

APPENDIX A

Aerial Photographs



Great Northern
Railroad
"RoundHouse"

E. Wellesley Avenue

Approximate Northern
Extent of Site

Note: Looking North

1931 Aerial Photograph

SemMaterials L.P. Spokane Site RI/FS
Spokane, Washington



JUNE-2012

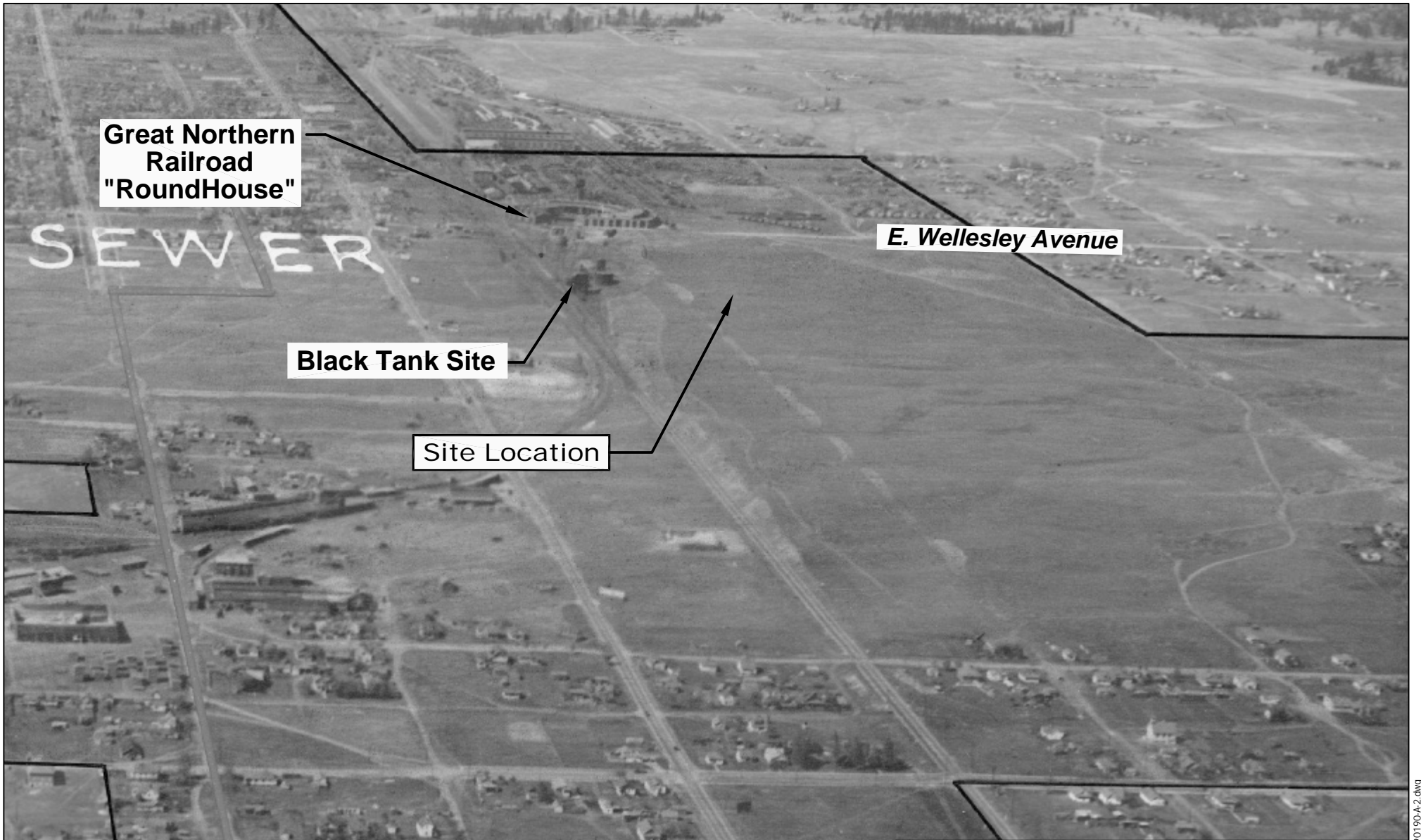
PROJECT NO.
090190

BY:
JMS/PMB
REV BY:

FIGURE NO.

A-1

CAD Path: O:\090190_SemMaterials\2012\06\09\0190-A-1.dwg



Great Northern
Railroad
"RoundHouse"

SEWER

E. Wellesley Avenue

Black Tank Site

Site Location

Note: Looking North

1950 Aerial Photograph

SemMaterials L.P. Spokane Site RI/FS
Spokane, Washington



JUNE-2012

PROJECT NO.
090190

BY:
JMS/PMB
REV BY:
-

FIGURE NO.

A-2



Note: Looking North

1955 Aerial Photograph

SemMaterials L.P. Spokane Site RI/FS
Spokane, Washington



JUNE-2012

PROJECT NO.
090190

BY:
JMS/PMB
REV BY:

FIGURE NO.

A-3



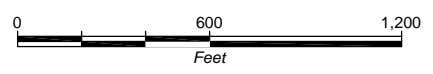
Great Northern
Railroad
"RoundHouse"

E. Wellesley Avenue

Site Location

1962 Aerial Photograph

SemMaterials L.P. Spokane Site RI/FS
Spokane, Washington



JUNE-2012
PROJECT NO.
090190

BY:
JMS/PMB
REV BY:

FIGURE NO.
A-4

APPENDIX B

Remedial Investigation Boring and Monitoring Well Construction Logs

Historical Boring and Test Pit Logs

Borehole	Borehole Depth (ft BLS ¹)	Sample Depth (ft BLS ¹)	Analytical Results (mg/kg) ²	
			WTPH-D	WTPH-418.1
BH-1	20	5	2,350.0	5,000
		10		30
		15	5	<10
BH-2	20	10	232	1,090
		15		3,440
		20	635	7,740
BH3	20	5	20,600	31,100
		10		12
		15	5	13
BH-4	125	20	<10	4,250
		25	<10	422
		30		10,620
		30 (DUP)		11,750
		35		2,830
		40		6,370
		45		15,240
		50		4,760
		55		6,300
		60	5,000	10,100
		65		4,170
		70		19,200
		70 (DUP)		24,500
		75		375
		80		7,920
		85		3,670
90		9,800		
95		9,170		
100		8,980		
105		12,480		
115		10,320		
125S			263	

Table D-1 (Cont.)

