0
	Not Sampled	-53.40					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: NTD-2
DATE COMPLETED: November 29, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: I. Leclerc-Morin

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SP-SAND, trace silt lenses, trace shells, loose to compact, black with white and red grains, wet	-61.40	010 SS7	X	2.0	19	0
	END OF BOREHOLE @ 75.0ft BGS	-63.40					
76	Ground surface elevation is estimated.						
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (010)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier 25A
DATE COMPLETED: January 30, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	0.68					
0	FILL, sand, gravel, clay, trace silt, compact, well graded, dark brown-orange, saturated		SS1		0.7		0
2			SS2 (002)		0.7		0
			SS3		0.7		0
		-2.32					
4	SP-SAND, trace silt, trace sand, loose to compact, medium grained, trace fine, and trace subrounded, coarse grained sand, moderately to poorly graded, dark brown to black, wet		SS4 (003)		0.5		0
			SS5		0.5		0
		-4.32					
6	END OF BOREHOLE @ 5.0ft BGS						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier 25B
DATE COMPLETED: January 30, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-3.82					
0	FILL, sand with gravel, trace clay, trace silt, trace vegetative matter, loose, poorly graded, wet (recent sediment and fill)	-4.32	001				
			SS1		2.0	51	0
2	SP-SAND, trace silt, fine to medium grained, subrounded to subangular sand, poorly graded, massive, black with trace reddish grains		002/003				
			SS2		0.5		
			SS3		1.0		
4	END OF BOREHOLE @ 3.5ft BGS	-7.32					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier 25C
DATE COMPLETED: January 31, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-7.52					
0	FILL, gravel with sand, with silt, trace clay, fine to coarse fine grained sand, fine to coarse grained gravel, angular gravel, well graded, brown to black, wet, compact/dense		001 SS1		0.5		0
			002 SS2-4		0.5		0
2	SP-SAND, trace silt, fine to medium grained, poorly graded, massive, black to brown, wet	-9.52	SS5-7 003				0
4	END OF BOREHOLE @ 3.5ft BGS	-11.02					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier 25D
DATE COMPLETED: January 31, 2007
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Iotzov

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	1.98					
0	GM-GRAVEL with SAND, with SILT, trace clay, compact, fine to coarse grained sand, fine to coarse grained gravel, angular coarse grained gravel, brown to black, wet		001 SS1		0.5		0
			SS2-4 002		0.5		0
2	GP-SP-GRAVEL and SAND, trace silt, trace clay, trace shell fragments, coarse to medium grained sand, fine to medium grained gravel, subrounded to subangular gravel, moderately to poorly graded, black to brown, wet	-0.52	SS5-7 003		0.5		0
4	END OF BOREHOLE @ 4.0ft BGS	-2.02					
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-1
DATE COMPLETED: July 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716751 EASTING: 1166887 GROUND SURFACE	-43.92					
0	ML-SILT, soft, gray	-44.00	SS1		0.3	6	0
	SP-SAND, medium to coarse grained, black to gray, moist	-45.42					
2	ML-SILT, soft, gray	-45.59	SS2		0.5	4	0
	SP-SAND, medium to coarse grained, black to gray, moist		SS3		0.7	12	0
4	- coarse sand @ 4.5 ft BGS	-48.42					
	Not Sampled						
6							
8							
10							
12							
14							
	SM-SILTY SAND, medium to fine grained sand, gray, moist	-58.42	SS4		1.2	10	0
16	Not Sampled	-59.92					
18							
20							
22							
24							
	SP-SAND, fine to medium grained, moist	-68.42	SS5		1.5	13	0
	- 0.5" silt lense @ 25.33 ft BGS						
26	Not Sampled	-69.92					
28							
30							
32							
34		-78.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-1
DATE COMPLETED: July 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SM-SANDY SILT, gray		SS6		1.3	4	0
	Not Sampled	-79.92					
38							
40							
42							
44							
	SP-SAND, fine to medium grained, gray, densely packed	-88.42	SS7		1.0	42	0
46	Not Sampled	-89.92					
48							
50							
52							
54							
	SM-SANDY SILT, fine grained sand, gray, moist	-98.42	SS8		1.3	48	0
56	Not Sampled	-99.92					
58							
60							
62							
64							
	ML-SILT, gray, moist, loosely packed	-108.42	SS9		1.5	8	0
66	Not Sampled	-109.92					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-1
DATE COMPLETED: July 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
	SP-SAND, medium to fine grained, moist	-118.42	SS10	X	1.3	48	0
76	Not Sampled	-119.92					
78							
80							
82							
84							
	SW-SAND, coarse grained, moist, rock lodged in shoe	-128.42	SS11	X	1.0	85	0
86	END OF BOREHOLE @ 86.0ft BGS	-129.92					
	Chemical analyses refer to both groundwater and sediment.						
88	BGS = Below Mudline						
90	Ground Surface = Mudline						
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS10, SS11)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-2
DATE COMPLETED: July 18, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 716585
EASTING: 1167061

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-41.52					
0	ML-SILT, little fine sand, soft, wet	-42.22	SS1		1.5	12	0
	- trace sheen @ 0.4 ft BGS						
	SM-SAND, loose, fine to medium grained, gray with few red grains, moist to wet	-43.02					
2	ML-SILT, loose, soft, black with few obvious red grains, moist to wet, intermittent thin sand lenses	-44.52	SS2		1.5	11	0
	- trace sheen @ 1.9 ft BGS		SS3		1.5	20	0
4	- increasing sand content below 2.7 ft BGS	-45.42					0
	SM-SAND, loose, dark gray, wet	-45.72					0
	ML-SILT, soft, black, wet		SS4		0.9	23	0
6	SP-SAND, few shell fragments, medium density, fine grained, dark gray with few red grains, moist to wet		SS5		1.5	13	0
	- one medium piece of gravel, angular @ 4.5 ft BGS						
8	- trace sheen @ 6.4 ft BGS	-49.02					
	- loose, wet between 6.4 and 6.7 ft BGS						
	Not Sampled						
10							
12							
14							
16	SP-SAND, trace gravel, few shell fragments, medium stiff to stiff, fine grained, fine to medium grained gravel, angular gravel, red grains, moist to wet	-57.52	SS6		1.5	77	0
		-59.02					
18	Not Sampled						
20							
22							
24							
26	SP-SAND, some shell fragments, no gravel, fine grained, abundant red grains	-67.52	SS7		1.0	>50	0
	- very fine grained, trace red fragments, moist to wet below 26.5 ft BGS	-68.52					
28	Not Sampled						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-2
DATE COMPLETED: July 18, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, abundant shell fragments, no gravel, medium dense, fine to very fine grained, dark gray to black with abundant red grains, moist	-77.52	SS8		1.2	>50	0
38	Not Sampled	-79.02					
40							
42							
44							
46	SP-SAND, abundant shell fragments, no gravel, loose to medium dense, fine to very fine grained, dark gray to black with abundant red grains, moist, sand appears to be 'washed'	-87.52	SS9		1.3	>50	0
48	Not Sampled	-89.02					
50							
52							
54							
56	SP-SAND, abundant shell fragments, no gravel, medium dense, fine to very fine grained, dark gray to black with abundant red grains, moist	-97.52	SS10		1.3	>50	0.2
58	Not Sampled	-99.02					
60							
62							
64							
66	SP-SAND, abundant shell fragments, no gravel, medium dense, fine to very fine grained, dark gray to black with abundant red and white grains, moist	-107.52	SS11		1.4	62	1.9
68	Not Sampled	-109.02					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-2
DATE COMPLETED: July 18, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76	SP-SAND, abundant shell fragments, trace wood splinters, one piece of black and white granite, stiff, fine to very fine grained, dark gray to black with abundant red grains, moist	-117.52	SS12	X	0.7	>50	2.6
78	Not Sampled	-119.02					
80							
82							
84							
86	SP-SAND, medium dense, fine grained, dark gray, moist to wet, no odor, no sheen	-127.52	SS13	X	1.3	33	22.6
88	Not Sampled	-129.02					
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS12, SS13)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-2
DATE COMPLETED: July 18, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	SW-SAND, some gravel, very dense, fine to medium grained gravel, sub-angular to sub-rounded, light brown, moist	-147.52	SS14		0.4	21	0.0
108	Not Sampled	-149.52					
110							
112							
114							
116	SW-SAND, some gravel, very dense, fine to medium grained gravel, sub-angular to sub-rounded, light brown	-157.52	SS15		0.7	73	0.0
118	Not Sampled	-159.52					
120							
122							
124							
126	SW-SAND, some gravel, very dense, fine to medium grained gravel, sub-angular to sub-rounded, light brown, moist to wet	-167.52	S16		0.7	83	0.2
128	Not Sampled	-169.52					
130							
132							
134							
136	GM-SANDY-SILTY-GRAVEL, very dense, gray	-177.52					
	SM-SILTY SAND, dense, gray, moist to wet	-177.82	S17		0.8	87	0
138	END OF BOREHOLE @ 138.0ft BGS	-179.52					
	Chemical analyses refer to both groundwater and sediment sampling.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-2
DATE COMPLETED: July 18, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	BGS = Below Mudline						
142	Ground Surface = Mudline						
144							
146							
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-4
DATE COMPLETED: August 13, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716807 EASTING: 1166831 GROUND SURFACE	-41.32					
	Not Sampled						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (◯)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-4
DATE COMPLETED: August 13, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38	SP-SAND, medium dense, fine to medium grained, dark gray with abundant red grains, moist to wet	-78.42	SS1		2.0	29	0.4
	SM-SAND, little silt, medium density, fine to medium grained, dark gray, moist to wet	-79.62					
40	Not Sampled	-80.42					
42							
44							
46							
48	SP-SAND, slightly dense, fine to medium grained, gray, moist to wet	-88.42	SS2		1.8	16	0
	WOOD	-89.22					
	ML-SILT, little sand, medium stiff, gray, moist to wet	-89.42					
	SP-SAND, slightly dense, fine to medium grained, gray, moist to wet	-89.62					
50	ML-SILT, little sand, medium stiff, gray, moist to wet	-89.92					
	Not Sampled	-90.42					
52							
54							
56							
58	SP-SAND, medium dense, fine to medium grained, gray, moist to wet	-98.42	SS3		2.0	8	0
	ML-SILT, little sand, trace clay, medium stiff, fine grained, gray, moist to wet	-99.42					
60	- 1" sand lenses @ 58.3 and 58.5 ft BGS	-100.42					
	Not Sampled						
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-4
DATE COMPLETED: August 13, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80	END OF BOREHOLE @ 79.1ft BGS	-120.42					
	Chemical analyses refer to both groundwater and sediment.						
82	BGS = Below Mudline						
	Ground Surface = Mudline						
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-5
DATE COMPLETED: August 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716808 EASTING: 1166936 GROUND SURFACE	-47.92					
	Not Sampled						
32	SP-SAND, medium dense, fine to medium grained, gray, moist to wet - silt seams from 32.4 to 32.45 and 33.6 to 33.7 ft BGS	-79.92	SS1	X	1.4	23	0.8
34	Not Sampled	-81.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-5
DATE COMPLETED: August 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42	SM-SAND, little silt, trace wood, medium dense, fine grained, moist to wet	-88.42	SS2		1.2	15	NR
	- silty below 42.3 ft BGS	-90.42					
44	Not Sampled						
46							
48							
50							
52	SP-SAND, medium dense, fine to medium grained, brown with red grains, moist to wet	-98.42					
	ML-SILT, medium dense, gray, moist to wet	-99.02	SS3		2.0	1	0.0
	Not Sampled	-100.42					
54							
56							
58							
60	GM-SILTY SANDY GRAVEL, some cobbles, dense, gray, wet	-108.42					
	Not Sampled	-109.22	SS4		0.8	30	0.0
62							
64							
66							
68	GM-SILTY SANDY GRAVEL, some cobbles, very dense, gray, multicolor gravels, wet	-114.42	SS5		1.6	90	0.0
	END OF BOREHOLE @ 68.5ft BGS	-116.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-5
DATE COMPLETED: August 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair, K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	Refusal at 68.5 ft BGS.						
	BGS = Below Mudline						
72	Ground Surface = Mudline						
74	NR = Not Recorded						
76							
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-6
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL:

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716637 EASTING: 1167111 GROUND SURFACE	-41.62					
0	ML-SILT, trace sand, very loose, fine grained, dark gray, very wet	-42.32					
	SM-SILTY SAND, very loose, fine grained, dark gray, wet	-42.62	SS1		1.6	4	0.0
2	SP-SAND, trace silt, shell fragments, loose, fine grained, poorly graded, dark gray with red/whitish grains, wet ("coarser sediment")	-43.22					
	Not Sampled						
4							
6							
8							
10							
	SP-SAND, trace silt, loose to compact, fine grained, poorly graded, dark gray with red/whitish grains, wet ("coarser sediment")	-52.62					
12		-53.82	SS2		1.2	13	0.0
	Not Sampled						
14							
16							
18							
20							
	SP-SAND, trace silt, loose to compact, fine grained, poorly graded, dark gray with red/whitish grains, wet, 1" silt lense @ 21 ft BGS ("coarser sediment"),	-62.62					
22		-63.42	SS3		0.8	10	0.9
	Not Sampled						
24							
26							
28							
30							
	SM-SILTY SAND, compact, fine grained, dark gray, wet	-72.62					
32	- 0.02' sand with silt lense @ 31.8 ft BGS - 0.02' sand with silt lense @ 31.9 ft BGS - 0.02' sand trace silt lense @ 32 ft BGS	-73.92	SS4		1.3	13	0.5
34	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2, SS3, SS4)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-6
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL:

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42	SM-SAND with SILT, compact, fine grained, dark gray with red/white grains, wet	-82.62	SS5		0.4	13	0.0
	Not Sampled	-84.62					
44							
46	SP-SAND, dense, fine to medium grained, gray with red grains, moist to wet,	-87.52	SS6		2.0	NR	0
48	Not Sampled	-89.52					
50							
52							
54							
56	ML-SILT, some sand, medium stiff, gray, moist to wet	-97.52	SS7		0.7	5	18
58	Not Sampled	-99.52					
60							
62							
64							
66	ML/SM SILT and SAND, trace wood, medium stiffness, gray, moist to wet	-107.52	SS8		1.8	26	20
	SM-SAND, little silt, medium dense, fine to medium grained, gray, moist to wet	-108.72					
68	Not Sampled	-109.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5, SS6, SS7, SS8)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-6

PROJECT NUMBER: 07843
DATE COMPLETED: August 19, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL:

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72							
74							
76	ML-SILT, little fine sand, medium stiff, gray, moist to wet	-117.52	SS9		1.8	24	0
78	Not Sampled	-119.52					
80							
82							
84							
86	ML-SILT, little fine sand, slightly stiff, gray, moist to wet - trace wood @ 87.1 ft BGS	-127.52	SS10		2.0	33	1.1
88	SW-SAND, little gravel, dense, fine to medium grained sand, medium to fine grained, sub-angular to sub-rounded gravel, moist to wet, gray - little fine gravel, dense, light brown, moist below 87.7 ft BGS	-128.72 -129.52					0.6 0
90	Not Sampled						
92							
94							
96	SW/GW-SAND and GRAVEL, very dense, fine to medium grained sand, medium to coarse grained, sub-angular to sub-rounded gravel, light brown, dry to moist	-137.52	SS11		0.5	188	0.2
98	Not Sampled	-139.02					
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-6
DATE COMPLETED: August 19, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL:

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	GW/SW-GRAVELLY SAND, trace silt, very dense, gray, wet	-147.52	SS12		0.6	>100	0.1
108	Not Sampled	-149.02					
110							
112							
114							
116	GM-GRAVEL, trace sand, trace silt, very dense, gray, wet	-157.52	SS13		0.5	>90	0
118	END OF BOREHOLE @ 117.9ft BGS	-159.52					
120	Chemical analyses refer to both groundwater and sediment sampling.						
122	Groundwater samples taken at 10-ft intervals to 117.9 ft BGS						
124	BGS = Below Mudline						
126	Ground Surface = Mudline						
128	NR = Not Recorded						
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-7
DATE COMPLETED: August 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716725 EASTING: 1167024 GROUND SURFACE	-48.22					
	Not Sampled						
20	SP-SAND, trace silt, dense, fine to medium grained, gray, moist to wet	-67.52					
	ML-SILT	-68.02	SS1	X	1.5	15	0
	SP-SAND, trace silt, dense, fine to medium grained, gray, moist to wet	-69.02					
	Not Sampled	-69.52					
30	SP-SAND, trace silt, dense, fine to medium grained, gray, moist to wet	-77.52	SS2	X	0.7	17	2.7
	Not Sampled	-79.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-7
DATE COMPLETED: August 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40	SP-SAND, trace silt, dense, fine to medium grained, gray, moist to wet	-87.52	SS3		1.4	28	3.6
		-89.52					
42	Not Sampled						
44							
46							
48							
50	SM-SILTY SAND, dense, gray, moist to wet	-97.52	SS4		1.3	23	2.4
		-99.52					
52	Not Sampled						
54							
56							
58							
60	SM-SILTY SAND, soft, fine grained, gray, moist to wet	-107.52	SS5		2.0	3	0
		-109.52					
62	Not Sampled						
64							
66							
68							
	ML-SILT, dense, little fine sand, low plasticity, blocky, dry to moist	-117.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-7
DATE COMPLETED: August 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, trace silt, loose, fine to medium grained, moist to wet	-118.52	SS6		2.0	17	0.2
	Not Sampled	-119.52					
72							
74							
76							
78							
80	GW-GRAVEL, little sand, very dense, fine to medium grained sand, light brown, moist to wet	-127.52	SS7		0.8	>160	0.2
	Not Sampled	-129.52					
82							
84							
86							
88							
90	GP/SP-GRAVEL and SAND, fine to coarse grained sand, subangular to subrounded gravel, light brown, moist to wet	-137.52	SS8		0.6	21	0.1
	Not Sampled	-139.52					
92							
94							
96							
98							
100	GW/SW-GRAVEL and SAND, very dense, fine to medium grained sand, fine to medium grained gravel, light brown, moist	-147.52	SS9		20.0	>156	0
	Not Sampled	-149.52					
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-7
DATE COMPLETED: August 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110	GM/SM-SILTY GRAVEL, sand, very dense, fine grained sand, gray, moist to wet	-157.52	SS10	X	1.4	38	0.3
		-159.52					
112	Not Sampled						
114							
116							
118							
		-167.52					
120	GM-GRAVEL	-167.72	SS11	X	1.4	41	0
	SW-SAND, trace silt, dense, fine to medium grained, light brown, moist	-169.52					
122	Not Sampled						
124							
126							
128							
	GP-GRAVEL, some silt, some sand, angular, tan to gray, moist	-177.52	SS12	X	0.4	>159	NR
130		-179.52					
132	END OF BOREHOLE @ 131.3ft BGS						
	Chemical analyses refer to both groundwater and sediment.						
134	BGS = Below Mudline						
	Ground Surface = Mudline						
136	NR = Not Recorded.						
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS10, SS11)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-8
DATE COMPLETED: August 26, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

NORTHING: 716696
EASTING: 1167164

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-42.42					
0	SM-SAND and SILT, soft, dark gray, wet		SS1		0.8	R	0.3
2		-44.42					
	SP-SAND, trace shell fragments, medium dense, fine to medium grained, dark gray, moist to wet	-44.62	SS2		2.0	11	0
	ML-SILT, soft, dark gray, moist to wet	-44.82					
4	SP-SAND, trace shell fragments, medium dense, fine to medium grained, dark gray with red grains	-46.22	SS3		2.0	21	0.2
	SM-SAND and SILT, fine grained sand, medium dense, dark gray, moist to wet	-46.42					
6	SP-SAND, medium dense, fine to medium grained, dark gray with white and red grains, moist to wet	-48.42					
	- coarse grained @ 4.3 ft BGS						
8	Not Sampled						
10							
12							
14		-56.42					
	SP-SAND, little silt (in lenses <0.5"), medium dense, abundant red grains, moist to wet, occasional shell fragments		SS4		1.2	6	0.2
	- trace wood @ 14.5 ft BGS						
16	Not Sampled	-58.42					
18							
20							
22							
24		-66.42					
	SP-SAND, fine grained, dark gray, moist to wet		SS5		1.6	16	0.7
	- 1" silt lense @ 24.3 ft BGS						
26	Not Sampled	-68.42					
28							
30							
32							
34		-76.42					
	SM-SILT and SAND, medium stiff, fine grained, dark gray, moist to wet	-77.02					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS3, SS4, SS5)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-8
DATE COMPLETED: August 26, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, fine to medium grained, red grains present, moist to wet - 1" silt lense @ 35.2 ft BGS	-78.42	SS6		1.9	13	0.2
	Not Sampled						
38							
40							
42							
44		-86.42					
	No Recovery		SS7		0.0	11	NR
46		-88.42					
	SP-SAND, very dense, fine to medium grained, dark gray with red grains, moist to wet - 1" silt lense @ 47.2 and 47.9 ft BGS		SS8		2.0	8	28
48		-90.42					
	Not Sampled						
50							
52							
54		-96.42					
	SP-SAND, very dense, fine to medium grained, dark gray with red grains, moist to wet - silt lense between 54.2 and 54.3 ft BGS		SS9		1.3	23	190
56		-98.42					
	Not Sampled						
58							
60							
62							
64		-106.42					
	ML-SILT, little sand, trace roots, soft, fine grained, gray, moist		SS10		2.0	14	NR
66		-108.42					
	Not Sampled						
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-8
DATE COMPLETED: August 26, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	ML-SILT, little sand, fine grained, gray, moist	-116.42	SS11		1.3	72	NR
	CL-CLAY, soft, gray	-117.62					
76	GM-GRAVEL, some silt, angular gravel, gray, wet	-117.82 -118.42					
	Not Sampled						
78							
80							
82							
84	GP-GRAVEL, some sand, little silt, fine to coarse grained, angular gravel, tan, wet	-126.42	SS12		0.7	28	NR
86	Not Sampled	-128.42					
88							
90							
92							
94	GP-GRAVEL, some sand, some silt, hard, fine grained, angular, wet	-136.42	SS13		4.1	55	NR
96	Not Sampled	-138.42					
98							
100							
102							
104	GP-GRAVEL, some sand, little silt, fine to coarse grained sand, angular gravel, tan	-146.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-8
DATE COMPLETED: August 26, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	to gray, wet		SS14		1.5	40	NR
106	Not Sampled	-148.42					
108							
110							
112							
114	GP/SP-GRAVEL and SAND, very dense, fine to medium grained sand, semi-angular to semi-rounded gravel, light brown, moist to wet	-156.42	SS15		0.8	>74	0
116	Not Sampled	-158.42					
118							
120							
122							
124	SP-SAND, trace gravel, very dense, fine to medium grained, semi-rounded gravel, light brown, moist to wet	-166.42	SS16		0.1	30	0
126	END OF BOREHOLE @ 126.0ft BGS	-168.42					
	Chemical analyses refer to both groundwater and sediment.						
128	BGS = Below Mudline						
130	Ground Surface = Mudline						
132	NR = Not Recorded						
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS14, SS15, SS16)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-3
DATE COMPLETED: August 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716669 EASTING: 1166973 GROUND SURFACE	-41.72					
	Not Sampled						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-3
DATE COMPLETED: August 17, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: K. Lynch

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
	SM-SAND, little silt, trace wood bits, slightly dense, fine grained, gray, moist to wet	-78.42	SS1		0.8	12	0.2
38		-80.42					
	Not Sampled						
40							
42							
44							
46							
	SP-SAND, loose, fine to coarse grained, gray with red grains, moist to wet	-88.42	SS2		1.0	19	0.1
48		-90.42					
	Not Sampled						
50							
52							
54							
56							
	SP-SAND, dense, fine to medium grained, gray with red-brown grains, moist to wet	-98.42	SS3		2.0	35	1.1
58		-100.25					
	SM-SAND and SILT, stiff, fine grained, gray, moist to wet	-100.42					
	END OF BOREHOLE @ 58.7ft BGS						
60	Groundwater sampling continued at 5-ft intervals to a depth of 138.7 ft BGS.						
	Chemical analyses refer to both groundwater and sediment sampling.						
62	BGS = Below Mudling						
	Ground Surface = Mudline						
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2, SS3)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-9
DATE COMPLETED: October 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716777 EASTING: 1167077 GROUND SURFACE	-45.92					
0	Not Sampled						
32	SP-SAND, trace silt, dense, medium to fine grained, gray with red grains, moist to wet	-77.42	SS1	X	1.0	37	1.4
34	Not Sampled	-79.42					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-9
DATE COMPLETED: October 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42	MH-SILT with SAND, firm, fine grained, dark gray, moist to wet	-87.42	SS2	X	2.0	0	0
44	Not Sampled	-89.42					
46							
48							
50							
52	SP-SAND, trace silt, compact, medium to fine grained, dark gray with red/gray grains, moist to wet	-97.42	SS3	X	0.9	10	0
54	Not Sampled	-99.42					
56							
58							
60							
62	MH-SILT, with SAND, compact, fine grained, dark gray, wet	-107.42					
	SP-SAND, trace silt, fine grained, rounded gravels, poorly graded, dark gray, moist	-108.12	SS4	X	1.4	39	0
64	Not Sampled	-109.42					
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-9
DATE COMPLETED: October 25, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	GM-SILTY GRAVEL with SAND, dense, fine grained, rounded gravel, poorly graded, yellow-brown, moist	-117.42	SS5	X	0.5	62	0
74	Not Sampled	-119.42					
76							
78							
80							
82	GM-SILTY GRAVEL with SAND, dense, fine grained, rounded gravel, poorly graded, yellow-brown, moist	-127.42	SS6	X	0.5	85	0
84	END OF BOREHOLE @ 83.5ft BGS	-129.42					
86	Groundwater sampling continued at 10-ft intervals to a depth of 124.5 ft BGS.						
88	Refusal at 124.5 ft BGS.						
90	Chemical analyses refer to both groundwater and sediment.						
92	BGS = Below Mudline						
94	Ground Surface = Mudline						
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-10
DATE COMPLETED: October 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	NORTHING: 716639 EASTING: 1167223 GROUND SURFACE	-41.49					
	Not Sampled						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-10
DATE COMPLETED: October 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
56	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red grains, moist	-97.49					
	- 0.2' silt lense @ 56.4 ft BGS	-98.39	SS1	X	1.0	32	253
58	SM-SILTY SAND, compact, fine grained, dark gray, moist	-99.49					
	Not Sampled						
66	SP-SAND, trace silt, compact, dark gray with red grains, moist to wet, odor	-107.49					
	- soft, saturated below 66.8 ft BGS		SS2	X	2.0	26	113
	- increasing silt content (<20%) below 67.2 ft BGS						
68	Not Sampled	-109.49					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-10

PROJECT NUMBER: 07843
DATE COMPLETED: October 27, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
72							
74							
76	SP-SAND, trace silt, compact, dark gray with red grains, moist to wet, odor	-117.49					
	- small yellow-orange patch @ 76.8 ft BGS	-118.39	SS3		1.6	24	91
78	ML-SILT, trace clay, soft, slight plasticity, dark gray, wet	-119.49					
	Not Sampled						
80							
82							
84							
86	GW-SAND and GRAVEL, trace silt, dense, fine to coarse grained sand, rounded gravels, well graded, brown, wet	-127.49	SS4		0.7	33	0
88	Not Sampled	-129.49					
90							
92							
94							
96	GW-SAND and GRAVEL, trace silt, dense, fine to coarse grained sand, rounded gravels, well graded, brown, wet	-137.49	SS5		0.6	51	0
98	Not Sampled	-139.49					
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-10
DATE COMPLETED: October 27, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
106	GM-SAND, SILT, and GRAVEL, dense, cobbles, fine to coarse gravel, medium to coarse grained sand, greenish-gray - 0.3' silt lense @ 106.6 ft BGS	-147.49	SS6			51	0
108	Not Sampled	-149.49					
110							
112							
114							
116	Stratigraphy was not recorded for this interval.	-157.49	SS7		1.3	44	0
118	END OF BOREHOLE @ 118.0ft BGS	-159.49					
120	Chemical analyses refer to both groundwater and sediment.						
122	BGS = Below Mudline						
124	Ground Surface = Mudline						
126	NR = Not Recorded						
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-11
PROJECT NUMBER: 07843
DATE COMPLETED: October 8, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira
Tacoma, Washington

NORTHING: 716752
EASTING: 1167216

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-41.20					
0	ML-SILT, very soft, dark gray, wet	-41.70					
	- silt lense from 0.7 to 0.8 ft BGS		SS1		1.5	0	0
2	SP-SAND, trace silt, wood debris, very loose, fine to medium grained, dark gray with red/gray sand grains, wet	-43.20					
	ML-SILT, trace sand, very soft, dark gray, wet	-43.50	SS2		1.8	3	0.2
4	SP-SAND, trace silt, very loose, fine grained, dark gray with red/gray colored grains, wet						
	- 2-cm silt layer @ 3.05 ft BGS		SS3		2.0	7	0
	- 2-cm silt layer @ 3.1 ft BGS						
6	- 2-cm silt layer @ 3.2 ft BGS	-47.20					
	- 2-cm silt layer @ 3.6 ft BGS						
	- 2-cm silt layer @ 3.8 ft BGS						
8	- wood debris, shell fragments, fine to coarse grained below 4 ft BGS						
	Not Sampled						
10							
12							
14	SP-SAND with SILT, compact, fine grained, poorly graded, wet	-55.20					
	- 0.25-inch lense of sandy silt @ 15.3. ft BGS		SS4		1.7	16	0.7
16	Not Sampled	-57.20					
18							
20							
22							
24							
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray with red and white grains, wet	-66.20					
26	- 1.0-inch silt lense @ 26.6 ft BGS		SS5		1.6	25	0
	Not Sampled	-68.20					
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-11
DATE COMPLETED: October 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND with SILT, compact, fine grained, poorly graded, wet	-76.20					
	ML-SILT with SAND, compact, dark gray, very moist	-77.00	SS6		1.8	14	15.2
	Not Sampled	-78.20					
38							
40							
42							
44							
46	MH-SANDY SILT, very loose, dark gray, wet, rapid dilatancy	-86.20	SS7		0.8	0	0
	Not Sampled	-88.20					
48							
50							
52							
54							
56	ML-SILT with SAND, trace shell fragments, trace gravel, compact, fragmented, subrounded gravel, dark gray, trace white shell fragments, very moist	-96.20	SS8		1.6	17	0
	Not Sampled	-98.20					
58							
60							
62							
64							
66	GM-SILTY GRAVEL, some sand, very dense, subrounded, subangular, multicolor, brown, moist to wet	-106.20	SS9		0.6	80	1.2
	Not Sampled	-108.20					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-11
DATE COMPLETED: October 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, B. Sinclair, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76	GP-GRAVEL, trace sand, compact, subrounded, poorly graded, multicolor, moist to wet	-116.20					
	GM-SILTY GRAVEL, some sand, cobbles, more dense, subrounded, subangular, brown, moist to wet	-117.00	SS10	X	1.2	19	4.2
78	Not Sampled	-118.20					
80							
82							
84							
86	GM-SILTY GRAVEL with SAND, sand "chunks," cobbles, dense, well graded, yellow-orange, dark gravels, moist to wet	-126.20	SS11	X	0.4	46	NR
	Not Sampled	-128.20					
88							
90							
92							
94							
96	GP-GRAVEL/SAND, very dense, fine to medium grained sand, fine grained, subrounded gravel, poorly graded, yellow-gray, moist to very moist	-136.20	SS12	X	0.5		0
	END OF BOREHOLE @ 97.0ft BGS	-138.20					
98	Chemical analyses refer to both groundwater and sediment.						
100	Groundwater sampling continued at 10 ft intervals to 115 ft BGS.						
	BGS = Below Mudline						
102	Ground Surface = Mudline						
104	NR = Not Recorded						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-12
DATE COMPLETED: February 1, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716394 EASTING: 1167310 GROUND SURFACE	-46.02					
0	ML-SILT, trace sand, very loose, dark gray, wet		SS1		1.7	3	0.3
		-47.22					
2	SP-SAND, trace silt, trace shells, wood fibers, loose, fine grained, poorly graded, dark gray, trace red grains, wet	-48.02					
	Not Sampled						
4							
6							
8							
10	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-56.02	SS2		0.9	7	0.0
12	Not Sampled	-58.02					
14							
16							
18							
20	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet	-66.02	SS3		0.9	16	0.3
22	Not Sampled	-68.02					
24							
26							
28							
30	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet - fine grained below 30.7 ft BGS	-76.02	SS4		1.2	19	275
32	Not Sampled	-78.02					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-12
DATE COMPLETED: February 1, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-86.02 to -86.52	SS5		2.0	23	133
	ML-SILT, trace sand, compact, fine grained, poorly graded, dark gray, wet	-86.52 to -87.32					
42	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-87.32 to -88.02					
	Not Sampled						
50	ML-SILT, trace sand, compact, fine grained, poorly graded, dark gray, wet	-96.02 to -96.72	SS6		1.4	15	43.5
	SP-SAND, trace silt, loose, fine grained, poorly graded, dark gray, trace red and white grains, wet	-96.72 to -98.02					
52	Not Sampled						
60	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, trace red and white grains, wet - 0.08' silt lense @ 60.5 ft BGS	-106.02 to -108.02	SS7		2.0	29	963
62	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-12
DATE COMPLETED: February 1, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SM-SILTY SAND, dense, fine grained, dark gray, moist - dry to moist below 71 ft BGS - 0.08' layer sub-rounded to sub-angular fine gravel @ 71.5 ft BGS	-116.02	SS8		2.0	59	246
	Not Sampled	-118.02					
74							
76							
78							
80	SM-SILTY SAND, very dense, fine grained, dark gray, dry, breaks horizontally	-126.02					
	SP-SAND, trace silt, dense, fine grained, poorly graded, dark gray with red/whitish grains, wood debris and black color at contact with above unit, wet, odor	-127.12	SS9		1.6	60	274
82	END OF BOREHOLE @ 82.0ft BGS	-128.02					
84	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
86	Ground Surface = Mudline						
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-13
DATE COMPLETED: February 2, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

NORTHING: 716285
EASTING: 1167428

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-49.12					
0	ML-SILT, trace sand, loose, fine grained, poorly graded, dark gray, wet	-49.62					
	SP-SAND, trace silt, shells, wood debris, loose, fine to medium grained, poorly graded, dark gray with white grains, wet		SS1		1.5	0	0.6
2		-51.12					
	Not Sampled						
4							
6							
8							
10		-59.12					
	SP-SAND, trace silt, wood debris, loose, fine to medium grained, poorly graded, dark gray, white grains, wet	-59.92	SS2		2.0	11	33.2
	ML-SILT, trace sand, compact, fine grained, poorly graded, dark gray, wet	-60.22					
12	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray with white and red grains, wet	-61.12					
	Not Sampled						
14							
16							
18							
20		-69.12					
	SM-SAND with SILT, loose, fine to medium grained, poorly graded, dark gray with white grains, wet	-69.52	SS3		2.0	7	205
	ML-SILT, trace sand, loose, fine grained, poorly graded, dark gray, wet	-70.62					
22	SM-SAND with SILT, wood debris, loose, fine to medium grained, poorly graded, dark gray with white and red grains, wet	-70.92					
	- 0.1' silt lense @ 21.7 ft BGS	-71.12					
24	SM-SAND with SILT, wood debris, loose, fine to medium grained, poorly graded, dark gray with white and red grains, wet						
	Not Sampled						
26							
28							
30		-79.12					
	ML-SILT with SAND, very loose, dark gray, wet, slight dilatancy		SS4		2.0	4	106
32		-81.12					
	Not Sampled						
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-13
DATE COMPLETED: February 2, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
40	ML-SILT with SAND, very loose, dark gray, wet, slight dilatancy - 0.08' silt lense @ 40.5 ft BGS - sandy silt below 40.6 ft BGS	-89.12	SS5		2.0	8	76.1
42	- 0.08' sand with silt lense @ 40.9 ft BGS - silt with sand below 41.1 ft BGS Not Sampled	-91.12					
50	ML-SILT with SAND, compact, dark gray, wet	-99.12					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-100.12	SS6		2.0	27	175
52	- 0.08' sand lense, fine grained @ 51.7 ft BGS Not Sampled	-101.12					
60	ML-SILT with SAND, very dense, dark gray, moist	-109.12	SS7		0.6	83	86
62	Not Sampled	-111.12					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5, SS6, SS7)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-13
DATE COMPLETED: February 2, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT with SAND, fine grained, very dense, dark gray, moist, odor	-119.12	SS8		1.3	82	78.6
72	Not Sampled	-121.12					
74							
76							
78							
80	SM-SAND and SILT, dense, fine grained sand, dark gray, moist, strong odor	-129.12	SS9		1.9	40	96.5
	SP-SAND, trace silt, dense, fine grained, poorly graded, dark gray with red/whitish grains, wet, strong odor	-130.32					
82	Not Sampled	-131.12					
84							
86							
88							
90	SM-SILTY SAND, trace gravel, gravel, compact, fine grained sand, coarse, sub-angular gravel, dark gray, moist to wet	-139.12	SS10		0.6	27	16
92	Not Sampled	-141.12					
94							
96							
98							
100	SM-SILTY SAND, shells, dense, fine to medium grained, dark gray, white and red grains, moist	-149.12	SS11		1.4	48	1
102	Not Sampled	-151.12					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-13
DATE COMPLETED: February 2, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
110	SM-SILTY SAND with GRAVEL, dense, fine to medium grained, sub-angular gravel, poorly graded, light tan gray, wet	-159.12	SS12		1.7	34	0.0
	- 0.16' silt lense, trace clay, dense, fine grained, light gray, moist @ 110.6 ft BGS						
112	Not Sampled	-161.12					
120	SP-SAND with GRAVEL, trace silt, very dense, fine to medium grained, sub-angular gravel, poorly graded, light gray, wet	-169.12	SS13		0.8	100/ 0.32	0.0
	- 0.08' silt lense, trace sand, dense, fine grained, poorly graded, light gray, wet @ 120.7						
122	END OF BOREHOLE @ 122.0ft BGS	-171.12					

Chemical analyses refer to both groundwater and sediment samples.