Borehole	Borehole Depth (ft BLS ¹)	Sample Depth (ft BLS ¹)	Analytical Results (mg/kg) ²	
			WTPH-D	WTPH-418.1
BH-5 ³	120	15		<100
		25		<100
		120		<100
TP1	10	5	210	776
		5 (DUP)		690
		10	<10	93
		10(DUP)	<10	
		120		<100
TP-2	10	5		2,630
		10	97	520
TP-3	10	5		97
		5 (DUP)		86
		10		23
TP-4	10	5	293	2,680
		SF	5,370.0	26,260
		SF (DUP)		25,340
		10		12,440
		SF		10,600
TP-5	10	5		391
		10		1,600
		10 (DUP)		1,480

- 1 BLS - below land surface.
- 2 A "<" sign indicates that the analytical result was less than the detection limit, which follows the "less than" sign.
- 3 Borehole 5 was analyzed by Groundwater Technology, Kent, Washington (1996). All other boreholes were analyzed by SCS Engineers, Bellevue, Washington (1993).



GROUNDWATER
TECHNOLOGY

Drilling Log

Soil Boring B-5

Project KOCH/SPOKANE Owner KOCH MATERIALS
 Location SPOKANE, WASHINGTON Proj. No. 042020219
 Surface Elev. _____ Total Hole Depth 126 ft. Diameter 6 in.
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core SCHRAMM T-300
 Drill Co. ENVIRONMENTAL WEST Method AIR ROTARY
 Driller DAN CLASSEN Log By STEVEN HARTMAN Date 01/23/96 Permit # _____
 Checked By STAN HASKINS License No. _____

See Site Map
For Boring Location

COMMENTS:

SAMPLE LOCATIONS ARE SHOWN BY A
SOLID BLOCK NS= NO SAMPLE

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						Start drilling 01/22/96 09:00
0						3" Crushed rock
2						Brown, SILTY-SAND, and fine gravel (dry, very dense, slight diesel odor)
4					SM	
6	55	A	12 23 36			No recovery. Collected grab sample from drill cuttings.
8						
10	20	B	50/6			Light brown, GRAVEL and sand (dry, very dense, no odor) No recovery. Collected grab sample from drill cuttings.
12						
14						
16	0	C	20 50/6		GP	(grades little sand) Switch to 3-inch split spoon sampler.
18						
20	2	D	25 50/6			(grades no sand) No recovery. Collected grab sample from drill cuttings.
22						
24						



Project KOCH/SPOKANE

Owner KOCH MATERIALS

Location SPOKANE, WASHINGTON

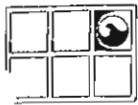
Proj. No. 042020219

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	0	E	50/4 37			Collected sample from two split spoon samples.
26			50/3			
28						
30	NS	F	45 50/3		GP	No recovery. No sample collected.
32						
34						
36	0	G	50/3 50/3 35 40			No recovery of gravel. Brown, SILTY-SAND, and fine to coarse gravel (dry, very dense, no odor) Good recovery in silty-sand.
38						
40	0	H	30 50/6			
42					GM	
44						
46	0	I	32 32 18			(grades coarse sand, some silt, some gravel, moist)
48						
50	0	J	30 50/5			Brown, GRAVEL and coarse sand, little silt (dry, very dense, no odor)
52					GP	
54						
56	0	K	34 30 40			(grades moist)



Project KOCH/SPOKANE Owner KOCH MATERIALS
 Location SPOKANE, WASHINGTON Proj. No. 042020219

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56			40			
58						
60	0	L	40 50/1			(grades gravel, no sand, no silt, dry) No recovery.
62						
64						
66	0	M	40 50/3 50/3 50/6			Collected sample from three split spoon samples. Broke 3-inch split spoon sampler. Switch to 2-inch split spoon sampler.
68						
70						
72					GP	
74						
76	0	N	30 40 40			(grades some sand)
78						
80						No recovery.
82						
84						
86	0	O	38 50/5			(grades light gray)
88						



Project KOCH/SPOKANE Owner KOCH MATERIALS
 Location SPOKANE, WASHINGTON Proj. No. 042020219

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88						
90						
92						
94					GP	
96	0	P	40 50/6			(grades moist) Stop drilling 01/22/96 17:00 Continue drilling 01/23/96 08:30
98						
100	0	G	20 30 32 40		SP	Brown to variegated, coarse SAND, and fine gravel (moist, very dense, no odor)
102						
104						
106	NS	R	80/6		GP	Gray to tan, coarse GRAVEL, and coarse sand (dry, very dense, no odor)
108						
110	0	S	35 40 40 35			Brown to variegated, coarse SAND, and fine gravel (moist, very dense, no odor)
112						
114						
116	0	T	35 40 45 50/4		SP	Start continuous sampling. (grades tan, fine sand and gravel)
118	0	U	11 25 28 35			(grades variegated, coarse sand and gravel)
120		V	20			



Project KOCH/SPOKANE

Owner KOCH MATERIALS

Location SPOKANE, WASHINGTON

Proj. No. 042020219

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
120		V	20 20 25 35			(grades fine to coarse sand, no gravel)
122		W	20 30 35 37		SP	(grades medium to coarse sand, no gravel)
124		X Y			CL	(grades black oil in coarse sand, moderate odor)
126						Olive brown SILTY-CLAY (dry, slight odor)
128						End of borehole 01/23/96 13:00
130						
132						
134						
136						
138						
140						
142						
144						
146						
148						
150						
152						