BGS = Below Mudline

Ground Surface = Mudline

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-14
DATE COMPLETED: November 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716832 EASTING: 1167128 GROUND SURFACE	-42.12					
	Not Sampled						
24	SM-SILTY SAND, compact, fine to medium grained, dark gray, moist to wet	-66.22					
	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, moist to wet	-66.92	SS1	X	1.4	26	0.4
26	Not Sampled	-68.22					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-14
DATE COMPLETED: November 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40							
42							
44	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, moist to wet - 0.05' silt seam @ 44.5 ft BGS	-86.22	SS2		0.8	11	0.4
46	Not Sampled	-88.22					
48							
50							
52							
54	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, wet	-96.22 -96.52	SS3		2.0	15	0.0
56	ML-SILT, with sand, very fine grained, slight plasticity, dark gray, wet, highly dilatant	-97.22					
	SM-SILTY SAND, shell fragments, very fine grained, dark gray, moist to wet	-98.22					
58	Not Sampled						
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-14
DATE COMPLETED: November 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74							
76							
78							
80							
82							
84							
86							
88							
90	ML-SILT, trace sand, loose, fine grained, dark gray, wet	-132.02	SS4	X	1.0	10	0.0
92	Not Sampled	-134.02					
94							
96							
98							
100	SM-SILTY SAND, trace gravel, compact, fine to medium grained, fine grained, rounded gravel, light brown, wet	-142.02	SS5	X	0.9	19	0.0
102	END OF BOREHOLE @ 101.9ft BGS Groundwater sampling continued at 10-ft intervals to 109.9 ft BGS.	-144.02					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-14
DATE COMPLETED: November 16, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferreira, D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	Chemical analyses refer to both groundwater and sediment.						
108	BGS = Below Mudline						
	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-15
DATE COMPLETED: November 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, N. Redwood

NORTHING: 716796
EASTING: 1167289

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-37.22					
	Not Sampled		SS1		0.6		0.2
			SS2		1.0		0.1
	SM-SILTY SAND, very loose, fine grained, poorly graded, dark gray, wet	-40.82					
	SP-SAND, trace to with silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, wet	-41.62	SS3		2.0	12	0.0
	Not Sampled	-43.22					
	SP-SAND, trace to with silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, trace red grains, wet	-51.62	SS4		1.5	20	0.0
	Not Sampled	-53.62					
	SP-SAND, trace to with silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, trace red grains, wet	-61.62 / -61.92	SS5		2.0	13	4.2
	MH-SILT, with sand, fine grained, compact, dark gray, wet, rapid dilatancy - 0.12' sand lense, trace silt, medium grained @ 25.3 ft BGS	-63.62					
	Not Sampled	-66.22					
	SP-SAND, trace silt, compact, fine to medium grained, dark gray, red grains, moist to wet - silt veneers (0.01') interbedded @ 29.5 ft BGS - becoming wet, slightly dilatant below 30 ft BGS	-68.22	SS6 001		1.0	13	61.3
	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-15
DATE COMPLETED: November 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
	SM-SILTY SAND, compact/stiff, fine grained, dark gray, moist to wet	-76.22					
40	- becoming wet, dilatant below 40.5 ft BGS		SS7 002		1.5	10	22.9
	Not Sampled	-78.22					
42							
44							
46							
48							
	ML-SILT, trace sand, trace clay, trace shell debris, soft, slightly cohesive, slightly plastic, gray, moist to wet	-86.22					
50	- trace to little coarse sand, trace gravel below 50.5 ft BGS		SS8 003		2.0	0	1.9
	Not Sampled	-88.22					
52							
54							
56							
58							
	GP-SANDY GRAVEL, compact, fine grained, rounded, poorly graded, brown, wet	-96.22					
60			SS9 004		0.5	28	0.4
	Not Sampled	-98.22					
62							
64							
66							
68							
	SP-SAND, trace silt, trace gravel, compact, coarse to fine grained gravel, rounded	-106.22					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-15
DATE COMPLETED: November 30, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	gravel, poorly graded, brown, wet		SS10 005		0.7	34	0
	END OF BOREHOLE @ 71.0ft BGS	-108.22					
72	Groundwater sampling continued at 10-ft intervals to a depth of 85.0 ft BGS.						
74	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
76	Ground Surface = Mudline						
78							
80							
82							
84							
86							
88							
90							
92							
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-16
DATE COMPLETED: November 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716640 EASTING: 1167333 GROUND SURFACE	-41.82					
	SM-SAND with SILT, very loose, fine grained, dark gray, wet	-42.22					
	MH-SILT, soft, dark gray, wet (bottom sediment)	-42.82	1		2.0	3	0.0
2	SP-SAND, trace silt, very loose, fine grained, dark gray with red grains, wet - 0.2' silt lense @ 1.4 ft BGS		2		1.8	4	0.0
4	Not Sampled	-45.82					
6		-48.82					
	SP-SAND, trace silt, loose, fine grained, dark gray with red grains, wet	-49.82	3		1.4	6	0.0
8	SM-SAND, with silt, wood chip layers, loose, fine grained, dark gray, wet (0.1' thick spaced @ ~0.1' intervals)	-50.82					
10	Not Sampled						
12							
14							
	SP-SAND, trace silt, compact, fine grained, dark gray with red grains, wet	-56.22	4		1.0	18	0.0
16	Not Sampled	-58.22					
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-16
DATE COMPLETED: November 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
60	ML-SILT, trace clay, wood fragments, very soft, non-plastic, dark gray, wet	-101.72	001		0.5	2	0.0
62	Not Sampled	-103.72					

36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (001)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-16
DATE COMPLETED: November 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT, with sand, negligible clay, very stiff, non-plastic, dark gray, wet	-111.72	002		1.0	19	218
72	Not Sampled	-113.72					
74							
76							
78							
80	SP-SAND, trace silt, compact, fine grained, dark gray with red grains, wet	-121.72	003/004		1.2	29	6
82	Not Sampled	-123.72					
84							
86							
88							
90	ML-SILT, with clay, firm, medium plasticity, dark gray, wet	-131.72					
	SP-SAND, trace silt, compact, fine grained, dark gray with red grains, wet	-132.72	005		1.6	10	6
92	Not Sampled	-133.72					
94							
96							
98							
100	SP-SAND, compact, fine grained, clean, dark gray/black with red grains, wet	-141.72	006		0.6	15	1.1
102	Not Sampled	-143.72					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-16
DATE COMPLETED: November 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
110	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, trace red grains	-151.72	007	X	0.9	9	34.5
112	Not Sampled	-153.72					
120	SW-GRAVELLY SAND, trace silt, compact, fine to medium grained sand, fine to coarse grained gravel, subrounded gravel, well graded, medium brown, wet	-161.72	008	X	1.1	29	0.8
122	Not Sampled	-163.72					
130	SW-GRAVELLY SAND, trace silt, compact to dense, fine to medium grained sand, fine to coarse grained gravel, subrounded gravel, well graded, medium brown, wet	-171.72	009	X	0.9	43	0.5
132	Not Sampled	-173.72					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-16
DATE COMPLETED: November 21, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
142	SW-GRAVELLY SAND, trace silt, compact to dense, fine to medium grained sand, fine to coarse grained gravel, subrounded gravel, well graded, medium brown, wet	-181.72	010	X	1.0	52	0.0
	END OF BOREHOLE @ 141.9ft BGS	-183.72					
144	Chemical analyses refer to both groundwater and sediment.						
	BGS = Below Mudline						
146	Ground Surface = Mudline						
148							
150							
152							
154							
156							
158							
160							
162							
164							
166							
168							
170							
172							
174							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (010)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-17

PROJECT NUMBER: 07843
DATE COMPLETED: November 17, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD:

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: N. Redwood, W. Best, Z. Ferraira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716476 EASTING: 1167390 GROUND SURFACE	-43.82					
2	SP-SAND, trace silt, very loose, fine to medium grained, dark gray with red/white grains, wet						
	- increase in silt content below 2.15 ft BGS	-45.92					
	SM-SILTY SAND, fine grained, dark gray, wet						
4	Not Sampled	-47.82					
6	SM-SILTY SAND, fine grained, dark gray, wet	-49.82					
	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains	-49.92					
	- 0.06' silt lense @ 6.6 ft BGS						
8	- 0.06' silt lense @ 6.7 ft BGS	-51.82					
	Not Sampled						
10							
12							
14							
16	- 0.06' silt lense @ 15.7 ft BGS	-59.32					
	SM-SILTY SAND, loose, fine grained, dark gray, wet	-60.42					
	- 0.06' silt lense @ 16 ft BGS						
18	- 0.1' silt lense @ 16.4 ft BGS	-61.32					
	SP-SAND, trace silt, shell fragments, loose, fine to medium grained, dark gray with red/white grains, wet						
	Not Sampled						
20							
22							
24		-69.32					
26	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet	-69.62					
		-69.92					
	SM-SILTY SAND						
28	- 0.1' silt lense @ 26.3 ft BGS	-71.32					
	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet						
	- 0.06' silty sand lense @ 26.6 ft BGS						
30	Not Sampled						
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-17
DATE COMPLETED: November 17, 2005
DRILLING METHOD:
FIELD PERSONNEL: N. Redwood, W. Best, Z. Ferraira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet	-79.32 -79.72					
	ML-SILT, with sand, loose, fine grained, slight plasticity, dark gray, rapid dilatancy	-80.42					
38	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet	-81.32					
	Not Sampled						
40							
42							
44	ML-SILT, trace sand, fine grained, very stiff, slightly cohesive, slightly plastic, dark gray, moist to wet	-87.52					
	- with sand, wet below 44.7 ft BGS	-88.72	SS1		2.0	29	251
	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, moist	-89.32 -89.52					
46	ML-SILT, trace fine sand, very stiff, slightly cohesive, slightly plastic, dark gray, moist to wet						
48	Not Sampled						
50							
52							
54	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, moist to wet	-97.52					
	- wet below 54.4 ft BGS	-99.22	SS2		2.0	26	1204
56	- increase in silt content below 54.9 ft BGS - 0.05' sand lense @ 55.6 ft BGS	-99.52					
	SM-SILTY SAND, dense, fine grained, dark gray with red and white grains, moist to wet						
58	Not Sampled						
60							
62							
64	ML-SILT, trace sand, compact, dark gray, very moist	-107.52	SS3		1.4	22	375
66	Not Sampled	-109.52					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2, SS3)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-17

PROJECT NUMBER: 07843
DATE COMPLETED: November 17, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD:

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: N. Redwood, W. Best, Z. Ferraira

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72							
74	SP-SAND, with silt, compact, fine to medium grained, poorly graded, dark gray, wet, odor - 0.1' silt lense @ 73.8 ft BGS - 0.15' silt lense @ 74.2 ft BGS	-117.52	SS4		1.4	14	33.2
76	Not Sampled	-119.52					
78							
80							
82							
84	ML-SILT with SAND, compact, dark gray, wet, odor - 0.15' fine sand lense, trace shell fragments @ 84.6 ft BGS - trace sand below 84.8 ft BGS	-127.52	SS5		2.0	26	63.3
86	Not Sampled	-129.52					
88							
90							
92							
94	SW-SAND with GRAVEL, trace silt, white shell fragments, very dense, fine to medium grained sand, fine grained gravel, rounded gravel, well graded, light gray with red grains, wet	-137.52	SS6		0.5	71	0.0
96	Not Sampled	-139.52					
98							
100							
102							
104	SW-GRAVELLY SAND, compact, fine to medium grained, fine grained gravel, rounded gravel, well graded, light brown, wet	-147.52	SS7		0.6	47	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-17

PROJECT NUMBER: 07843
DATE COMPLETED: November 17, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD:

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: N. Redwood, W. Best, Z. Ferraira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	END OF BOREHOLE @ 105.7ft BGS	-149.52		X			
	Chemical analyses refer to both groundwater and sediment.						
108	BGS = Below Mudline						
110	Ground Surface = Mudline						
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-18

PROJECT NUMBER: 07843
DATE COMPLETED: December 8, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716372 EASTING: 1167509 GROUND SURFACE	-40.82					
	MH-SILT, very soft, low plasticity, dark gray, wet	-41.42					
	SM-SAND, very loose, fine grained, grading to silty dark gray, very faint red grains, wet	-42.82	SS1		1.6	2	0.0
2	SP-SAND, with silt, loose, fine grained, faint red grains	-44.82	SS2		1.1	5	0.0
4	Not Sampled						
6							
8							
10							
12	SM-SILTY SAND, loose, fine grained, dark gray, no visible red grains	-52.82	SS3		1.1	9	0.0
14	Not Sampled	-54.82					
16							
18							
20							
22	SM/ML-SILT and SAND, loose, dark gray, no visible red grains, wet	-62.82	SS4		1.5	6	60
24	Not Sampled	-64.82					
26							
28							
30							
32	SP-SAND, trace silt, trace white shells, loose, medium grained, poorly graded, dark gray, trace red grains, wet	-72.82					
	- 0.04' silt lense @ 32.3 ft BGS	-73.72	SS5		1.6	8	185
34	ML-SILT, trace sand, compact, dark gray, wet	-74.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-18

PROJECT NUMBER: 07843
DATE COMPLETED: December 8, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	- 0.04' fine sand lense @ 33.4 ft BGS						
36	Not Sampled						
38							
40							
42		-82.82					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet, strong odor	-83.22					
	MH-SANDY SILT, compact, dark gray, wet, strong odor		SS6	X	1.4	14	385
44		-84.82					
	Not Sampled						
46							
48							
50							
52		-92.82					
	MH-SANDY SILT, compact, dark gray, wet, rapid dilatancy, odor present		SS7	X	2.0	15	287
	- 0.1' fine silty sand lense @ 53.6 ft BGS						
54		-94.82					
	Not Sampled						
56							
58							
60							
62		-102.82					
	MH-SANDY SILT, dense, dark gray, wet, rapid dilatancy, odor present						
		-103.92	SS8	X	1.7	40	285
	SP-SAND, trace to with silt, dense, fine to medium grained, poorly graded, dark gray, trace red grains, wet						
64		-104.82					
	Not Sampled						
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS6, SS7, SS8)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-18
DATE COMPLETED: December 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SP-SAND, trace silt, dense, fine to medium grained, poorly graded, dark gray, trace red grains, wet	-112.82	SS9		2.0	41	78
	ML-SILT, dry, friable	-113.92					
74	SP-SAND, with silt, dense, fine grained, dark gray with red/white grains, wet	-114.12					
	Not Sampled	-114.82					
76							
78							
80							
82	SP-SAND, trace silt, dense, fine grained, dark gray with red/white grains, wet, sour odor	-122.82	SS10		2.0	25	NR
	- 0.1' silt lense @ 82.3 ft BGS						
84	Not Sampled	-124.82					
86							
88							
90							
92	GM-GRAVEL/SAND/SILT, cobbles present, dense, medium to coarse grained sand, greenish gray, saturated	-132.82	SS11		1.0	31	0.0
94	Not Sampled	-134.82					
96							
98							
100							
102	GM-SAND and GRAVEL, with silt, very dense, fine to coarse grained sand, fine grained gravel, occasional coarse gravel, silty greenish gray, moist, partly cemented	-142.82	SS12		0.4	53	0.0
104	Not Sampled	-144.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-18
DATE COMPLETED: December 8, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, D. Deitner, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
112	ML-SILT (0.1' layers) alternating with SP-SAND (0'5' layers), medium grained sand, low plasticity, light gray, moist	-152.82					
		-153.62	SS13		1.5	25	3.8
	ML-SILT with clay, low plasticity, light gray	-154.12					
114	GM-SILTY SAND, with gravel, fine to coarse grained, fine grained gravel, light gray, moist, cemented, till-like	-154.82					
	Not Sampled						
	END OF BOREHOLE @ 125.0ft BGS	-165.82					

Chemical analyses refer to both groundwater and sediment.