LOG OF DRILLING OPERATIONS

PROJECT Koch Materials Co. LOCATION Spokane, Washington
 TOTAL DEPTH 20.00 START DATE 6/5/96 935 FINISH DATE 6/5/96 1130
 GEOLOGIST John D. Long APPROVED BY Gary Dyke R.G.# _____
 DRILLING COMPANY Environmental West DRILLER Tim Smith
 DRILLING METHOD Air Rotary Casing Drive EQUIPMENT GEF Co. StrataSpeed5
 DRILL BIT TYPE AND SIZE 4" Hammer Bit
 BORING LOCATION (ST. ADDRESS OR DESCRIPTION) Northwest of Tank 55

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description Color, Texture, Moisture, etc.	Graphic Log	Elevation (ft MSL)	Drilling Notes
0							Amb = 0.0 ppm, BZ (Breathing Zone) = 0.0, Cyclone = 20 ppm Heavy hydrocarbon odor noted
32		42		<u>Gravelly Sand (GP)</u> , angular, noted asphaltic "tar" at 1.5 feet, thick viscous hydrocarbon noted in borehole at 1.5 feet.			
39		42		<u>Silty Gravel (GP)</u> , dark yellowish brown (10YR 4/4), angular to rounded gravel, through a layer of oily water, no hydrocarbon in sample.			
42		32		<u>Sandy Gravel (GW)</u> , olive brown (2.5Y 4/3), well rounded, 0.25" to 2" in diameter, sand = 30%.			Sample PID = 4.1 ppm
42		42	50/5"				Sample PID = 2.2 ppm
38		42		<u>Sandy Gravel (GW)</u> , gravel is well graded, 0.10" to 2.5" diameter, sand is 20%, very coarse, no diesel odor noted.			Amb = 0.0 to 2.3 ppm (high ambient readings due to facility operations) Sample PID = 0.6 ppm
42		50/5"		No recovery, will drill ahead - on cobble			
48		45		<u>Sandy Gravel (GW)</u> , grayish brown (10YR 5/2), gravel is well rounded granitic and volclay fragments, sand is very coarse, sand = 30-40%, no hydrocarbon noted.			Amb = 0.0 to 1.6 ppm, Sample PID = 0.0 ppm
45		50/5"					
49		49		Similar (GW) to above, damp, no hydrocarbon odor noted.			Sample PID = 0.0 ppm
45		50/3"		<u>Sandy Gravel (GW)</u> , gravel is well rounded, rock fragments, sand is very coarse to coarse grained, and sand is 30% of the sample. (No hydrocarbon noted.)			Amb = 0.0 to 2.0 ppm (due to facility), Sample PID = 0.6 ppm
45		50/5"					
20				End of boring 20 feet below land surface. Boring backfilled with bentonite chips to surface.			

****NOTES****

 Air Rotary Casing Drive

 = ft.

 = ft.

LOG OF DRILLING OPERATIONS

PROJECT	<u>Koch Materials Co.</u>	LOCATION	<u>Spokane, Washington</u>
TOTAL DEPTH	<u>41.00</u>	START DATE	<u>6/5/96 1200</u>
GEOLOGIST	<u>John D. Long</u>	APPROVED BY	<u>Gary Dyke</u>
DRILLING COMPANY	<u>Environmental West</u>	DRILLER	<u>Tim Smith</u>
DRILLING METHOD	<u>Air Rotary Casing Drive</u>	EQUIPMENT	<u>GEF Co. StrataSpeed5</u>
DRILL BIT TYPE AND SIZE	<u>4" Hammer Bit</u>		
BORING LOCATION (ST. ADDRESS OR DESCRIPTION)	<u>North of Tank 12, outside containment wall</u>		

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description	Graphic Log	Elevation (ft MSL)	Drilling Notes
0				Color, Texture, Moisture, etc.			
0				Silty Sandy Gravel (GP) at surface.			
0-23		23		Silty Sandy Gravel (GP), very dark gray (2.5Y 3/1), gravel is pebble sized, sand is fine to very fine grained, sand is 50%, hydrocarbon coated.		0	Sample PID = 0.0-1.0 ppm amb., BZ = 1.0
23-38	38		Sample PID = 224 ppm				
38-40		40		Sandy Gravel (GW), very dark, oily coated, well graded, sand is fine to very coarse grained, sample is water saturated as well. (GW), similar to above, less oil, still water saturated. (GW), similar to above, dark grayish brown (10YR 4/2), oil coated, gravel.		5	Sample PID = 223 ppm
40-46	46		Sample PID = 94 ppm				
46-18	18		Sample PID = 52 ppm, BZ = 2.0 ppm				
18-37		37		Sandy Gravel (GW), very dark gray (10YR 3/1), well graded, sand = 40%, sample saturated with water/oil mixture.		10	Sample PID = 719 ppm
37-45	45		Sample PID = 65 ppm				
45-50/5"	50/5"	21		Gravel (GW), well graded, with water/oil mixture coating grains, gravel is fine - pebble to cobble, sand is 30%.		15	Sample PID = 15 ppm, BZ = 0.0
50/5"-21	21		Sample PID = 0.6 ppm				
21-34		34		Sandy Gravel (GW), well graded gravel with sand, very little hydrocarbon visible, dsnf id 20-30% of sample.		20	
34-50/3"	50/3"	49					
50/3"-49	49			Drill to 25' to confirm "clean," if possible.		25	
49-50/5"	50/5"	32					
50/5"-21	21			Sandy Gravel (GW), fine pebble to cobble, sand is fine to very fine grained, isolated black colored patches in "clean" gravel, will continue to drill, hydrocarbon is "tarry," coating grains.		25	Sample PID = 45 ppm
21-36	36						
36-48		48					
48-50		50					
50-35		35					
35-50/4"	50/4"	35					
50/4"-32	32						
32-50/5"	50/5"	35					
50/5"-35	35						
35-50		50					
50-50/2"	50/2"	50					
50/2"-31	31						
31-50/5"	50/5"	31					

****NOTES****


Air Rotary Casing Drive

= ft.

= ft.

LOG OF DRILLING OPERATIONS

PROJECT Koch Materials Co. LOCATION Spokane, Washington

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description	Graphic Log	Elevation (ft MSL)	Drilling Notes
30				No recovery, only gravel			
32		24					
35		32					
35		50/4"		<u>Sandy Gravel (GW)</u> , gravel ranges to cobble size, oil staining is like a coating on grains, continue drilling.			No PID readings - insufficient sample
40		50					
40		100/6"		<u>Sandy Gravel (GW)</u> , very dark grayish brown (2.5Y 3/2), gravel is pebble to cobble, sand is 20%, sample is damp.			No PID readings - insufficient sample Partial sleeve recovered.
				End of boring at 41 feet below land surface Boring backfilled with bentonite chips to surface			

▽ = ft.
▽ = ft.

LOG OF DRILLING OPERATIONS

PROJECT Koch Materials Co. LOCATION Spokane, Washington
 TOTAL DEPTH 19.50 START DATE 6/6/96 0900 FINISH DATE 6/6/96 1045
 GEOLOGIST John D. Long APPROVED BY Gary Dyke R.G.# _____
 DRILLING COMPANY Environmental West DRILLER Tim Smith
 DRILLING METHOD Air Rotary Casing Drive EQUIPMENT GEF Co. StrataSpeed5
 DRILL BIT TYPE AND SIZE 4" Hammer Bit
 BORING LOCATION (ST. ADDRESS OR DESCRIPTION) Northeast of Tank 12, outside containment wall

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description Color, Texture, Moisture, etc.	Graphic Log	Elevation (ft MSL)	Drilling Notes
0							
0 - 49	49	49		<u>Sandy Gravel (GW), very dark gray (2.5Y 3/1), sand = 40%, gravel is subangular to subround, pebble-sized, moist.</u>			Amb. = 0.0 ppm, BZ = 0.0 ppm
49 - 50/6"	14	40		<u>Sandy Gravel (GW), top is yellowish brown (10YR 5/4), mixed hydrocarbon impacted, end of sample similar to above, sand = 30%, hydrocarbon is "tarry", coats grains.</u>			Sample PID = 4.7 ppm
50/6" - 50/5"	34	40		<u>(GW), black (10YR 2/1), similar to above, hydrocarbon coating grains, moist, loose, very faint odor noticed.</u>			Sample PID = 0.0 ppm
50/5" - 130/9"				<u>Sandy Silty Gravel (GW), very dark brown (10YR 2/2), sand = 30%, gravel is pebble to cobble, water saturated.</u>			Sample PID = 0.0 ppm
130/9" - 5/50/2"				<u>(GW), no recovery, sample is moist, dark in color, no odor.</u>			Partial sleeve (no PID)
5/50/2" - 150/6"				<u>Sandy Silty Gravel (GW), very dark brown (10YR 2/2), silt coats grains, very moist, no odor noticed, no hydrocarbon observed, gravel ranges from pebble to large cobble.</u>			No recovery
150/6" - 150/8"				<u>Sandy Silty Gravel (GW), similar to above, very dark gray-brown (10YR), sand is very coarse to coarse grained.</u>			Partial sleeve
150/8" - 40				<u>Silty Sandy Gravel (GW), gravel ranges from fine pebble to very coarse pebble, silt = 10%, sand = 30%, gravel composed of lithic fragments.</u>			Sample PID = 0.0 ppm
40 - 60							Partial sleeve
60 - 100/9"							Sample PID = 0.0 ppm
100/9" - 19.50				End of boring 19.5 feet below land surface Boring backfilled with bentonite chips to surface			

****NOTES****

Air Rotary Casing Drive

= ft.

= ft.

LOG OF DRILLING OPERATIONS

PROJECT Koch Materials Co. LOCATION Spokane, Washington
 TOTAL DEPTH 19.50 START DATE 6/6/96 1145 FINISH DATE 6/6/96
 GEOLOGIST John D. Long APPROVED BY Gary Dyke R.G.# _____
 DRILLING COMPANY Environmental West DRILLER Tim Smith
 DRILLING METHOD Air Rotary Casing Drive EQUIPMENT GEF Co. StrataSpeed5
 DRILL BIT TYPE AND SIZE 4" Hammer Bit
 BORING LOCATION (ST. ADDRESS OR DESCRIPTION) _____

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description Color, Texture, Moisture, etc.	Graphic Log	Elevation (ft MSL)	Drilling Notes
0							
0-8		8		<u>Gravel (GP), poorly graded at surface.</u>		0	
8-14		14		<u>Sandy Gravel (GP), poorly graded, sand = 20%, coated with black tarry hydrocarbon.</u>		Sample PID = 4.6 ppm	
14-17		17		<u>Sandy Gravel (GP), dark olive brown (2.5Y 3/3), poorly graded, sand = 30%, gravel is pebble sized, hydrocarbon coats grains, moist, strong odor, similar to above, partial sleeve.</u>		Sample PID = 593 ppm	
17-32		32					
32-42		42					
42-45		45					
45-50		50					
50-50.6		50.6		No recovery		Sample PID = 153 ppm (sample sleeve only), BZ = 0.0 ppm	
50.6-100.2		100.2					
100.2-100.2				<u>Sandy Silty Gravel (GW), pale yellow (2.5Y 7/3), sand = 30%, silt = 20%, dry, no visible hydrocarbon.</u>		Sample PID = 6.5 ppm	
10							
10-11		5/6		<u>Sandy Silty Gravel (GW), sand = 30%, silt = 10%, gravel is well rounded, pebble to cobble-sized, no visible hydrocarbon, no odor.</u>		10	
11-12.5		50/5					Sample PID = 8 ppm Driller reports large rock 11-12.5', BZ = 0.0 ppm
12.5-100.5		100.5		No recovery, small pieces of gravel in samples. Will drill on.			
15							
15-39		35		<u>Sandy Gravel (GW), light gray (2.5Y 7/2), well graded, dry, no visible hydrocarbon, no odor.</u>		15	Sample PID = 0.0 ppm
39-39		39					
39-50		50		<u>Sandy Gravel (GW), well graded, sand = 30-40% of sample, gravel ranges from granule to very coarse pebble, no visible hydrocarbon, no odor.</u>			Sample PID = 0.0 ppm
50-50		50					
				End of boring 19.5 feet below land surface Boring backfilled with bentonite chips to surface			