BGS = Below Mudline

Ground Surface = Mudline

NR = Not Recorded

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-19
PROJECT NUMBER: 07843
DATE COMPLETED: December 7, 2005
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D.Deitner, W. Best, Z. Ferreira
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716534 EASTING: 1167441 GROUND SURFACE	-42.92					
0	ML-SILT, trace sand, very loose, dark gray, wet		SS1		1.5	0	0.0
	- 0.16' sand lense, trace silt @ 1.3 ft BGS						
2		-45.52	SS2		1.4	2	0.0
	SP-SAND, trace silt, trace shell fragments, very loose, fine to medium grained, dark gray, wet						
4	- 0.08' silty sand lense @ 3.1 ft BGS	-46.92					
	Not Sampled						
6							
8							
10							
12		-55.52					
	SP-SAND, trace silt, trace shell fragments, very loose, fine to medium grained, dark gray, wet	-56.42	SS3 / 001		1.5	10	0.0
14	- saturated, very loose below 13 ft BGS						
	SM-SILTY SAND, loose, fine to medium grained, dark gray, wet	-57.52					
	Not Sampled						
16							
18							
20							
22		-65.52					
	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet		SS4 / 002		0.0	6	0.0
24		-67.52					
	Not Sampled						
26							
28							
30							
32		-75.52					
	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red/white grains, wet		SS5 / 003		2.0	4	328
34	- 0.5' very loose, very wet @ 33.3 ft BGS	-77.02					
	- 0.2' silt lense @ 33.6 ft BGS	-77.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-19
DATE COMPLETED: December 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D.Deitner, W. Best, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SM-SILTY SAND, fine to medium grained, dark gray, wet, rapid dilatancy						
	Not Sampled						
38							
40							
42							
	SP-SAND, trace silt, compact, fine to medium grained, dark gray, wet	-85.52	SS6 / 004		1.0	18	70.7
44		-87.52					
	Not Sampled						
46							
48							
50							
52							
	ML-SILT with SAND, stiff, non-plastic, gray, moist	-95.52					
	- 0.2' wood @ 53.2 ft BGS		SS7 / 005		1.1	14	106
54	- 0.2' silty sand @ 53.4 ft BGS	-97.52					
	Not Sampled						
56							
58							
60							
62							
	SM-SAND with SILT, very fine grained sand, gray, no red grains	-105.52					
		-106.22	SS8 / 006		1.9	28	60
	ML-SILT with SAND, non-plastic, gray	-106.52					
64	SP-SAND, trace silt, compact, fine grained sand, gray with red grains, moist, odor	-107.22					
	ML-SILT, low plasticity, gray	-107.52					
	Not Sampled						
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-19
DATE COMPLETED: December 7, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D.Deitner, W. Best, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72							
	CL-CLAY with SILT, very loose, high plasticity, dark gray, wet	-115.52					
74	- 0.4' silt with clay, very dense, moderate plasticity, dark gray, wet, slightly dilatant @ 74.1 ft BGS	-117.52	SS9 / 007		2.0	3	0.0
	Not Sampled						
76							
78							
80							
82							
	ML-SILT with CLAY, trace sand, fine grained, medium plasticity, dark gray, hard	-125.52					
	GP-GRAVEL, fine grained, sub-rounded gravel, yellow and green pieces	-125.72 -126.32	SS10 / 008		0.3	65	5.0
84	Not Sampled						
86							
88							
90							
92							
	GM-SILTY SANDY GRAVEL, compact, very dense, fine to medium grained sand, fine grained gravel, sub-angular gravel, poorly graded, light brown, very moist to wet	-135.52					
94		-137.52	SS11 / 009		0.5	84	0.3
	Not Sampled						
96							
98							
100							
102							
	GM-SILTY SANDY GRAVEL, compact, very dense, fine to medium grained sand, fine grained gravel, sub-angular gravel, poorly graded, light brown, trace orange oxidation color, very moist to wet	-145.52					
104		-147.52	SS12 / 010		0.7	84	0.0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-19

PROJECT NUMBER: 07843
DATE COMPLETED: December 7, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
Tacoma, Washington
FIELD PERSONNEL: D.Deitner, W. Best, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106	Not Sampled						
108							
110							
112							
114							
116	END OF BOREHOLE @ 115.4ft BGS	-158.32					
	Chemical analyses refer to both groundwater and sediment.						
118	BGS = Below Mudline						
120	Ground Surface = Mudline						
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-20
DATE COMPLETED: December 5, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716693 EASTING: 1167384 GROUND SURFACE	-36.22					
0	ML-SILT, trace sand, loose, very dark gray, wet		SS1		1.5	2	0.0
		-37.42					
2	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-38.22					
	SP-SAND, trace silt, trace white shell fragments, compact, fine to medium grained, poorly graded, dark gray, trace red grains, wet		SS2		1.1	17	2.5
4		-40.22					
	Not Sampled						
6							
8							
10							
12							
14							
16							
18							
20		-56.22					
	ML-SAND, trace silt, very loose, dark gray, wet		SS3		2.0	0	7.6
	- 0.1' silty sand lense @ 21.6 ft BGS						
22		-58.22					
	Not Sampled						
24							
26							
28							
30		-66.22					
	ML-SAND, trace silt, very loose, dark gray, wet	-66.52					
	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet		SS4		1.2	19	12.6
32		-68.22					
	Not Sampled						
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-20
DATE COMPLETED: December 5, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
40	SP-SAND, trace silt, trace shell fragments, compact, medium grained, poorly graded, dark gray with red grains, wet	-76.22 / -76.92	SS5		1.8	34	96.8
	ML-SILT, trace sand, compact, dark gray, wet	-77.32					
42	SP-SAND, trace silt, trace shell fragments, compact, fine grained, poorly graded, dark gray, trace red grains, wet	-78.22					
	Not Sampled						
50	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red and white grains, moist	-86.22	SS6		1.0	11	98.9
52	Not Sampled	-88.22					
60	SM-SILTY SAND, compact, fine grained, dark gray, moist, rapid dilatancy	-96.22	SS7		2.0	11	8.9
	- increase in silt content, soft, little plasticity, wet, rapid dilatancy from 61.3 to 61.8 ft BGS						
62	Not Sampled	-98.22					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-20
DATE COMPLETED: December 5, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SM-SILTY SAND, soft, fine grained, dark gray, very wet	-106.22					
	ML-SILT with sand, compact, dark gray, wet, rapid dilatancy	-107.22	SS8		2.0	52	0.0
72	GP-GRAVEL and SAND, trace silt, cobbles, coarse grained gravel, coarse to medium grained sand, olive gray/orangish/brown color	-107.92 -108.22					
	Not Sampled						
74							
76							
78							
80	GM-SAND and GRAVEL, with silt, dense, medium to coarse grained sand, fine grained gravel, brown, wet	-116.22	SS9		1.1	32	0.0
82	Not Sampled	-118.22					
84							
86							
88							
90	SM-SAND, with silt, trace gravel, very dense, fine to coarse grained, fine grained gravel, brown, wet	-126.22	SS10		1.5	>113	0.0
	- cemented below 91.2 ft BGS	-127.72					
92	Not Sampled						
94							
96							
98							
100	GM-SILTY SAND and GRAVEL, very dense, fine to coarse grained sand, fine grained gravel, brown, gravel in tip of planar (flat) and angular, moist, possible odor (cemented)	-136.22	SS11		1.2	>95	0.0
	- gray, subangular gravel below 100.8 ft BGS	-137.72					
102	Not Sampled	-138.22					
	END OF BOREHOLE @ 102.0ft BGS						
104	Refusal at 102.0 ft BGS.						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-20

PROJECT NUMBER: 07843
DATE COMPLETED: December 5, 2005

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106							
108	Chemical analyses refer to both groundwater and sediment.						
	BGS = Below Mudline						
110	Ground Surface = Mudline						
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-21
DATE COMPLETED: December 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Levangie, Best, Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-37.82					
	Not Sampled	-38.32					
2	ML-SILT with SAND, very loose, fine grained sand, poorly graded, dark gray with red grains, very moist	-40.32	SS1 / 001		1.0	WR	0.0
	Not Sampled						
4							
6							
8							
10							
	SP-SAND with SILT, fine grained, dark gray	-48.32					
	SM-SAND with SILT, fine grained, dark gray	-48.82	SS2 / 002		2.0	10	2.7
12	SP-SAND, trace silt, fine grained, dark gray with red grains	-49.62					
	SM-SAND with SILT, fine grained, dark gray	-49.92					
	Not Sampled	-50.32					
14							
16							
18							
20							
	SP-SAND, trace silt, compact, fine grained, dark gray with red grains, slightly moist	-58.32	SS3 / 003/004		2.0	13	0.0
22	- 0.1' sand with silt, fine grained, dark gray @ 22.3 ft BGS	-60.32					
	Not Sampled						
24							
26							
28							
30							
	ML-SILT, trace sand, trace clay, stiff, medium plasticity, dark gray, wet, dilatant	-68.32					
	SP-SAND, compact, fine grained, dark gray with red grains, moist	-69.12	SS4 / 005		2.0	18	0.0
32	ML-SILT with SAND, very stiff, low plasticity, dark gray, wet	-69.32					
	SM-SILTY SAND, compact, fine grained, dark gray, wet	-69.82					
	Not Sampled	-70.32					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-21
DATE COMPLETED: December 3, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: Levangie, Best, Deitner

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
	ML-SILT, trace to with clay, soft, low plasticity, dark gray, wet	-78.32					
42	- with fine sand below 41.5 ft BGS		SS5 / 006		1.4	3	0.0
	Not Sampled	-80.32					
44							
46							
48							
50							
	ML-SILT, trace clay, trace sand, dense, fine grained, slight plasticity, dark gray, moist	-88.32					
	- trace to with sand below 51 ft BGS		SS6 / 007		2.0	47	0.0
52	- trace sand below 51.8 ft BGS	-90.02					
	SP-SAND, trace silt, trace shell fragments, dense, fine grained, poorly graded, dark gray, moist	-90.32					
54	Not Sampled						
56							
58							
60							
	GM-SILTY SANDY GRAVEL, very dense, fine grained angular gravel, poorly graded, light brown, wet	-98.32					
62			SS7 / 008		1.2	62	0.0
	END OF BOREHOLE @ 62.5ft BGS	-100.32					
64	Chemical analyses refer to both groundwater and sediment samples.						
	Groundwater sampling continued at 10-foot intervals to 112 ft. BGS.						
66	BGS = Below Mudline						
68	Ground Surface = Mudline						
	WR = Weight of Rods						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-22
DATE COMPLETED: January 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716835 EASTING: 1167322 GROUND SURFACE	-18.32					
0	ML-SILT, very loose, saturated	-18.42					
	SP-SAND, trace silt, very loose, fine to medium grained, dark gray with red and whitish grains, wet		SS1		0.8	4	0.0
2	Not Sampled	-20.32					
4							
6							
8							
10	SP-SAND, trace silt, very few pieces of angular gravel, very loose, fine to medium grained, dark gray with red and whitish grains, wet	-28.42	SS2		0.8	14	0.0
12	Not Sampled	-30.42					
14							
16							
18							
20	SP-SAND, trace silt, shell fragments, very loose, fine to medium grained, dark gray with red and whitish grains, wet	-38.42	SS3		1.3	9	0.0
	- increase in silt content below 21.3 ft BGS						
22	Not Sampled	-40.42					
24							
26							
28							
30	SP-SAND, trace silt, shell fragments, wood debris, compact, fine to medium grained, dark gray with red and whitish grains, wet	-48.42 -48.52					
	ML-SANDY SILT	-49.02 -49.12	SS4		1.4	16	0.0
32	SP-SAND, trace silt, shell fragments, wood debris, compact, fine to medium grained, dark gray with red and whitish grains, wet	-49.22					
	ML-SANDY SILT	-50.42					
34	SP-SAND, trace silt, shell fragments, wood debris, compact, fine to medium grained, dark gray with red and whitish grains, wet						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-22
DATE COMPLETED: January 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	Not Sampled						
38							
40							
	SP-SAND, trace silt, very loose, fine to medium grained, dark gray with red grains, wet, dilatant	-58.42	SS5	X	0.9	4	20.2
	- 0.1' silt lense with trace sand @ 40.3 ft BGS						
42	- very fine silt lense with trace clay below 40.4 ft BGS	-60.42					
	Not Sampled						
44							
46							
48							
50							
	SP-SAND, trace silt, wood fibers, loose, fine grained, dark gray with red and white grains, wet, dilatant	-68.42	SS6	X	0.4	9	8.1
	- sand becomes medium grained below 50.3 ft BGS						
52	- 0.02' silt lense @ 50.4 ft BGS	-70.42					
	Not Sampled						
54							
56							
58							
60							
	SP-SAND, trace silt, loose, fine to medium grained, dark gray with red and white grains, wet	-78.42	SS7	X	2.0	9	3.2
	ML-SILT, trace sand, fine grained, medium gray, wet	-79.77					
62	- medium grained below 61.65 ft BGS	-80.42					
	Not Sampled						
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5, SS6, SS7)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-22
DATE COMPLETED: January 17, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: W. Best, Z. Ferriara

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	SP-SAND, with gravel, trace silt, loose, fine to coarse grained, medium gray/brown, wet	-88.42					
	- silt veneer @ 70.3 ft BGS	-89.22	SS8		1.0	8	0.0
72	GW-GRAVEL, with sand, with silt, fine to medium grained gravel, medium to coarse grained sand, well rounded grains, wet	-90.42					
	Not Sampled						
74							
76							
78							
80	GM-GW-SANDY GRAVEL, with silt, very dense, fine to coarse grained sand, fine to coarse grained gravel, olive-gray, moist (till-like)	-98.42	SS9		0.2	197	0.0
	Not Sampled	-100.02					
82	END OF BOREHOLE @ 82.0ft BGS	-100.32					
84	Refusal at 122.1 ft BGS.						
86	Groundwater sampling continued at 10-ft intervals to a depth of 113.1 ft BGS.						
88	Chemical analyses refer to both groundwater and sediment.						
90	BGS = Below Mudline						
92	Ground Surface = Mudline						
94							
96							
98							
100							
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-24

PROJECT NUMBER: 07843
DATE COMPLETED: January 12, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: Z. Ferriara, D. Deitner, L. Huntoon

Tacoma, Washington

NORTHING: 716601
EASTING: 1167496

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-36.72					
0	ML-SILT, trace clay, shell fragments, wood debris, very loose, saturated		SS1		1.0	0	0.0
	- 0.08' silt lense @ 0.6 ft BGS, increasing fine grained sand to 4.1 ft BGS						
2			SS2		1.0	0	0.3
4		-40.82					
	SP-SAND, with silt, loose, medium to fine grained, poorly graded, dark gray with red and white grains, wet	-41.82	SS3		1.4	7	0.3
	ML-SILT, little to no sand, loose, low plasticity, rapid dilatancy	-42.72					
6	Not Sampled						
8							
10							
12							
14		-50.82					
	SP-SAND, trace silt, compact, fine to medium grained, poorly graded, dark gray, trace white grains, wet		SS4		1.6	5	0.0
	- 0.08' sandy silt lense @ 15.4 ft BGS	-52.82					
16	Not Sampled						
18							
20							
22							
24		-60.82					
	ML-SILT, with sand, compact, fine grained, dark gray, wet	-61.52					
	SP-SAND, trace silt, trace white shell fragments, compact, fine to medium grained, poorly graded, dark gray, wet		SS5		1.6	9	0.0
26	- 0.04' silty sand lense @ 25.3 ft BGS	-62.82					
	Not Sampled						
28							
30							
32							
34		-70.82					
	ML-SILT, with fine sand, compact, fine grained, dark gray, wet						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-24
DATE COMPLETED: January 12, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriara, D. Deitner, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	- 0.16' sand lense, trace silt, medium grained @ 35.1 ft BGS		SS6		1.8	14	7.2
36	Not Sampled	-72.82					
38							
40							
42							
44	SP-SAND, trace silt, compact, medium grained, poorly graded, dark gray, wet, faint odor	-80.82	SS7		1.8	19	185
	- 0.02' peat fiber lense @ 44.6 ft BGS						
46	Not Sampled	-82.82					
48							
50							
52							
54	SP-SAND, trace shell fragments, medium density, medium grained, poorly sorted, dark gray, trace red grains, white shell fragments, moist to wet	-90.82 -91.02	SS8		2.0	16	57.1
	- 0.08' silt lense with fine sand @ 54.2 ft BGS						
56	SP-SAND, trace silt, trace shell fragments, medium density, fine grained, poorly sorted, dark gray, trace red grains, trace white shell fragments, wet	-92.82					
	- 0.16' silt lense, trace clay, trace sand @ 54.7 ft BGS						
58	Not Sampled						
60							
62							
64	SP-SAND, trace shell fragments, medium density, medium to fine grained, dark gray, trace red grains, moist, dilatant	-100.82	SS9		1.2	26	17.5
	- 0.12' silt veneer @ 64.3 ft BGS						
66	Not Sampled	-102.82					
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS6, SS7, SS8, SS9)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-24
DATE COMPLETED: January 12, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriara, D. Deitner, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72							
74	CL/ML-CLAY/SILT, very soft, plastic, dark gray, moist	-110.82	SS10		2.0	0	0.8
76	Not Sampled	-112.82					
78							
80							
82							
84	GM-GRAVEL, with sand, trace silt, dense, fine to coarse grained sand, fine grained, angular to rounded gravel, well graded, light gray and light brown, moist	-120.82	SS11		0.7	47	0.2
86	Not Sampled	-122.82					
88							
90							
92							
94	GP-GRAVEL, with sand, trace silt, very dense, coarse grained sand, fine to coarse grained gravel, angular to sub-angular gravel, poorly sorted, green ash, gray, light and dark gravels, moist to wet	-130.82	SS12		0.9	78	0.0
96	Not Sampled	-132.82					
98							
100							
102							
104	SW-SAND with GRAVEL, trace silt, very dense, medium to coarse grained sand,	-140.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-24

PROJECT NUMBER: 07843
DATE COMPLETED: January 12, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: Z. Ferriara, D. Deitner, L. Huntoon