****NOTES****

Air Rotary Casing Drive

= ft.


= ft.


LOG OF DRILLING OPERATIONS


PROJECT Koch Materials Co. LOCATION Spokane, Washington
 TOTAL DEPTH 26.00 START DATE 6/6/96 1400 FINISH DATE 6/6/96
 LOGIST John D. Long APPROVED BY Gary Dyke R.G.# _____
 DRILLING COMPANY Environmental West DRILLER Tim Smith
 DRILLING METHOD Air Rotary Casing Drive EQUIPMENT GEF Co. StrataSpeed5
 DRILL BIT TYPE AND SIZE 4" Hammer Bit
 BORING LOCATION (ST. ADDRESS OR DESCRIPTION) North of Tank 12

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description <small>Color, Texture, Moisture, etc.</small>	Graphic Log	Elevation (ft MSL)	Drilling Notes	
0						0		
20		20		<u>Silty Sandy Gravel (GP), black (10YR 2/1), silt = 10%, sand = 30%, gravel is fine to coarse pebble, impacted by hydrocarbons.</u>			Sample PID = 370 ppm	
20		20		<u>Silty Sandy Gravel (GW), brown (10YR 4/3), sand = 30%, silt = 10%, sand is fine to very fine grained.</u>				
20		20						
20		20						
15		15						
30		30						
32		32						
5	50/2"	50/2"		<u>Sandy Gravel (GW), sand = 30%, fine to coarse grained sand, gravel is rounded lithic fragments, no hydrocarbon staining or odor noted, damp.</u>			5	Sample PID = 6.6 ppm, BZ = 0.0
40		40						
40		40						
40		40		Limited recovery, similar to above, insufficient sample for analysis.			Sample PID = 1.4 ppm Sample PID = 0.0 ppm	
10	50/5"	50/5"						
40		40						
50		50		<u>Sandy Gravel (GW), grayish brown (10YR 5/2), sand = 20%, gravel is fine pebble to cobble, sample is moist.</u>		10	Not enough sample for PID	
50		50						
100/5"		100/5"						
50		50		<u>Gravel (GW), only gravel recovered, coated with a very dark gray brown silt, moist, insufficient sample for analysis, hydrocarbon odor.</u>			Sample PID = 5.4 ppm	
80/2"		80/2"						
15		47		<u>Silty Sandy Gravel (GW), very dark grayish brown (10YR 3/2), still contains hydrocarbons, silt = 10%, sand = 20%, moist.</u>		15	Sample PID = 4 ppm	
58/1"		58/1"						
45		45		<u>Silty Sandy Gravel (GW), with 10% very dark grayish brown silt (10YR 3/2), very moist.</u>			Sample PID = 0.0 ppm (PID battery low)	
50		50						
50/5"		50/5"						
20				No samples due to obstruction.			Driller reports boulder 21 to 24'	
25							PID inoperative (battery dead), sample collected	
100/6"		100/6"		<u>Silty Sandy Gravel (GW), 10% silt, very dark grayish brown (2.5Y 3/2), sand = 30%, fine to very coarse grained sand, moist, no visible hydrocarbon or noticeable odor.</u>		25		
				End of boring 26 feet below land surface Boring backfilled with bentonite chips to surface				

****NOTES****

 Air Rotary Casing Drive

 = ft.

 = ft.

LOG OF DRILLING OPERATIONS

PROJECT	Koch Materials Co.	LOCATION	Spokane, Washington
TOTAL DEPTH	20.00	START DATE	6/6/96 1710
GEOLOGIST	John D. Long	APPROVED BY	Gary Dyke
			R.G.#
DRILLING COMPANY	Environmental West	DRILLER	Tim Smith
DRILLING METHOD	Air Rotary Casing Drive	EQUIPMENT	GEF Co. StrataSpeed5
DRILL BIT TYPE AND SIZE	4" Hammer Bit		
BORING LOCATION (ST. ADDRESS OR DESCRIPTION)	East of Tank 14, near containment wall		

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description <small>Color, Texture, Moisture, etc.</small>	Graphic Log	Elevation (ft MSL)	Drilling Notes
0							
15		15		Sandy Gravel (GW), dark brown (7.5YR 3/3) with 30% sand, little hydrocarbon staining, moist, no odor.			PID inoperative (dead battery) No PID sample readings available
17		17					
30		30		Sandy Gravel (GW), sand = 40%, gravel ranges from granules to coarse pebbles, no hydrocarbon staining.			
12		12					
18		18		Sandy Gravel (GW), brown (10YR 4/3), similar to above, no staining, moist.			
20		20					
5		20					
		25		No recovery, rock lodged in sampler.			
		50/5*					
		25					
		75/5*					
10		30		Sandy Gravel (GW), brown (10YR 4/3), sand = 20%, fine to very coarse grained sand, no odor noted, no hydrocarbon staining.			
		35		No recovery, two tries, on large rock.			
		50/5*					
15				Sandy Gravel (GW), brown (10YR 5/3), sand = 30%, fine to very coarse grained, minor silt, no odor, no hydrocarbon staining.			
20				Large rock; split spoon at 19-20'. Sandy Gravel (GW), no hydrocarbon visible and no odor.			
				End of boring 20 feet below sand surface Boring backfilled with bentonite chips to surface			

****NOTES****

Air Rotary Casing Drive

= ft.
 = ft.


LOG OF DRILLING OPERATIONS


PROJECT	Koch Materials Co.	LOCATION	Spokane, Washington
TOTAL DEPTH	19.50	START DATE	6/7/96 1005
GEOLOGIST	John D. Long	FINISH DATE	6/7/96 1210
APPROVED BY	Gary Dyke	R.G.#	
DRILLING COMPANY	Environmental West	DRILLER	Rick McCardle
DRILLING METHOD	Air Rotary Casing Drive	EQUIPMENT	GEF Co. StrataSpeed5
DRILL BIT TYPE AND SIZE	4" Hammer Bit		
BORING LOCATION (ST. ADDRESS OR DESCRIPTION)	South of Tank 13, outside containment wall		

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description <small>Color, Texture, Moisture, etc.</small>	Graphic Log	Elevation (ft MSL)	Drilling Notes
0							
0-5		9 10 10 10		Silty Sandy Gravel (GP), dark gray (10YR 4/1), damp, insufficient sample for analysis, dark color and slight odor indicative of hydrocarbon.			Sample PID = 2.0 ppm
5-10	50/6" 50/1"			Silty Sandy Gravel (GP), very dark gray brown (10YR 3/2), with dark tarry hydrocarbon in splotches, sand = 30%, silt = 10%, gravel is well rounded, pebble-sized to granular size, moist.			Sample PID = 0.0 ppm, BZ = 0.0
10-15				Silty Sandy Gravel (GW), light brownish gray (10YR 6/2), silt = 20%, sand = 20%, dry, no odor. No recovery 8-10' on rock.			Partial sleeve - no PID sample reading
10-15	50/12"			Sandy Silty Gravel (GW), gravel is well rounded lithic fragments, sand is fine to very coarse grained, sand = 30%, silt = 20%, dry, no hydrocarbon odor noted.			Sample PID = 0.0 ppm, BZ = 0.0 ppm
15-18	100/3"			Partial sleeve - no analytical sample			Sample PID = 0.0 ppm
15-18	100/6"			Sandy Silty Gravel (GW), grayish brown (2.5Y 5/2), similar to above, silt = 20%, sand = 20%.			Sample PID = 0.0 ppm
18-24	150/6"			Similar to above Sandy Silty Gravel (GW), grayish brown (2.5Y 5/2), no hydrocarbon, no odor.			Sample PID = 0.0 ppm
24-25.5				Sandy Silty Gravel (GW), grayish brown (2.5Y 5/2), sand = 20%, silt = 20%, damp, no hydrocarbon or odor noticed.			Sample PID = 0.0 ppm
25.5-19.5				End of boring 19.5 feet below land surface Boring backfilled with bentonite chips to surface			

****NOTES****

 Air Rotary Casing Drive

 = ft.

 = ft.

LOG OF DRILLING OPERATIONS

PROJECT	Koch Materials Co.	LOCATION	Spokane, Washington
TOTAL DEPTH	31.00	START DATE	6/7/96 1310
		FINISH DATE	6/7/96 1515
GEOLOGIST	John D. Long	APPROVED BY	Gary Dyke
		R.G.#	
DRILLING COMPANY	Environmental West	DRILLER	Rick McCardle
DRILLING METHOD	Air Rotary Casing Drive	EQUIPMENT	GEF Co. StrataSpeed5
DRILL BIT TYPE AND SIZE	4" Hammer Bit		
BORING LOCATION (ST. ADDRESS OR DESCRIPTION)	North of tank 14, east of BH-7		

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description	Graphic Log	Elevation (ft MSL)	Drilling Notes
0				Color, Texture, Moisture, etc.			
0 - 5				Sandy Gravel (GW), noted tarry black color to cuttings. Boring drilled at 5' intervals, since the purpose of boring is to confirm lateral extent of contamination seen in BH-7.	[Graphic Log: 0-5 ft interval]		
5	100/6"			Silty Sandy Gravel (GW), gravel is from pebbles to cobbles, sand is fine to very coarse grained, no hydrocarbon staining, no odor noticed.	[Graphic Log: 5-10 ft interval]		Sample PID = 0.0 ppm, BZ = 0.0 ppm
10		25 40 40 17		Sandy Gravel (GW), sand is fine to very coarse grained, gravel is pebble to cobble, gravel is well rounded lithic fragments, no visible hydrocarbon, no odor.	[Graphic Log: 10-15 ft interval]		Sample PID = 0.0 ppm
15	149/9"			Sandy Gravel (GW), similar to above, light brownish gray (10YR 6/2).	[Graphic Log: 15-20 ft interval]		Sample PID = 0.0 ppm, BZ = 0.0 ppm
20	125/9"			Sandy Gravel (GW), light brownish gray (10YR 6/2), gravel ranges from granules to cobbles in size, sand = 20%, and minor silt to 5%, no visible hydrocarbon and no odor, moist.	[Graphic Log: 20-25 ft interval]		Sample PID = 0.0 ppm
25	100/6"			Sandy Gravel (GW), partial sleeve recovered, gravel is well rounded, sand = 10%, no visible hydrocarbon, no odor.	[Graphic Log: 25-31 ft interval]		PID not available (insufficient sample)

****NOTES****


Air Rotary Casing Drive

= ft.

= ft.