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	fine gravel with some coarse gravel, poorly sorted, brownish gray, moist		SS13		0.5	105	0.0
	Not Sampled	-142.82					
108							
110							
112							
114	SW-SAND with GRAVEL, with silt, with clay, very dense, medium to coarse grained sand, fine grained gravel with some coarse grained gravel, subrounded gravels, poorly sorted, brownish gray, wet	-150.82	SS14		1.3	139	0.0
116	END OF BOREHOLE @ 116.1ft BGS	-152.82					
	Refusal at 116.1 ft BGS.						
118	Chemical analyses refer to both groundwater and sediment.						
120	BGS = Below Mudline						
122	Ground Surface = Mudline						
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-25
DATE COMPLETED: January 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, L. Huntoon, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716476 EASTING: 1167611 GROUND SURFACE	-39.92					
0	ML-SILT, trace sand, dark gray, wet	-40.42					
	SP-SAND, trace silt, trace shell fragments, loose, fine grained, poorly graded, dark gray, trace red grains, wet		SS1		1.0	0	0.0
2	Not Sampled	-41.92					
4							
6							
8							
10	ML-SILT, trace sand, loose, dark gray, wet	-49.92					
			SS2		2.0	2	0.0
	- trace wood fibers below 11.7 ft BGS						
12	- increase in sand content below 11.8 ft BGS	-51.92					
	Not Sampled						
14							
16							
18							
20	ML-SILT, trace sand, compact, dark gray, wet	-59.92					
		-60.92	SS3		2.0	10	6.5
	ML-SANDY SILT, compact, dark gray, wet						
22	Not Sampled	-61.92					
24							
26							
28							
30	SM-SILTY SAND, compact, fine grained, poorly graded, dark gray, wet	-69.92					
			SS4		0.8	12	98.5
32	Not Sampled	-71.92					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-25
DATE COMPLETED: January 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, L. Huntoon, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
40	ML-SANDY SILT, compact, fine grained, medium plasticity, dark gray, rapid dilatancy	-79.92 -80.32	SS5		1.4	28	76.6
42	SP-SAND, trace silt, compact, fine grained, dark gray with red/white grains, wet - silt lense @ 40.6 ft BGS	-81.92					
	Not Sampled						
50	SP-SAND, trace silt, compact, fine grained, dark gray with red/white grains, wet - silt lense @ 50.3 ft BGS	-89.92 -90.92	SS6		1.8	30	118
	SM-SILTY SAND, compact	-91.32					
52	SP-SAND, trace silt, compact, fine grained, dark gray with red/white grains, wet	-91.92					
	Not Sampled						
60	SP-SAND, trace silt, compact, fine grained, dark gray with red/white grains, wet - silt lense @ 60.4 ft BGS - silt lense @ 61.3 ft BGS	-99.92	SS7		1.5	27	235
62	Not Sampled	-101.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-25
DATE COMPLETED: January 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, L. Huntoon, Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	SP-SAND, trace silt, compact, fine grained, dark gray with red/white grains, wet	-109.92					
	ML-SILT, trace sand, trace clay, compact and loose, fine grained @ 71.1 ft BGS, medium plasticity, dark gray, wet, rapid dilatancy	-110.62	SS8		2.0	16	131
72	Not Sampled	-111.92					
74							
76							
78							
80	ML-SILT, trace fine sand, compact, dark gray, rapid dilatancy	-119.92					
	SP-SAND, trace silt, dense, medium grained, some coarse grained, poorly sorted, olive gray, wet	-120.72	SS9		1.5	120	0.4
82	Not Sampled	-121.42					
84							
86							
88							
90	GM-SILTY, SAND, GRAVEL, very dense, fine grained, subrounded, poorly graded, brown, wet	-129.92	SS10		1.0	114	0.2
92	END OF BOREHOLE @ 92.0ft BGS	-131.92					
94	Refusal at 92.0 ft BGS.						
96	Chemical analyses refer to both groundwater and sediment.						
98	BGS = Below Mudline						
100	Ground Surface = Mudline						
102							
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-26
PROJECT NUMBER: 07843
DATE COMPLETED: January 23, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: Z. Ferriera
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716647 EASTING: 1167548 GROUND SURFACE	-14.02					
0	ML-SILT with SAND, wood debris, very loose, fine grained, dark gray, wet		SS1		2.0	6	0.0
		-15.52					
2	SP-SAND with SILT, shell fragments, very loose, fine to medium grained, poorly sorted, dark gray with red/whitish grains, wet	-16.02					
	Not Sampled						
4							
6							
8							
10							
12	SP-SAND, trace silt, shell fragments, compact, fine to medium grained, poorly sorted, dark gray with red/whitish grains, wet - 0.3' sandy silt lense @ 12.7 ft BGS	-25.52	SS2		2.0	20	0.1
		-27.52					
14	Not Sampled						
16							
18							
20							
22	SM-SILTY SAND, loose, fine grained, dark gray, moist to wet	-35.52	SS3		1.5	9	0.0
		-37.52					
24	Not Sampled						
26							
28							
30							
32	SM-SILTY SAND, compact, dark gray, moist to wet	-45.52	SS4		1.5	20	0.0
		-47.52					
34	Not Sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2, SS3, SS4)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-26
DATE COMPLETED: January 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
40							
42	SM-SILTY SAND, loose, dark gray, moist to wet	-55.52	SS5	X	1.0	9	0.1
44	Not Sampled	-57.52					
46							
48							
50							
52	SP-SAND with SILT, compact, medium to fine grained, gray, moist to wet, odor	-65.52	SS6	X	1.2	13	22.8
54	Not Sampled	-67.52					
56							
58							
60							
62	SP-SAND with SILT, compact, medium to fine grained, gray, moist to wet	-75.52	SS7	X	1.4	15	17.8
64	Not Sampled	-77.52					
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-26
DATE COMPLETED: January 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	SM-SILTY SAND, compact, fine grained, dark gray, moist to wet	-85.52					
	SP-SAND, trace silt, compact, fine grained, dark gray, moist to wet, wood debris at contact	-86.02	SS8		1.5	9	70.1
74	ML -SILT with SAND, compact, fine grained, dark gray, moist to wet, rapid dilatancy	-86.82					
	Not Sampled	-87.52					
76							
78							
80							
82	ML-SILT, trace clay, compact, dark gray, medium dilatancy	-95.52	SS9		2.0	0	4.1
	Not Sampled	-97.52					
84							
86							
88							
90							
92	SW-GRAVELLY SAND, very dense, medium to coarse grained sand, fine to coarse grained, gravel, sub-rounded gravel, poorly sorted	-105.52	SS10		0.5	54	0.0
	Not Sampled	-107.52					
94							
96							
98							
100							
102	GM-GRAVEL with SAND, with SILT, very dense, coarse grained gravel/cobbles, sub-rounded gravel, gray/brown, moist	-115.52	SS11		0.3	71	0.0
104	END OF BOREHOLE @ 103.5ft BGS	-117.52					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-26
DATE COMPLETED: January 23, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: Z. Ferriera

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
108	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-27
DATE COMPLETED: January 14, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, W. Best, L. Huntoon, Z. Ferreira

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 716831 EASTING: 1167514 GROUND SURFACE	-13.72					
0	ML-SILT, trace sand, loose, dark gray, wet		1	X	1.8	2	1.3
	SP-SAND, trace silt, trace shell fragments, loose, fine to medium grained, poorly graded, dark gray, trace red grains, wet	-15.12					
2	END OF BOREHOLE @ 2.0ft BGS	-15.72					
4	Groundwater sampling continued in 10 ft intervals to 93.5' BGS.						
6	BGS = Below Mudline						
	Ground Surface = Mudline						
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-28
DATE COMPLETED: January 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716924 EASTING: 1167399 GROUND SURFACE	-13.42					
0	ML-SILT, trace sand, very loose, dark gray, wet		SS1		1.5	1	0.1
		-14.92					
2	SP-SAND, trace silt, trace shell fragments, very loose, fine grained, poorly graded, dark gray, trace red grains, black shell fragments, wet	-15.42					
	Not Sampled						
4							
6							
8							
10	SP-SAND, trace silt, trace shells, loose, medium grained, poorly graded, dark gray, trace red and white grains, wet	-23.42	SS2		1.2	6	0.2
	- fine grained below 10.5 ft BGS						
12	Not Sampled	-25.42					
14							
16							
18							
20	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, wet	-33.42	SS3		1.3	15	26.6
22	Not Sampled	-35.42					
24							
26							
28							
30	SP-SAND, trace silt, compact, fine grained, poorly graded, dark gray, wet	-43.42					
	SM-SILTY SAND, compact, fine grained, dark gray, wet	-43.92	SS4		1.0	9	0.0
32	- 0.08' sandy silt lense @ 30.9 ft BGS						
	Not Sampled	-45.42					
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2, SS3, SS4)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-28
DATE COMPLETED: January 24, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
40	SM-SILTY SAND, compact, fine grained, dark gray, wet	-53.42					
	ML-SILT, trace sand, fine grained, dark gray, rapid dilatancy	-53.62	SS5		2.0	5	0.0
42	SM-SAND with SILT, fine grained, dark gray, wet	-55.22 / -55.42					
	Not Sampled						
50	ML-SILT, trace sand, trace clay, fine grained, slight plasticity, dark gray, rapid dilatancy	-63.42					
	SW-GRAVELLY SAND, trace silt, compact, coarse to medium grained sand, sub-angular gravel, poorly sorted, greenish gray/yellowish orange, wet	-64.62	SS6		1.6	17	0.0
52	Not Sampled	-65.42					
60	SW-SAND, trace to little silt, very dense, coarse grained, poorly sorted, dark gray/yellowish, orange/light brown	-73.42					
	- fine to medium grained below 60.5 ft BGS	-75.02	SS7		1.9	120	0.0
62	GW-GRAVEL with SAND, trace silt, medium to coarse grained sand, coarse to fine grained gravel, rounded to sub-angular gravel, poorly sorted, wet	-75.42					
	END OF BOREHOLE @ 62.0ft BGS						

Chemical analyses refer to both groundwater and sediment samples.

BGS = Below Mudline

Ground Surface = Mudline

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS5, SS6, SS7)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-29
DATE COMPLETED: February 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	NORTHING: 717036 EASTING: 1167296 GROUND SURFACE	-12.92					
0	ML-SILT, very loose, dark gray, wet (mud)		SS1		1.1	0	0.0
2							
	SP-SAND, loose, fine to medium grained, well graded, brown with red grains, moist to wet	-15.52	SS2			3	0.0
4	Not Sampled	-16.92					
6							
8							
10							
12	SP-SAND, compact, fine to medium grained, well graded, brown with red grains, moist to wet	-24.92	SS3		1.1	10	5.7
14	Not Sampled	-26.92					
16							
18							
20							
22	SP-SAND, trace silt, trace shells, compact, fine to medium grained, poorly graded, dark gray with white grains, wet	-34.92	SS4		1.5	19	0.0
24	Not Sampled	-36.92					
26							
28							
30							
32	ML-SILT with SAND, compact, fine grained, poorly graded, dark gray, wet	-44.92					
	SP-SAND with SILT, compact, fine to medium grained, poorly graded, dark gray with white grains	-45.32	SS5		1.2	17	0.7
34	- 0.04' silt lense @ 33.1 ft BGS	-46.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-29
DATE COMPLETED: February 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	Not Sampled						
38							
40							
42	SP-SAND, trace silt, compact, fine to medium grained, dark gray with white and red grains, moist - 0.02' silt lense @ 42.65 ft BGS	-54.92	SS6	X	0.9	20	0.0
44	Not Sampled	-56.92					
46							
48							
50							
52	SM-SAND with SILT, compact, fine to medium grained, poorly graded, dark gray with white grains, wet	-64.92	SS7	X	2.0	15	0.0
54	Not Sampled	-66.92					
56							
58							
60							
62	ML-SILT, trace clay, trace sand, loose, fine grained, dark gray, moist, moderate dilatancy	-74.92	SS8	X	2.0	7	0.3
64	Not Sampled	-76.92					
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS6, SS7, SS8)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-29
DATE COMPLETED: February 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
72	GW-SAND and GRAVEL, trace silt, compact, fine to medium grained, sub-rounded gravel, well graded, dark gray, wet	-84.92	SS9		0.6	27	0.0
74	Not Sampled	-86.92					
76							
78							
80							
82	GW-SAND and GRAVEL, trace silt, compact, fine to medium grained, sub-rounded gravel, well graded, brown, wet	-94.92	SS10		0.5	116	0.0
84	Not Sampled	-96.92					
86							
88							
90							
92	GP-SAND and GRAVEL, fine to medium grained sand, sub-rounded gravel, poorly graded, brown, wet	-104.92	SS11		0.8	73	0.2
94	Not Sampled	-106.92					
96							
98							
100							
102	GP-GRAVEL, trace sand, trace silt, dense	-114.92	SS12		0.2	107	0.0
104	END OF BOREHOLE @ 104.0ft BGS	-116.92					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-29
DATE COMPLETED: February 6, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE				
			NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
106	Chemical analyses refer to both groundwater and sediment samples.						
	BGS = Below Mudline						
108	Ground Surface = Mudline						
110							
112							
114							
116							
118							
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-30
DATE COMPLETED: January 26, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 716721 EASTING: 1167624 GROUND SURFACE	-14.12					
0	ML-SILT, very loose, low plasticity, dark gray, wet		SS1		2.0	2	0.2
		-15.52					
2	SP-SAND, trace silt, trace shell fragments, very loose, medium grained, poorly graded, dark gray, trace red grains, wet	-16.12					
	Not Sampled						
4							
6							
8							
10		-24.12					
	SP-SAND, trace silt, trace shell fragments, very loose, medium grained, poorly graded, dark gray, trace red grains, wet	-24.62	SS2		0.7	4	0.1
	- 0.02' silt lense @ 10.2 ft BGS						
12	SM-SILTY SAND, very loose, fine grained, dark gray, wet	-26.12					
	Not Sampled						
14							
16							
18							
20		-34.12					
	SM-SAND and SILT, loose, fine grained, dark gray, wet	-34.52					
	SP-SAND with SILT, loose, fine to medium grained, dark gray with red/whitish grains, wet	-35.32	SS3		1.4	9	7.6
22	- 0.16' silty sand lense @ 20.8 ft BGS	-36.12					
	SM-SILTY SAND, loose, fine to medium grained, dark gray, wet						
	Not Sampled						
24							
26							
28							
30		-44.12					
	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/whitish grains, wet		SS4		0.6	18	0.4
32		-46.12					
	Not Sampled						
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-30
PROJECT NUMBER: 07843
DATE COMPLETED: January 26, 2006
CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA
LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair
Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38							
40	SP-SAND, trace silt, compact, fine to medium grained, dark gray with red/whitish grains, wet	-54.12	SS5	X	1.0	22	30.2
42	Not Sampled	-56.12					
44							
46							
48							
50	SM-SILTY SAND, dark gray, loose, wet	-64.12					
	- 0.1' silt lense @ 50.4 ft BGS	-64.92	SS6	X	1.1	7	1.5
52	- decrease in silt content below 50.6 ft BGS ML-SILT, sand, fine grained, dark gray, rapid dilatancy	-66.12					
	Not Sampled						
54							
56							
58							
60	SM-SILTY SAND, fine grained, dark gray, moist to wet, rapid dilatancy	-74.12	SS7	X	0.6	5	9.2
62	Not Sampled	-76.12					
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-30
DATE COMPLETED: January 26, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	ML-SILT, very loose, dark gray, wet	-84.12	SS8		2.0	2	0.1
72	Not Sampled	-86.12					
74							
76							
78							
80	No Recovery	-94.12	SS9		0.0	63	NR
82	Not Sampled	-96.12					
84							
86							
88							
90	GM-GRAVEL with SAND, with COBBLES, very dense, coarse grained gravel, sub-angular gravel, brown, moist to wet	-104.12	SS10		0.6	>100	0.1
92	Not Sampled	-106.12					
94							
96							
98							
100	GM-GRAVEL with SAND, with COBBLES, very dense, coarse grained gravel, sub-angular gravel, brown, moist to wet	-114.12	SS11		0.2	86	0.0
102	Not Sampled	-116.12					
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
HOLE DESIGNATION: Pier25-30

PROJECT NUMBER: 07843
DATE COMPLETED: January 26, 2006

CLIENT: Occidental Chemical Corporation
DRILLING METHOD: HSA

LOCATION: Alexander Avenue Site
FIELD PERSONNEL: D. Deitner, Z. Ferriera, B. Sinclair

Tacoma, Washington

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
106							
108							
110	No Recovery	-124.12	SS12	X	0.0	17	0.0
112	END OF BOREHOLE @ 112.0ft BGS	-126.12					
114	Chemical analyses refer to both groundwater and sediment samples.						
116	BGS = Below Mudline						
118	Ground Surface = Mudline						
120							
122							
124							
126							
128							
130							
132							
134							
136							
138							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-32
DATE COMPLETED: April 4, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano, L. Huntoon

NORTHING: 716907
EASTING: 1167573

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	8.68					
0	FILL, sand, trace silt, trace fill, dry to moist		001				
2			SS1		4.0		0.0
4	- fine to coarse grained sand, brown to red below 4 ft BGS						
		3.08					
6	SM-SILTY SAND, fine to coarse grained, moist	2.48	SS2		4.0		0.0
	SM-SILTY SAND, trace shells, fine grained, gray, moist to saturate	1.08					
8	SP-SAND, fine to coarse grained, gray, minor red coarse grains, saturated - black below 8 ft BGS						
10			SS3		4.0		0.0
			002				
12	- trace gravel below 12 ft BGS						
14			SS4		4.0		0.0
16	- trace silt, loose, poorly graded, red and white grains present below 16 ft BGS						
18			SS5		2.4		0.0
20		-11.32	003				
	ML-SILT with SAND, trace shells, loose, gray, saturated		SS6		4.0		0.0
22		-13.32					
	SP-SAND, trace silt, fine to coarse grained, black, red and white grains, saturated		SS7		4.0		0.0
24							
26			SS8		3.0		0.0
28							
30			SS9		3.3		0.0
		-22.62					
32	ML-SILT, trace sand, soft, gray, saturated - trace shells below 32 ft BGS		004				
34			SS10		4.0		NR