LOG OF DRILLING OPERATIONS

PROJECT Koch Materials Co. LOCATION Spokane, Washington

Depth Below Surface (ft)	Sample Interval	Blow Count	Sample ID	Lithologic Description	Graphic Log	Elevation (ft MSL)	Drilling Notes
30	150/6*			Sandy Gravel (GW), light gray (10YR 7/2), similar to above, no hydrocarbon, no odor.			Sample PID = 0.0 ppm
				End of boring 31 feet below land surface Boring backfilled with bentonite chips to surface			

▽ = ft.
▽ = ft.

**Soil Boring Logs
(GGP01 to GGP30)**

RECORD OF BOREHOLE GGP-01


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.4" W117° 21' 43.5"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W _p	W _L	W _u	W _s				
0		0.0 - 12.0 Compact to dense, dark greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp to dry. (GM)	GM															
5					1-1	SH	.2	NS	2.5 4.0									0-4': Damp, no odor, no staining, no sheen.
10					1-2	SH	.7	NS	2.1 4.0									4-8': Dry, no odor, no staining, no sheen.
15		1-3	SH	4.6	NS	4.0 4.0									8-12': Dry, no odor, no staining, no sheen.			
12.0		Boring completed at 12.0 ft.		0.0 12.0												Refusal at 12'. (Move west 8 ft. to drill GGP-01B)		

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-01B


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u	W _s	
0		0.0 - 12.0 Compact to dense, dark greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0	1B-1	SH	1.0	NS	4.0 4.0					0-4': Dry, no odor, no staining, no sheen. 4-8': Dry, slight petroleum-like odor, no staining, no sheen. Black, viscous, tar-like material at 5' and 7'. 8-12': Dry, slight petroleum-like odor, no staining, no sheen. Refusal at 12'.
5	12.0				1B-2						SH	1.8	NS	2.3 4.0	
10	12.0				1B-12						SH	2.6	NS	3.0 4.0	
15		Boring completed at 12.0 ft.													
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-02


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.4" W117° 21' 43.5"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 16.0 Compact to dense, dark greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0	2-1	SH	.1	NS	2.0 4.0					0-4': Dry, no odor, no staining, no sheen. 4-8': Dry, no odor, no sheen. Some orange staining. Rocks greater than 1.5" diameter in sample tube. 8-12': Dry, no odor, no staining, no sheen. Rock fragments greater than 1.5" diameter in sample tube. 12-16': Dry, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube.
5	2-2				SH	.6	NS	2.1 4.0							
10	2-3				SH	.7	NS	1.2 4.0							
15	2-15				SH	4.7	NS	4.0 4.0							
16.0	0.0														
		Boring completed at 16.0 ft.													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-03


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.0" W117° 21' 40.2"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W _p	W _L	W _u					
0		0.0 - 16.0 Compact to dense, dark greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp to moist. (GM)	GM															
5							3-2.5	SH	42.2	NS	0.5 4.0						0-4': Damp, reduced odor, no staining, no sheen.	
10								3-7.5	SH	2.8	NS	1.8 4.0						4-8': Moist, no odor, no staining, no sheen.
15								3-3	SH	4.6	NS	3.0 4.0						8-12': Moist, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube.
16		Boring completed at 16.0 ft.			3-15	SH	77.1	NS	3.7 4.0						12-16': Moist, no odor, no staining, no sheen.			
16.0				0.0 16.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-03B


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W _p	W _L	W _p		W _L
0		0.0 - 4.0 Compact, brown Silty fine to coarse GRAVEL with fine to coarse sand, damp. (GM)	GM		0.0 4.0	3B-1	SH	1.4	NS	1.8 4.0					0-4': Damp, no odor, no staining, no sheen.
5		Boring completed at 4.0 ft.													
10															
15															
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-04



SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.0" W117° 21' 39.5"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p ----- W _L 20 40 60 80				
0		0.0 - 8.0 Compact, greyish-brown Silty fine to coarse SAND with fine to coarse gravel, damp. (SM)	SM		0.0	4-2.5	SH	6.3	NS	2.7 / 4.0					0-4': Damp, no odor, no staining, no sheen.
5	8.0				4-5	SH	3.0	NS	2.2 / 4.0					4-8': Damp, no odor, no staining, no sheen.	
10		8.0 - 16.0 Dense, dark greyish-brown Silty GRAVEL and COBBLES with sand, damp to dry. (GM)	GM		0.0	4-10	SH	29.3	NS	3.6 / 4.0					8-12': Dry, no odor, no staining, no sheen. Slower, harder drilling in cobbles.
15	8.0				4-15	SH	471.0	NS	3.7 / 4.0					12-16': Dry, no odor, no staining, no sheen.	
16.0		Boring completed at 16.0 ft.			0.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-05

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.5" W117° 21' 39.3"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		W _h
0		0.0 - 4.0 Dense, dark greyish-brown fine to coarse GRAVEL with silt and little fine to coarse sand, damp. (GP-GM)	GP-GM		0.0 4.0	5-1	SH	1.1	NS	<u>3.3</u> 4.0					0-4': Damp, no odor, no staining, no sheen.
5		4.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, moist to dry. (GM)	GM			5-2	SH	1.6	NS	<u>1.6</u> 4.0					4-8': Moist, no odor, no staining, no sheen.
10						5-3	SH	2.3	NS	<u>2.6</u> 4.0					8-12': Damp, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.
15						5-15	SH	1.4	NS	<u>3.0</u> 4.0					12-16': Dry, no odor, no staining, no sheen.
16.0		Boring completed at 16.0 ft.			0.0 16.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-06


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.0" W117° 21' 38.0"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u	W _s	
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet to dry. (GM)	GM		0.0	6-2.5	SH	10.4	NS	2.9 4.0					0-4': Wet, no odor, no staining, no sheen.
5	6-5				SH	11.2	NS	2.7 4.0					4-8': Damp, no odor, no staining, no sheen.		
10	6-3				SH	3.4	NS	2.8 4.0					8-12': Damp, no odor, no staining, no sheen.		
15	6-15				SH	4660	NS	3.5 4.0					12-16': Dry, slight petroleum-like odor, no staining, no sheen.		
		Boring completed at 16.0 ft.		16.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-07