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-32
DATE COMPLETED: April 4, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	ML-SILT, gray, saturated	-27.32					
38			SS11		0.5		0.0
40	ML-SILT, some sand, some gravel and cobbles, loose, fine to coarse grained sand, gray, saturated	-31.32					
42	- trace brown sand below 41.8 ft BGS		SS12		3.2		0.0
44	GM-GRAVEL with SAND, medium grained sand, saturated	-35.32	005				
46			SS13		2.0		0.0
48	- some cobbles present below 47.5 ft BGS GM-GRAVEL, with silt, with sand, loose, fine to coarse gravel, saturated	-39.32					
50			SS14		1.8		0.0
52							
54			SS15		1.0		0.0
56	SM-SAND, trace silt, trace gravel and cobbles, loose, medium to fine grained sand, brown, saturated	-47.32	006 / 007				
58			SS16		0.3		0.0
60	GP-GRAVEL with SAND, coarse grained, loose, saturated	-51.32					
62			SS17		1.4		0.0
64	- decrease in sand content, trace silt below 64 ft BGS						
66			SS18		1.6		0.0
68	- increase in sand and silt content below 68 ft BGS		008				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: Pier25-32
DATE COMPLETED: April 4, 2006
DRILLING METHOD: Direct Push
FIELD PERSONNEL: R. Cristiano, L. Huntoon

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
72			SS19		2.0		0.0
74			SS20		2.7		0.0
76	SM-SAND, trace silt, trace gravel, loose to compact, coarse to medium grained sand	-67.32					
78			SS21		2.3		0.0
80	SP-SAND, trace silt, compact to loose, medium to coarse grained, brown, saturated	-71.32	009				
82			SS22		1.6		2.8
84	GM-GRAVEL with SAND, trace silt, loose to compact, medium grained sand, brown, saturated	-75.32					
86			SS23		1.8		0.0
88	SM-SAND, trace silt, loose, medium grained, brown, gray silt, saturated	-79.32					
90	SPG-GRAVELLY SAND, dense, medium grained, multicolor, brown, wet	-81.32	SS24		0.3		0.0
			010				
92	- some silt, compact below 92 ft BGS		SS25		1.0	15	1.3
94	- with cobbles below 94 ft BGS		SS26		0.8	21	0.6
96	- coarse to medium grained sand below 96.6 ft BGS		SS27		1.7	18	0.4
98							
100	END OF BOREHOLE @ 100.0ft BGS	-91.32	SS28 / 004		1.0	18	0.4
102	BGS = Below Mudline Ground Surface = Mudline						
104							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (009, 010, SS28 / 004)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-1
DATE COMPLETED: July 23, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-44.11					
0	CL-CLAY with SAND, dark gray with brown, saturated		001		0.7		0
			002/013		1.0		0
2		-46.61	003		1.0		0
	SP-SAND, coarse grained, dark gray, medium saturation - some clay, shells between 3.0 and 3.67 ft BGS		004		1.0		0
4	- finer sand below 3.67 ft BGS	-48.11	005		1.0		0
	SW-SAND, medium to coarse grained, dark gray, moist - fine to medium grained below 5 ft BGS		006		1.0		0
6			007		1.0		0
			008		1.0		0
8		-52.11	009		0.8		0
	SP-SAND, medium grained, dark gray						
		-53.36	010		1.0		0
10	SM-SAND with SILT, fine grained, dark gray	-54.11	011		0.8		0
	SP-SAND, medium grained, dark gray		012		0.8		0
12		-56.11					
	END OF BOREHOLE @ 12.0ft BGS						
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-2
DATE COMPLETED: July 23, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-43.47					
0	SM-SILTY SAND, dark gray, saturated		001		0.7		0
			002		1.0		0
2					0.0		
		-46.80	003		0.7		0
4	SP-SAND, medium grained, dark gray	-47.47					
	- fine to medium grained below 4.25 ft BGS		004		1.0		0
	SW-SAND, medium to coarse grained, dark gray, moist		005		1.0		0
6	- medium grained between 5.67 and 6.0 ft BGS		006		1.0		0
			007/010		1.0		0
8			008		1.0		0
	- some sea material/wood below 9.0 ft BGS		009		1.0		0
10	END OF BOREHOLE @ 10.0ft BGS	-53.47					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-3
DATE COMPLETED: July 25, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki
GW samples taken from borehole adjacent to strat log borehole.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-43.77					
	SW-SAND, medium to coarse grained, dark gray, moist		001		0.8		0
			002		1.0		0
2	- fine to medium grained below 2 ft BGS		003 GW001/003 004/011		1.0		0
4	- medium grained below 4 ft BGS		005 GW002 006		1.0		0
6	- medium to coarse grained below 6 ft BGS		007 GW004 008		0.3 / 1.0		0
8			009 GW005 010		0.8 / 0.8		0
10	END OF BOREHOLE @ 10.0ft BGS	-53.77					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-4
DATE COMPLETED: July 22, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki
GW samples taken from borehole adjacent to strat log borehole.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-39.67					
0	SM-SILTY SAND, dark gray, slight odor		001		0.5		0
			GW001				
			002		1.0		0
2	- dark gray to black, sandier, some saturation below 2 ft BGS		003		0.5		0.1
			GW002				
	SC-CLAY with SAND, dark gray to black, slight saturation	-42.67	004		1.0		0
4	- saturated below 4 and 5 ft BGS ft BGS		005		0.5		0
			GW003				
			006		0.5		0
6		-45.67					
	No Recovery	-46.67			0.0		
			GW004				
	SW-SAND, black		007		1.0		0
8	- dark gray, slight saturation below 8 ft BGS		008				0
			009				0
10		-49.67					
	SW-SAND, medium to coarse grained, dark gray to black, moist		010		0.8		0.1
			011		0.8		0.1
12			012		1.0		0
			013		0.8		0
14		-53.67					
	SC-SAND with CLAY, fine grained, dark gray, moist	-54.17	014				
	SP-SAND, medium grained, dark gray to black, moist	-54.67					
	END OF BOREHOLE @ 15.0ft BGS						
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-5
DATE COMPLETED: July 25, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki
GW samples taken from borehole adjacent to strat log borehole.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-44.78					
0	No Recovery		GW001		0.0		
					0.0		
2	SP-SAND, medium grained, dark gray, moist	-47.03	001		0.8		5.7
			GW002/004				
			002		1.0		7.6
4			004		0.5		21.6
			003/005		1.0		11.8
6	- medium to coarse grained below 6 ft BGS		006		0.8		39.6
			GW003				
			007		1.0		17.5
8			008		0.8		19.8
			009		1.0		13.3
10	END OF BOREHOLE @ 10.0ft BGS	-54.78					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-6
DATE COMPLETED: July 25, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki
GW samples taken from borehole adjacent to strat log borehole.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-47.61					
0	SW-SAND, fine to medium grained, dark gray, moist, slight odor		001/011		1.0		0.3
			002		1.0		0.6
2			003		1.0		0.7
			GW001				
			004		2.0		0.4
4	SW-SAND, medium to fine grained, wood fragments, dark gray to black, odor	-51.61	005		0.7		11.6
			GW002				
			006		0.7		25.2
6			007		0.8		4.0
			GW003				
			008		0.8		15.1
8	- dark gray, slight odor below 8 ft BGS		009		0.7		14.9
			GW004/005				
			010		1.0		9.0
10	END OF BOREHOLE @ 10.0ft BGS	-57.61					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-7
DATE COMPLETED: July 24, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki
GW samples taken from borehole adjacent to strat log borehole.

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-50.10					
0	SW-SAND, medium to fine grained, some shells, dark gray, moist		001		0.7		0
			002/011		0.7		0
2			003 GW001/002		1.0		0
			004		1.0		0
4			005 GW003		0.5		0
			006		1.0		0
6			007 GW004		0.2		0
			008		1.0		0
8			009 GW005		0.8		0
			010		1.0		0
10	END OF BOREHOLE @ 10.0ft BGS	-60.10					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-8
DATE COMPLETED: July 23, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-45.67					
0	SM-SILTY SAND, dark gray, saturated		001		0.7		0
		-46.92	002		1.0		0
2	SW-SAND with GRAVEL, fine to medium grained, dark gray, partially saturated - no gravel below 2 ft BGS		003		0.8		0
			004		0.7		0
4	- moist below 4 ft BGS		005		0.8		0
		-50.67					
6	No Recovery				0.0		
		-52.42	006		0.3		0
	SW-SAND, fine to medium grained, dark gray, moist		007		1.0		0
8			008		1.0		0
	- fine grained below 9.5 ft BGS		009		1.0		0
10	END OF BOREHOLE @ 10.0ft BGS	-55.67					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-9
DATE COMPLETED: July 23, 2003
DRILLING METHOD: Shelby Tube and Split Spoon
FIELD PERSONNEL: V. Pickard/J. Surowiecki

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-45.47					
0	SW-SAND, fine to medium grained, dark gray, moist		001		0.5		0
	- light brown as seen in dredging ash below 1.5 ft BGS		002		0.5		0
2	SW-SAND, fine to medium grained, dark gray, moist	-47.47	003		0.7		0
	- medium to coarse grained below 3 ft BGS		004		1.0		0
4	SM-SILTY SAND, medium to coarse grained sand, some organic debris (wood), dark gray, moist	-49.47	005		1.0		0
		-50.47	006		1.0		0
6	SW-SAND, fine to medium grained, dark gray, moist		007		1.0		0
	- medium to coarse grained below 6 ft BGS		008		1.0		0
8			009		0.5		0
	- medium to fine grained below 9.67 ft BGS		010		1.0		0
10	END OF BOREHOLE @ 10.0ft BGS	-55.47					
12							
14							
16							
18							
20							
22							
24							
26							
28							
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-10
DATE COMPLETED: June 14, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-19.46					
	SM-SILTY SAND, black, saturated, abundant shell fragments	-19.66					
	No Recovery		SS1		0.2		
2							
4							
6							
	GM-SILT, SAND, and GRAVEL, medium grained sand, large angular gravels, no odor	-25.96	SS2		0.9	38	165
8			SS3		0.9	25	216
10	SP-SAND, medium grained, black with red grains, saturated, no odor	-29.46	SS4		1.5	11	254
	- large gravels between 11.0 and 11.1 ft BGS						
12	- silt lense (~2mm) @ 11.7 ft BGS		SS5		1.4	5	232
	SM-SANDY SILT, ~20% sand, moist, soft, no odor	-32.96	SS6		1.0	12	255
14			SS7		1.4	1	231
16			SS8		0.8	7	477
18							
			SS9		1.1	12	317
20	SM-SILTY SAND, black with red grains, moist, no odor	-39.46	SS26		0.6	4	>2000
22			SS27		0.5	11	>2000
	SP-SAND, medium grained, black with red grains, moist, no odor	-42.46					
24	- ~30% silt from 24.1 to 25 ft BGS		SS10		1.6	15	188
26	GM-SAND and GRAVEL, 0.5"Ø angular gravels, medium grained sand, saturated	-45.26	SS11		1.9	2	168
		-45.46					
	ML-SILT, brown-black, soft, no odor	-46.06					
28	SP-SAND, medium grained, black with red grains, moist, no odor		SS12		1.9	9	209
	- ~35% silt from 28.7 to 28.9 ft BGS						
30			SS13		1.8	18	245
32			SS14		2.0	22	190
34			SS15		2.0	25	156

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-10
DATE COMPLETED: June 14, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36			SS16		2.0	14	143
	SM-SANDY SILT, ~20% sand, gray, moist, slightly hard, no odor	-55.86					
	SP-SAND, medium grained, black with red grains, moist, no odor	-56.46					
38			SS17		2.0	21	273
		-58.46					
	No Recovery (Hydropunch)		SS18		0.0	12	
40		-59.96					
	SP-SAND, medium grained, black with red grains, moist, no odor		SS19		1.1	14	>2000
42			SS20		1.5	16	512
44			SS21		1.4	7	>2000
46			SS22		1.0	5	1527
		-66.66	SS23		1.5	11	1165
	CL-SILTY CLAY, ~30% silt, gray, slightly soft, no odor	-66.96					
48	SM-SANDY SILT, medium grained, ~40% sand, gray-black, moist, no odor		SS24		1.5	14	317
		-68.96	SS25		0.5		408
50	SP-SAND, medium grained, black with red grains, moist	-69.46					
	END OF BOREHOLE @ 50.0ft BGS						
	Depth in Ft. Below Mudline						
52	Ground Surface Elevation = Mudline						
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-11
DATE COMPLETED: June 14, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-16.46					
	MH/CH-SILTY SAND with GRAVEL, gray-black, saturated, hydrocarbon odor		SS1		2.0		>2000
	SM-SILTY SAND, medium grained sand, ~30% silt, black with red grains, hydrocarbon odor	-17.86					
2			SS2		1.5	5	>2000
	GW-GRAVEL, angular, to 1"Ø	-19.66					
4		-20.86					
	SP-SAND, medium grained, brown, moist	-21.06	SS3		1.5	20	>2000
	GW-GRAVEL and SAND, medium grained sand, rounded gravel to 1"Ø, black, moist	-21.56					
6	SP-SAND, medium grained, black with red grains, moist, no odor		SS4		0.6	1	>2000
	- large cobble in spoon @ 6.5 ft BGS						
8							
	SM-SILTY SAND, medium grained, gray-black with red grains, ~20% silt, moist	-25.36	SS5		1.5	8	435
10	-0.5" silt layers @ 9.1, 9.3, and 9.4 ft BGS						
	CL-SILTY CLAY, ~30% silt, gray, soft	-27.26	SS6		1.9	11	478
	SM-SANDY SILT, ~30% sand, fine grained, gray, no odor	-27.66					
12			SS7		1.5	10	203
	- sand content decreases to ~10% @ 13.4 ft BGS						
14		-30.76					
	SP-SAND, medium grained, black with red grains, moist, slight chemical odor	-31.56	SS8		1.5	14	243
	ML-CLAYEY SILT, ~20% clay, dark gray, soft, shell fragments present	-31.76					
16	SM-SILTY SAND, fine grained, ~30% silt, moist						
	- silt content increases to ~40% @ 16.2 ft BGS	-33.26	SS9		1.7	26	1025
	CL-SILTY CLAY, ~30% silt, moist, soft, no odor	-33.66					
18	SP/SM-SAND and SILT, medium grained, black with red grains, moist						
	- mostly silt between 17.25 and 18.0 ft BGS		SS10		2.0	26	272
	- silt with minor sand, gray, between 19.0 and 19.5 ft BGS	-35.96					
20	SM-SILTY SAND, ~20% silt	-36.46					
	No Recovery (Hydropunch)						
22		-38.46					
	SM-SAND and SILT, 30% sand, medium grained, black-gray, moist						
	- clayey silt layer, ~30% clay, gray, soft, moist between 22.6 and 22.8 ft BGS		SS11		1.1	18	130
24		-40.46					
	SP-SAND, medium grained, black with red grains, moist, slight chemical odor	-41.56	SS12		1.6	11	114
	ML-CLAYEY SILT, ~20% clay, gray, moist, soft	-42.46					
26	SM-SILTY SAND, ~30% silt, fine grained sand, black, moist	-42.96					
	CL-SILTY CLAY, ~30% silt, gray, moist	-43.26	SS13		1.6	20	145
	SP/SM-SAND and SILT, fine to medium grained sand, black with red grains, moist						
28	- silt lense @ 27.9 ft BGS						
			SS14		1.4	14	158
	- silt layer from 28.8 to 29.3 ft BGS						
30							
			SS15		1.8	14	153
32		-48.66					
	ML-SILT, gray, moist, no odor		SS16		1.5	10	197
	- 20% clay content from 32.2 to 33.2 ft BGS						
	- medium grained sand layer, black with red grains, @ 33.1 ft BGS						
34	- 20% clay with 10% sand from 34.0 to 34.8 ft BGS						
		-51.26					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-11
DATE COMPLETED: June 14, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SW-SAND with SILT, ~10% silt, black with red grains, moist		SS17		1.5	12	354
	-grades to ~20% silt @ 36.8 ft BGS	-53.26	SS18		1.5	14	395
38	SP-SAND, medium grained, black with red grains, moist, no odor						
	SM-SANDY SILT, ~30% sand, moist	-55.36	SS19		1.3	10	450
40	No Recovery (Hydropunch)	-56.46					
42	SP-SAND, medium grained, black with red grains, moist, no odor	-58.46					
	-silt layer between 42.3 and 42.4 ft BGS		SS20		2.0	23	242
44	- wood fragments @ 44.6 ft BGS		SS21		1.5	25	163
46			SS22		1.5	27	343
48			SS23		1.1	3	301
50	END OF BOREHOLE @ 50.0ft BGS	-66.46					
	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline						
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-12
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-39.26					
	No Recovery	-39.76					
	SM-SANDY SILT, ~30% sand, gray/black, saturated, very loose	-40.26					
2	SM-SILTY SAND, ~40% silt, medium grained sand, gray/black, saturated, slight chemical odor (sweet)		SS1		1.5	2	500
			SS2		1.3	5	275
4			SS3		1.5	6	412
			SS4		1.5	6	799
6	CL-SILTY CLAY, ~40% silt, gray/black, moist, slight chemical odor	-45.26					
	SM-SILTY SAND, ~30% silt, medium grained sand, black/gray, moist, slight chemical odor	-45.76	SS5		1.5	14	281
8	- sandy silt layer, ~40% sand, gray/black, moist, slight chemical odor between 7.5 and 8.0 ft BGS		SS6		1.5	15	442
	CL-SILTY CLAY, black/gray, moist, soft, slight chemical odor	-48.26					
10	ML-SILT, black/gray	-48.46					
	SM-SANDY SILT, ~30% sand, black/gray, moist, slight chemical odor	-48.56	SS7		1.5	17	290
	- clayey silt layer, ~20% clay, gray/black, moist, soft, slight chemical odor from 10.7 to 11.0 ft BGS		SS8		1.5	18	394
12	- sandy silt lense, ~20% sand, saturated below 11.0 ft BGS	-51.76					
	- ~45% sand, sand begins to contain red grains below 11.6 ft BGS	-52.86	SS9		1.5	6	612
14	SM-SILTY SAND, ~30% silt, silt content decreases with depth, black/gray, moist, slight chemical odor	-53.26	SS10		1.5	13	360
	ML-CLAYEY SILT, gray/black, moist, ~40% clay, soft	-54.66					
	SM-SANDY SILT, ~20% sand, gray/black, slight chemical odor	-55.06					
16	-saturated, very loose between 14.0 and 14.9 ft BGS	-55.36	SS11		1.5	11	927
	- moist below 14.9 ft BGS	-56.16					
	- silt layer (1cm) @ 15.2 ft BGS	-56.96	SS12		1.5	15	184
18	SP-SAND, medium grained, black with red grains, moist	-57.36					
	SM-SANDY SILT, ~30% sand, medium grained, black/gray, moist, slight chemical odor	-57.76					
	ML-SILT, black/gray, slightly moist, hard, crumbles with pressure	-58.16	SS13		1.5	15	835
20	CL-SILTY CLAY, ~40% silt, gray/black, moist, hard	-59.76	SS14		1.5	5	1820
	ML-SILT, black/gray, slightly moist, slight chemical odor	-60.76					
22	SM-SILTY SAND, ~40% silt, fine grained sand, black/gray, moist	-61.76					
	CL-SILTY CLAY, ~20% silt, black/gray, moist		SS15		1.5	9	1002
	SM-SANDY SILT, ~20% sand, gray/black, moist, slight chemical odor						
24	ML-SILT, gray/black, moist, crumbles easily	-63.26	SS16		1.5	25	>2000
	No Recovery (Hydropunch)						
	ML-CLAYEY SILT, ~30% clay, black/gray, moist, slight chemical/burnt odor		SS17		1.3	29	>2000
26	SM-SAND and SILT, fine to medium grained sand, gray/black, moist, slight chemical odor						
	- laminated silt layer between 25.3 and 25.35 ft BGS		SS18		1.5	18	>2000
28							
30			SS19		1.2	12	1717
32	- silt layer from 31.8 to 32.5 ft BGS		SS20		1.5	29	1329
			SS21		1.2	16	840
34							
			SS22		1.5	14	667

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-12
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- red grains in sand from 35.0 to 38.5 ft BGS		SS23		1.5	24	838
	- gravel from 36.8 to 36.9 ft BGS - sandy silty clay from 36.0 to 37 ft BGS						
38			SS24		1.1	18	824
			(SS25)		1.2	18	850
40	No Recovery (Hydropunch)	-79.26					
42	SP-SAND, medium grained, black with red grains, moist, no odor	-81.26	SS26		0.6	15	310
44			(SS27)		1.3	16	448
			SS28		1.3		350
46			SS29		1.2	19	282
48			(SS30)		1.5	21	250
50	END OF BOREHOLE @ 50.0ft BGS	-89.26	SS31		0.6		242
	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline						
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-13
DATE COMPLETED: June 9, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-35.20					
	No Recovery	-36.20					
	ML-SILT, gray, saturated, loose	-36.50	SS1		1.5	6	>2000
2	SM-SILTY SAND, medium grained sand, black with red/orange grains, moist, sharp chemical odor (sweet)		SS2		1.1		>2000
	- layer of small wood and gravel @ 2.4 ft BGS						
4	- large cobble @ 3.6-3.7 ft BGS		SS3		1.2		>2000
			SS4		1.5	20	>2000
6	- large cobble @ 5.6-5.7 ft BGS						
			SS5		1.5	9	>2000
	- silt layer, gray/black, sharp chemical odor (sweet), balls easily between 7.1 and 7.5 ft BGS						
8	-slight clay content toward 7.5 ft BGS		SS6		1.5	33	1160
	- silt layer, gray/black, moist, sharp chemical odor (sweet), balls easily, between 8.6 and 9.0 ft BGS		SS7		1.3	23	1183
10	- sand becomes fine grained @ 9.8 ft BGS						
	SM-SAND, medium grained, black with red grains, moist, chemical odor	-45.70	SS8		1.3	27	980
12	No Recovery (Hydropunch)	-47.20	SS9		0.0	15	
	SM-SAND, medium grained, black with red grains, moist, chemical odor	-48.70	SS10		1.5	30	1411
14	CL-SILTY CLAY, gray, moist, malleable, sharp chemical odor	-50.40	SS11		1.4	15	>2000
16	SP-SAND, medium grained, black with red grains, moist	-51.70	SS12		1.5	16	>2000
	CL-SILTY CLAY, ~40% silt, dark gray/black, moist	-52.50 / -52.70					
18	ML-SILT, dark gray/black, moist	-53.20	SS13		1.5	17	>2000
	SP-SAND, medium grained, black with red grains, moist	-53.80					
20	ML-SILT, dark gray/black, moist	-54.70					
	No Recovery (Hydropunch)		SS14		0.0	31	
22	SM-SILTY SAND, medium grained, black with red grains, moist, slight chemical odor	-57.20	SS15		1.5	19	845
24			SS16		1.4	17	921
	CL-SILTY CLAY, dark gray/black, slightly moist, slight chemical odor	-59.80 / -60.20					
	SM-SILTY SAND, medium grained, black with red grains, moist, slight chemical odor	-60.70 / -60.80	SS17		1.5	16	>2000
26	ML-SILT, black, moist	-61.00 / -61.70					
	CL-SILTY CLAY, dark gray/black, moist, slight chemical odor	-62.90	SS18		1.4	11	>2000
28	ML-SILT, dark gray/black, moist, slight chemical odor	-63.20					
	SM-SILTY SAND, ~20% silt, black with red grains, moist, slight chemical odor, slight sulfur odor	-64.70	SS19		1.5	16	590
30	ML-SILT, black/gray, moist, slight sulfur odor		SS20		1.0	26	1710
	SP-SAND, medium grained, black with red grains, moist, slight chemical odor						
	SM-SILTY SAND, medium grained sand, black with red grains, moist, slight chemical odor		SS21		1.5	9	810
32	ML-CLAYEY SILT, moist, black/gray	-67.50					
	- layer of sandy silt, moist, fine grained sand, black/gray between 33.1 and 33.2 ft BGS		SS22		1.3		1199
34	No Recovery (Hydropunch)	-69.20					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-13
DATE COMPLETED: June 9, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36							
38							
		-74.20					
40	SP-SAND, medium grained, black with red grains, moist, slight chemical odor		SS23		1.5		>2000
		-75.70					
	No Recovery (Hydropunch)						
42							
44		-79.20					
	SP-SAND, medium grained, black with red grains, moist, slight chemical odor		SS24		1.0	12	101
46			SS25		1.5	15	133
48			SS26		1.3	14	123
			SS27		1.5	23	75.6
50		-85.20					
	END OF BOREHOLE @ 50.0ft BGS						
52	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline						
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS23)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-13A
DATE COMPLETED: November 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: B. Sinclair

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	NORTHING: 715978.7 EASTING: 1167590.5 GROUND SURFACE	-26.43					
0	Not Sampled						
12	SM-SILTY SAND, fine to medium grained, brown, very dense, black streak throughout, moist, odor	-38.23	SS1	X	1.9	79	4229
14	Not Sampled	-40.23					
22	SP-SAND, trace silt, fine to medium grained, gray with red grains, compact, moist to wet	-48.23 -48.63	SS2	X	2.0	17	825
	SM-SILTY SAND, fine grained, gray, firm, moist	-49.03					
24	SP-SAND, trace silt, medium to fine grained, gray with red grains, compact, moist to wet	-50.23					
	END OF BOREHOLE @ 23.8ft BGS						
26	Chemical analyses refer to both groundwater and sediment samples.						
28	BGS = Below Mudline						
	Ground Surface = Mudline						
30							
32							
34							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS1, SS2)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-14
DATE COMPLETED: June 18, 2004
DRILLING METHOD: Cable Tool / HSA
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-0.46				
0	FILL, sand and metal shavings, black		SS1		0.1	
2	- gray/black sand with red grains, moist below 2.0 ft BGS		SS2		0.5	17
4	SP-SAND, medium to coarse grained, gray/black with red grains, saturated	-4.46 ▽	001 SS3		1.1	14
	-rust colored, wood fragment exists @ 4.3 ft BGS					
6	- coarse gravel, @ 4.6 ft BGS - and fine gravel, gray/black		SS4		2.0	60
	- coarse grained, beige, moist @ 6.8 ft BGS					
8	- large piece of gravel @ 7.3 ft BGS - gray/black, moist to wet below 7.4 ft BGS		SS5 002		1.5	40
	- coarse gravel @ 7.7 ft BGS					
10	- fine gravel, pieces of glass, moist below 8.0 ft BGS		SS6		2.4	
	- gray below 11.0 ft BGS					
12			SS7		2.0	38
		-13.86				
14	ML-SILT, trace clay, gray/black	-14.46	003 SS8		1.7	33
	SP-SAND, medium to coarse grained, gray/black, moist					
		-15.86				
16	SM-SILTY SAND, with clay, gray/black, moist	-16.46				
	SP-SAND, medium to coarse grained, gray/black, moist		SS9		1.4	95
18						
			SS10 004		2.0	85
		-19.86				
20	SM-SILTY SAND, gray, dry to moist	-20.46				
	No Recovery (Hydropunch)					
22						
		-23.46				
	SP-SAND, medium to coarse grained, gray/black, moist					
24			SS11 005		2.0	42
26	- silt layer (~0.25"), gray, moist @ 26.5 ft BGS		SS12		1.7	38
28			SS13		1.6	11
			006 SS14		1.7	18
30						
32			SS15		1.5	18
34			SS16 007		1.7	31

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-14
DATE COMPLETED: June 18, 2004
DRILLING METHOD: Cable Tool / HSA
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36			SS17		1.8	12
38			SS18 008		2.0	20
	No Recovery (Hydropunch)	-39.46				
40						
42	SP-SAND, medium to coarse grained, gray/black, moist	-42.46	SS19		1.1	18
44			009 SS20		1.2	11
46			SS21		2.0	25
48			SS22 010		2.0	23
50	END OF BOREHOLE @ 50.0ft BGS	-50.46				
	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline					
52						
54						
56						
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-18.46				
0	Not Sampled.					
12	SP-SAND, containing silt layers (between 12 and 17.3 ft BGS), gray/black, moist, -chemical odor detected between 12 and 14.8 ft BGS	-30.46	SS1		2.0	55
14			SS2		2.0	31
16	- coarse grained below 15.5 ft BGS		001 SS3		2.0	70
18	- silt pods, shell fragments, chemical odor between 18.0 and 20.0 ft BGS		SS4		2.0	80
20	- organics (wood fragments), chemical odor between 20.0 and 22.0 ft BGS		SS5 002		2.0	100
22	- saturated @ 22.0 ft BGS		SS6		1.8	67
24	- wet to saturated below 24.0 ft BGS		SS7		1.4	45
26	- silt (~0.5") @ 26.7 ft BGS		003 SS8		0.9	48
28	- moist below 28.0 ft BGS - organic silt with fine gravel between 28.6 and 28.8 ft BGS		SS9		0.8	50
30	- dry to moist below 30.0 ft BGS - trace silt between 30.9 and 31.0 ft BGS	-49.46	S10		1.0	
32	No Recovery (Hydropunch)					
34	SP-SAND, gray/black, moist	-52.46				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15
DATE COMPLETED: June 30, 2004
DRILLING METHOD: Cable Tool
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	- silt layers @ 34.4, 35.2, and 35.8 ft BGS		S11		1.8	26
			004 S12		1.4	30
38			S13		1.7	26
40	- organic silt layers between 40.3 and 45.4 ft BGS		S14		1.6	26
42			S15		2.0	30
44			S16		1.8	34
		-63.86				
46	SM-SAND, with silt, gray/black, moist	-64.46				
	SP-SAND, gray/black, dry to moist		005 S17		1.5	38
	SM-SAND, with silt, gray/black	-65.26				
48	SP-SAND, gray/black, moist	-66.46				
	MH-SILT, trace to with sand, dry to moist	-67.26	S18		2.0	32
	SM-SAND and SILT, gray, dry to moist	-67.86				
50	MH-SILT, gray, dry to moist	-68.26				
	SP-SAND, gray/black, moist	-68.46	006 S19		1.2	
	- silt layer (~1 in) @ 50.9 ft BGS	-69.66				
52	No Recovery (Hydropunch)					
54		-72.46				
	SP-SAND, gray/black, moist					
	-silt layers between 54.2 and 56.0 ft BGS		S20		1.5	70
56	SM-SILTY SAND, gray, moist	-74.46	007 S21		1.5	60
58	SP-SAND, gray/black, moist	-76.46				
	ML-SILT, trace sand, gray, dry to moist	-77.46	S22		1.8	60
60	SP-SAND, gray/black, moist	-78.46				
	ML-SILT, with sand, gray, moist	-79.16	S23 008		2.0	35
	SP-SAND, gray/black, moist	-79.46				
62	END OF BOREHOLE @ 62.0ft BGS	-80.46				
	Depth in Ft. Below Mudline					
64	Ground Surface Elevation = Mudline					
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15A
DATE COMPLETED: November 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Cornetta, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-19.32					
	0-25' BGS - See Log from PT-15 for Stratigraphy						
24	SP-SAND, trace silt, trace slag, fine to medium grained, dark gray with red and white grains, wet, odors	-44.32	SS1		1.5	16	408
26	Not Sampled	-45.82					
34		-53.82					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( )

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15A
DATE COMPLETED: November 9, 2005
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Cornetta, N. Redwood

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36	SP-SAND, trace silt, fine to medium grained, dark gray with red and white grains, wet, odors		SS2		2.0	8	2709
	- little to some silt below 36 ft BGS	-55.82					
	END OF BOREHOLE @ 36.5ft BGS						
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15B
DATE COMPLETED: December 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
	GROUND SURFACE	-20.32					
0	Not sampled						
14	FILL, silty sand, trace wood metal debris, fine grained sand, black, saturated, poorly graded, odor	-33.32 ▽	001 SS1	X	0.3	13	174
		-35.32					
16	Not Sampled						
18	SP- SAND, trace silt, fine grained sand, poorly graded, black with trace red and white grains, saturated, compact, solvent-like odor	-38.32	002 SS2	X	0.3	12	163
20		-40.32					
20	Not sampled						
28	SM, SILTY SAND, fine grained, poorly graded, black, saturated, solvent-like order	-48.32	003 SS3	X	0.5	12	143
30		-50.32					
30	Not sampled						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 12/20/06
CHEMICAL ANALYSIS ( )

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-15B
DATE COMPLETED: December 20, 2006
DRILLING METHOD: HSA
FIELD PERSONNEL: D. Rivers

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS	SAMPLE PID (ppm)
36							
38	SP- SAND, trace silt, fine grained sand, poorly graded, black with trace red and white grains, saturated, compact, solvent-like odor	-58.32	004 SS4	X		12	183
40	END OF BOREHOLE @ 40.0ft BGS	-60.32					
42							
44							
46							
48							
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ 12/20/06
CHEMICAL ANALYSIS ⬭

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-16
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-48.75					
	No Recovery	-49.75					
	MH/CH-SILTY CLAY, ~40% silt, gray-black, saturated, very soft, no odor (mud)	-50.95	SS1		1.5		284
	SM-SANDY SILT, wood fragments	-51.05					
	SP-SAND, medium grained, black with red grains, moist, slight chemical odor		SS2		0.9	15	450
	- silty, sandy clay layer, ~20% silt, ~20% sand, gray-black, moist, slight chemical (sweet) odor between 2.3 and 2.8 ft BGS						
	- ~30% silt from 4.6 to 5.8 ft BGS		SS3		1.5	17	520
	- silty clay layer, ~40% silt, gray-black between 5.4 and 5.5 ft BGS						
	- sandy silt layer, gray-black, from 5.8 to 6.0, and from 7.0 to 7.3 ft BGS		SS4		1.5	14	305
	- silt layer from 8.5 to 8.6 ft BGS		SS5		1.4	13	630
			SS6		1.5	15	875
	- silt layer between 10.3 and 10.4 ft BGS						
	- stronger chemical odor between 10.5 and 12.0 ft BGS		SS7		1.3	21	140
			SS8		1.5	26	166
			SS9		1.0	20	372
	- silt seams @ 15.8, 15.9, 15.95, and 16.05 ft BGS		SS10		1.1	16	301
			SS11		1.5	16	647
	- silty sand layers @ 17.7 and 17.8 ft BGS						
	- silt layer (~3mm) @ 19.2 ft BGS		S12		1.5	17	380
	No Recovery (Hydropunch)	-69.25					
			SS13		0.0		
	ML-SILT, gray-black, moist, slight chemical odor, crumbles easily	-72.25					
	- silty sand layer (~3mm) @ 24.5 ft BGS		SS14		1.5	22	907
	- ~20% sand from 25.6 to 28.9 ft BGS		SS15		1.5	30	1520
			SS16		1.5	16	1320
			SS17		1.5	20	1369
	- ~20% sand from 29.9 to 30.4 ft BGS		SS18		1.5	35	1525
	- ~20% clay from 31.1 to 31.6 ft BGS		SS19		1.5	41	>2000
	SM-SANDY SILT, ~15% sand, gray-black, slight chemical odor, crumbles easily	-80.65					
	ML-CLAYEY SILT, ~20% clay, gray-black, slight chemical odor	-81.45	SS20		1.5	43	1436
	SM-SILTY SAND, gray-black with red grains, ~30% silt, moist, slight chemical odor	-82.35					
	ML-SILT, gray-black, slight chemical odor, hard, crumbles easily	-83.15	SS21		1.5	52	>2000