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.7" W117° 21' 37.4"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u						
0		0.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp to dry. (GM)	GM																
5																			
10																			
15																			
16.0		Boring completed at 16.0 ft.																	
20																			
25																			
30																			
35																			
40																			

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-08

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.2" W117° 21' 37.8"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W _p	W _L	W _p		W _L
0		0.0 - 4.0 Dense, dark greyish-brown SILT with trace fine gravel and coarse sand, dry. (ML)	ML		0.0 4.0	8-2.5	SH	4426	NS	<u>3.6</u> 4.0					0-4': Dry, no odor, no staining, no sheen. 4-8': Dry, no odor, no staining, no sheen. 8-12': Dry, no odor, no staining, no sheen. 12-16': Dry, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.
5		4.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		8-7.5	SH	.8	NS	<u>2.0</u> 4.0						
10				8-3	SH	1.1	NS	<u>1.3</u> 4.0							
15				8-15	SH	2.8	NS	<u>3.2</u> 4.0							
16		Boring completed at 16.0 ft.		0.0 16.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-09

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.2" W117° 21' 37.2"

ELEVATION: 2036.15
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _p		W _L
0		0.0 - 4.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		2032.2 4.0	9-2.5	SH	7659	NS	$\frac{3.4}{4.0}$					0-4': Dry, strong petroleum-like odor, no staining, no sheen.
5		4.0 - 8.0 Stiff, brownish-grey Silty CLAY with trace platy, fine gravel, dry. (CL-ML)	CL-ML		2028.2 8.0	9-5	SH	88.2	NS	$\frac{2.3}{4.0}$					4-8': Dry, slight petroleum-like odor, no staining, no sheen.
10		8.0 - 16.0 Dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		2020.2 16.0	9-10	SH	3580	NS	$\frac{3.7}{4.0}$					8-12': Dry, moderate petroleum-like odor, no staining, no sheen.
15						9-15	SH	3250	NS	$\frac{3.8}{4.0}$					12-16': Dry, slight petroleum-like odor, no staining, no sheen. Refusal at 16' in cobbles.
		Boring completed at 16.0 ft.													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-10


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.3" W117° 21' 36.0"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u	W _s					
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet to dry. (GM)	GM																
5							10-2	SH	770	NS	2.5 4.0							0-4': Wet, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.	
10								10-5	SH	1.8	NS	2.2 4.0							4-8': Moist, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube.
15								10-10	SH	7.7	NS	3.3 4.0							8-12': Damp, no odor, no staining, no sheen.
16		Boring completed at 16.0 ft.					10-15	SH	8.2	NS	4.0 4.0						12-16': Dry, no odor, no staining, no sheen.		
16.0					0.0 16.0												Refusal at 16'.		

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-11

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.8" W117° 21' 36.4"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						10	20	30		40
0		0.0 - 4.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0 4.0	11-2.5	SH	1.6	NS	$\frac{2.8}{4.0}$					0-4': Dry, no odor, no staining, no sheen. 4-8': Moist, no odor, no staining, no sheen. 8-12': Dry, no odor, no staining, no sheen. 12-16': Dry, no odor, no staining, no sheen. Black, viscous, tar-like material in sample tube at 14'-16'.
5		4.0 - 8.0 Stiff, brownish-grey Silty CLAY with fine gravel, moist. (CL-ML)	CL-ML		0.0 4.0	11-5	SH	1.8	NS	$\frac{2.0}{4.0}$					
10		8.0 - 16.0 Dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0 8.0	11-12	SH	6.1	NS	$\frac{2.8}{4.0}$					
15					0.0 16.0	11-15	SH	74.2	NS	$\frac{4.0}{4.0}$					
		Boring completed at 16.0 ft.													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-12


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.7" W117° 21' 36.3"

ELEVATION: 2036.54
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 10.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet. (GM)	GM		2026.5	12-1	SH	.6	NS	2.3 4.0					0-4': Wet, no odor, no staining, no sheen. 4-8': Wet, no odor, no staining, no sheen. 8-10': Wet, no odor, no staining, no sheen. Refusal at 10'. (Move north 5 ft. to drill GGP-12B)
5					12-2	SH	188	NS	1.7 4.0						
10					12-3	SH	.8	NS	1.8 2.0						
10		Boring completed at 10.0 ft.			10.0										
15															
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-12B

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 3.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp. (GM)	GM	[Graphic Log: Gravel]	0.0	12B-2.5	SH	171.0	NS	2.5 / 4.0					0-4': Damp, no odor, no staining, no sheen. 4-8': Wet, slight petroleum-like odor, no staining, no sheen. 8-12': Wet, no odor, no staining, no sheen. 12-16': Wet, no odor, no staining, no sheen.
		3.0 - 4.0 Compact, black, viscous, tar-like material, damp. (ASPHALT)		[Graphic Log: Asphalt]	3.0										
5		4.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet. (GM)	GM	[Graphic Log: Gravel]	0.0										
10					4.0	12B-7.5	SH	188.0	NS	2.0 / 4.0					
15					0.0	12B-3	SH	7.1	NS	2.3 / 4.0					
16.0		Boring completed at 16.0 ft.			16.0	12B-15	SH	62	NS	4.0 / 4.0					

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-13


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.3" W117° 21' 34.3" "

ELEVATION: 2035.91
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u						
0		0.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM																
5																			
10																			
15																			
16.0		Boring completed at 16.0 ft.			2019.9 16.0														
20																			
25																			
30																			
35																			
40																			

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-14


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.2" W117° 21' 33.2"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W _p	W _L	W _u							
0		0.0 - 16.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet to dry. (GM)	GM																	
5																				
10																				
15																				
16.0		Boring completed at 16.0 ft.			0.