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (S12)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-16
DATE COMPLETED: June 11, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	SM-SANDY SILT, ~15% sand, gray-black	-83.55					
		-85.05	SS22		1.5	27	1760
	SM-SILTY SAND, ~20% silt, gray-black, medium grained sand, moist, slight chemical odor	-85.35					
38	SM-SANDY SILT, ~20% sand, gray-black		SS23		1.5	36	1960
			SS24		1.5	31	1860
		-88.35					
40	SM-SILTY SAND, ~20% sand, medium grained, sand, gray-black, moist, slight chemical odor	-88.75					
	No Recovery (Hydropunch)	-89.75					
42	SM-SILTY SAND, ~30% silt, gray-black with red grains, moist, fish odor		SS25		1.5	59	1836
			SS26		1.5	71	1841
44	SP-SAND, medium grained, black with red grains, fish odor	-92.75					
			SS27		1.5		>2000
		-94.05					
46	ML-SILT, black, crumbles easily	-94.25					
	END OF BOREHOLE @ 45.5ft BGS						
	Depth in Ft. Below Mudline						
48	Ground Surface Elevation = Mudline						
50							
52							
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS24, SS26)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-17
DATE COMPLETED: June 16, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
	GROUND SURFACE	-30.46				
0	GW-GRAVEL and shell fragments (organics)	-30.76				
	CL-CLAY and SILT, round white objects		SS1		1.4	6
	-white fibrous layer, slight orange discoloration @ 0.6 ft BGS					
2	-silty clay and sand, gray/black between 0.6 and 1.1 ft BGS		SS2		1.0	16
	- silty sand layer, medium to coarse grained, moist, white objects between 1.1 and 1.2 ft BGS					
4	- clayey silt, trace organics, brown/gray, dry to moist between 1.2 and 1.4 ft BGS		SS3		0.5	50
	- trace gravel, shell fragments, possible organic layer, green, moist between 2.0 and 2.3 ft BGS					
6	- trace silt, trace sand, white fibrous material, roots, grades from gray/brown to gray between 2.3 and 3.0 ft BGS		SS4		1.8	6
	- silty clay, organics (shells, wood), gray/black, soft below 6.0 ft BGS					
8	- and silt, brown, moist, below 7.6 ft BGS	-38.76	SS5		1.3	6
	SP-SAND, medium to coarse, gray/black with red grains					
10						
	ML-SANDY SILT, gray/brown, moist, soft	-41.26	SS6		1.6	33
12	SP-SAND, medium to coarse grained, gray/black with red grains	-42.46				
	- fine to medium grained below 12.6 ft BGS		SS7		1.5	40
14	- medium to coarse grained below 14.0 ft BGS					
	- clayey silt with wood fragments, gray/brown, soft between 14.6 and 14.8 ft BGS		SS8		1.6	30
16						
			SS9		1.4	45
18						
			SS10		1.1	
	No Recovery (Hydropunch)	-49.56				
20						
22	SP-SAND, medium to coarse grained, gray/black with red grains	-52.46				
	- silt with sand between 22.5 and 22.6 ft BGS		SS11		1.8	65
24						
			SS12		1.8	17
26						
			SS13		1.2	7
28						
			SS14		1.5	20
30						
			SS15		2.0	19
	ML-SILT, trace sand, dark gray, moist	-61.76				
32	SP-SAND, medium to coarse grained, gray/black with red grains	-62.46				
			SS16		1.8	27
	- sandy silt, gray, moist, slight chemical odor between 33.6 and 33.8 ft BGS					
34						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-17
DATE COMPLETED: June 16, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Cornetta

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE BLOW COUNTS
36	- silt and sand, gray, moist between 35.7 and 36.0 ft BGS (contains a 2-inch silt layer with trace sand within this interval)		SS16		2.0	45
38			SS17		1.7	28
	No Recovery (Hydropunch)	-68.96				
40		-71.46				
	SP-SAND, medium to coarse grained, gray/black with red grains	-72.26				
42	ML-SANDY SILT, gray, moist	-73.46	SS18		1.8	70
	SP-SAND, medium to coarse grained, gray/black with red grains	-74.26				
44	- trace sand below 43.8 ft BGS		SS19		2.0	90
	ML-SILT, trace sand, gray, moist	-75.46				
	SP-SAND, medium to coarse grained, gray/black with red grains	-76.16				
46	ML-SILT, dark gray/brown, moist	-77.46	SS20		2.0	30
	SP-SAND, medium to coarse grained, gray/black with red grains	-78.26				
48	ML-SILT, dark gray/brown, moist	-79.46	SS21		2.0	17
	SP-SAND, medium to coarse grained, shell fragments (organics) gray/black with red grains	-80.86	SS22		1.4	40
50	END OF BOREHOLE @ 50.4ft BGS					
52	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline					
54						
56						
58						
60						
62						
64						
66						
68						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-18
DATE COMPLETED: June 18, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
	GROUND SURFACE	-7.46					
0	GM-SAND and GRAVEL, black with red sand grains, saturated, chemical odor		SS1		0.6		132
2			SS2		0.5	24	38.2
4	- 1"Ø concrete fragment @ 3.4 ft BGS - 0.5"Ø brick fragments @ 3.6 ft BGS - large cobble @ 4.7 ft BGS		SS3		1.1	24	54
6	SP-SAND, medium grained, black with red grains, moist, chemical odor	-12.66	SS4		0.9	19	5.6
8	SM-SANDY SILT, ~30% sand (grades to ~10% sand @ 8.0 ft BGS), fine grained, black, moist, chemical (sweet) odor	-14.96 -15.46	SS5		1.5		46.2
	ML-CLAYEY SILT, ~20% clay, gray, moist, crumbles easily	-15.96	SS6		1.8	22	36.3
10	-becomes a silty clay (~ 40% silt) @ 8.2 ft BGS SM-SILTY SAND, ~20% silt, fine grained sand, black with red grains, moist	-17.16 -17.76	SS7		1.6	21	92.6
12	wood fragments (slivers) @ 9.7 ft BGS ML-CLAYEY SILT, ~20% clay, light gray, moist, contains shell fragments		SS8		1.8	19	33.3
14	- becomes dark gray below 10.1 ft BGS SM-SILTY SAND, ~20% silt, black with red grains, moist, shell fragments SM-SAND, medium to coarse grained, black with red grains, moist	-20.06	SS9		1.4	28	43.1
16	- clayey silt layer, ~40% clay, gray, hard between 14.6 and 14.7 ft BGS		SS10		1.5	26	98.4
18			SS11		1.8	30	42.9
20	ML-CLAYEY SILT, gray, moist, hard, crumbles easily	-26.66 -26.86					
	SM-SILTY SAND, ~30% silt, medium grained, black with red grains, moist	-27.46					
	No Recovery (Hydropunch)	-28.46					
22	SP-SAND, medium grained, black with red grains, moist - silt layer (2mm) @ 22.5 ft BGS		SS12		1.8	41	42.5
24	- becomes fine grained @ 23.6 ft BGS		SS13		1.9	31	33.7
	ML-SILT, sharp contact from layer above	-31.56 -31.61					
26	SW-SAND, fine to medium grained, gray-brown with red grains, moist -wood seam (~2mm) @ 24.3 ft BGS		SS14		1.8	7	125
28	- silt layer, gray between 27.5 and 27.6 ft BGS		SS15		2.0	18	48.2
		-36.46					
30	SM-SANDY SILT, ~10% sand, gray-brown, moist, crumbles easily, sand decreases with depth -organic seam (wood) @ 29.5 ft BGS	-36.96	SS16		1.5	26	56.1
		-38.96					
32	SW-SAND, fine to medium grained, black with red grains, moist - silt seam, gray between 30.2 and 30.3 ft BGS	-39.46	SS17		2.0	19	54.9
34	CL-SILTY CLAY, ~20% silt, gray-brown, moist, soft -becomes clayey silt below 31.8 ft BGS		SS18		2.0	22	53.5
	SW-SAND, fine to medium grained, black with red grains, moist						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SS6, SS9, SS11, SS13, SS16, SS18)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Groundwater and Sediment Remediation
PROJECT NUMBER: 07843
CLIENT: Occidental Chemical Corporation
LOCATION: Alexander Avenue Site
Tacoma, Washington

HOLE DESIGNATION: PT-18
DATE COMPLETED: June 18, 2004
DRILLING METHOD: HSA
FIELD PERSONNEL: J. Pietraszek-Polovich

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft NGVD	SAMPLE NUMBER	SAMPLE INTERVAL	REC (ft)	BLOW COUNTS	PID (ppm)
36	- sand becomes medium to coarse grained below 33 ft BGS		SS19		2.0	18	102
	SM-SANDY SILT, ~30% sand, gray, moist, crumbles easily	-43.86					
38	SW-SAND, medium to coarse grained, black with red grains, moist	-44.46					
	- silty clay layer, gray moist between 38.3 and 38.4 ft BGS		SS20		2.0	17	888
40	No Recovery (Hydropunch)	-46.46					
42	SW-SAND, fine to medium grained, black with red grains, saturated, no odor, organics (wood) present throughout	-49.46	SS21		1.5	27	17.5
44	- SILT, dark gray to black, moist between 43.1 and 43.5 ft BGS - no organics below 44 ft BGS						
	- 0.5-1.0" silt seams intermixed with sand between 44.9 and 46 ft BGS		SS22		1.9	46	21.1
46			SS23		2.0		22.5
48			SS24		2.0		23.2
50	- silt seam, dark brown to black, moist, no odor @ 49.6 ft BGS						
	END OF BOREHOLE @ 50.0ft BGS	-57.46					
52	Depth in Ft. Below Mudline Ground Surface Elevation = Mudline						
54							
56							
58							
60							
62							
64							
66							
68							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (oval)

OVERBURDEN LOG 007843_ORIGINAL.GPJ CRA_CORP.GDT 10/6/09

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-42.40						
0	SM-SAND, with silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments throughout, wet		← BACKFILLED WITH BENTONITE CHIPS	1RS				
14		-57.20		2RS				0.9
16	SM/ML-SILTY SAND TO SANDY SILT, very fine grained, compact, firm, slow dilatancy, dark gray, wet							0.9
18								0.4
	SP-SAND, trace silt, very fine to fine grained,	-62.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 007843WIN.GPJ CRA_CORP.GDT 10/9/12

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet							
22	SM/ML-SILTY SAND TO SANDY SILT, dark gray, wet, cobbles and small stones at base	-64.40						
24				3RS				
26								
28								
30								0.3
32	CL-SILTY CLAY, with fine to medium gravel, firm, slow dilatancy, moderate plasticity, beige-buff, wet	-74.40						0.2
34	- thin coarse sand stringer at 34.5ft BGS			4RS				
36	SP-SAND, with silt, with fine to medium rounded to well rounded gravel, trace clay, fine to medium grained sand, well sorted, well sorted, beige-buff, wet	-77.70						0.3
38								0.4

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
42	- 2" gray clayey sand seam at 42.3ft BGS							0.4
44	GM-GRAVEL, with fine to medium sand, with silt, fine to coarse grained rounded to well rounded gravel, compact, poorly sorted, beige-buff, wet	-86.20		5RS				0.3
46								--
48								--
50								--
52								--
54	NO RECOVERY (55 TO 58ft BGS)	-97.40		6RS				--
56								--
58	SP-SAND, with silt, with fine to medium rounded to well rounded gravel, fine to medium grained sand, loose, well sorted, beige-tan, wet	-100.40						0.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GM-GRAVEL, with fine to medium sand, trace silt, fine to coarse grained rounded gravel, compact, poorly sorted, beige, wet	-102.40						0.5
62	SP/GM-SAND, with fine to medium gravel, trace silt, fine to coarse sand, compact, poorly sorted, beige-tan, wet	-103.90						0.8
64				7RS				
66	GM-GRAVEL, with silt, fine to coarse gravel, fine to coarse sand, poorly sorted, beige-tan, wet	-108.40						0.8
68								0.8
70								0.5
72								
74				8RS				0.3
76								0.7
78	CL-SILTY SANDY CLAY, with fine to medium gravel, firm, slow dilatancy, moderate plasticity, beige-buff, wet	-120.20						1.3
	GM-GRAVEL, with fine to coarse sand, with	-121.90						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	PID (ppm)
	silt, fine to coarse gravel, poorly sorted, beige-tan, wet							0.4
82								
84								0.7
	- grading to sand and gravel, with silt at 84.5ft BGS							
	POOR RECOVERY (85 to 95ft BGS), fine gravel, silty sand, beige	-127.40		9RS				
86								
88								--
90								
92								0.4
94								
	GP-GRAVEL, with fine to medium sand, trace silt, fine to medium gravel, compact, well sorted, beige-buff, wet	-137.40		10RS				
96								0.7
98		-140.40						
	SP-SAND, with fine to medium gravel, trace to little silt, fine to medium sand, compact, well sorted, beige-buff, wet - 3" gray clay seam, dense, wet at 99.2ft BGS							0.6

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-D
DATE COMPLETED: August 31, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: K. BURNS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	- trace clay at 100.3ft BGS							
	CL-CLAY, trace silt, stiff, slow dilatancy, low plasticity, gray, wet	-143.60						0.4
102	SP-SAND, with fine to medium rounded gravel, trace silt, fine to medium sand, compact, well sorted, brown, wet	-144.10						
	CL-CLAY, with fine to medium sand, trace medium gravel, trace silt, firm, slow dilatancy, low plasticity, gray, iron staining, wet	-145.90						0.6
104	SP-SAND, with fine to medium gravel, trace silt, fine to medium sand, compact, well sorted, brown, wet	-147.20		11RS				
106								0.4
108	CL/ML-SILTY CLAY, trace very fine to fine sand, trace fine to medium gravel, firm, non plastic, yellow brown, iron staining, wet	-150.30						0.3
110	END OF BOREHOLE @ 110.0ft BGS	-152.40						
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE	-40.50						
	ML-CLAYEY SILT, very soft, gray brown, wet							
	ML-CLAYEY SILT, with sand, very soft, black, wet	-41.50						
2				1RS		3.0		0.2
4	SP-SAND, trace to with silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, trace shell fragments	-44.50	← BACKFILLED WITH BENTONITE CHIPS					
	- 0.02' clay lens at 5.4ft BGS							
6								0.2
	- 0.2' clay lens at 6.9ft BGS			2RS		5.0		
8								
	- 0.1' silt lens at 8.5ft BGS							0.2
10								
								0.5
12								
14	- 0.1' silt lens at 14.0ft BGS							0.5
				3RS		10.0		
16								0.9
18								
	- 0.2' silt lens at 19.5ft BGS							1.2

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
22								0.9
24								0.3
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet	-65.50		5RS		10.0		
26								0.7
28	ML-SILT, few clay, firm, dark gray, wet - 0.2' ML-CLAYEY SILT lens at 28.0ft BGS - 0.2' SP-SAND lens at 28.3ft BGS	-68.30						0.5
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, trace shell fragments	-69.50						
30								
	SP-SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, neutral pH (6.0)	-71.50						0.3
32								
34								1.2
36								6.3
38				6RS		15.0		50.1
	ML-SANDY SILT, firm, dark gray, wood	-80.00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	fragments throughout							278.8
42	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, shell fragments and wood pieces present, netural pH (6.0)	-82.50						
44								198
	SM-SILTY SAND, compact, fine rained, well sorted, dark gray, with red grains and white grains, shell fragments	-85.30 -85.50						
46	SP-SAND, trace silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout - fine to medium grained, larger shell fragments, neutral pH (7.0) at 47.0ft BGS							145.8
48	ML-SILTY, with clay, trace sand, firm, dark gray, wet, trace shell fragments, neutral pH (7.0) - 0.3' ML-SANDY SILT lens at 49.0ft BGS	-88.50						398.8
50				7RS		10.0		
	- 0.2' ML-SANDY SILT lens at 51.0ft BGS							140.0
52								
54	- 0.2' CL-SILTY CLAY lens at 54.0ft BGS							184.4
	NO RECOVERY (55 TO 58ft BGS), silt and clay based on drill response	-95.50						
56								
	- neutral pH (7.0) at 57.5ft BGS							161.2
58	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet - 0.1' silt lens at 58.5ft BGS	-98.50						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	PID (ppm)
		-101.50	8RS		6.0		
	NO RECOVERY (61 to 65ft BGS)						
62							369.2
64							
	SP-SAND, trace silt, compact, very fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout, odor present, negative DNAPL dye test	-105.50					
66							312.6
	ML-SILT, stiff, low plasticity, dark gray, wet, organic (woody) debris	-107.30					
	ML-CLAYEY SILT, dense, low plasticity, dark gray, moist, shell fragments and woody debris present	-108.10					
68							214.8
	ML-SANDY SILT, trace clay, soft, low plasticity, wet, odor	-110.00					
70			9RS		10.0		
	ML-SILT, stiff, low plasticity, wet, shell fragments	-111.30					181.3
	SP-SAND, with silt, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-112.00					
72							
	CL-SANDY CLAY, soft, low to moderate plasticity, wet	-114.20					227.8
74	- elevated pH (12.0) at 74.0ft BGS	-114.70					
	ML-SILT, stiff, low plasticity, dark gray, wet	-115.50					
	SP-SAND, with silt, fine grained, well sorted, dark gray, with red grains and white grains, wet, odor	-116.80					3.3
76	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, odor	-117.80					
	CL-CLAY, with silt, stiff, moderate plasticity, dark gray, wet						
78							93.1

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SM-SILTY SAND, loose, fine grained, well sorted, dark gray, with red grains and white grains, wet, odor	-120.50		10RS		10.0		103.1
	- 0.2' cemented sand at 81.6ft BGS							
82	CL-SILTY CLAY, stiff, low to moderate plasticity, dark gray, wet, odor, shell fragments throughout	-122.30						
	- trace sand, increase in silt content at 82.8ft BGS							
84	- neutral pH (8.0) at 83.0ft BGS							41.2
	- 0.3' SM-SILTY SAND lens at 84.6ft BGS							
86								7.0
88								4.9
90				11RS		10.0		
92								3.8
	SP-SAND, trace silt, fine rained, loose, well sorted, dark gray, wet, shell fragments throughout	-133.00						
94	SM-SILTY SAND, trace to with fine to coarse well rounded gravel, loose, fine to medium sand, well sorted, dark gray, with red grains and white grains, wet, shell fragments throughout	-134.50						1.0
96	SP-SAND, trace silt, very fine to fine grained, compact, well sorted, dark gray, white grains and red grains throughout, trace sand size shell fragments, wet	-136.50						3.1
98	- cobbles and rounded stones, neutral pH (7) at 98.6ft BGS							9.0
	GP-GRAVEL, trace very fine sand, trace silt, subangular to subrounded gravel, well sorted,	-139.60						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: COMPREHENSIVE SUPPLEMENTAL INVEST.
PROJECT NUMBER: 007843
CLIENT: OCCIDENTAL CHEMICAL CORPORATION
LOCATION: ALEXANDER AVENUE SITE

HOLE DESIGNATION: WW-A1-R
DATE COMPLETED: August 23, 2012
DRILLING METHOD: SONIC
FIELD PERSONNEL: M. DAVIS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	medium gray, wet	-140.70		12RS		11.0		
	SP-GRAVELLY SAND, trace silt, very fine to fine sand, fine to coarse subangular to rounded gravel, compact, well sorted, beige-tan, wet, with small stones, neutral pH (7)							0.9
102								
104								2.4
	- trace clay at 104.6ft BGS							
	END OF BOREHOLE @ 105.0ft BGS	-145.50						
106								
108								
110								
112								
114								
116								
118								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE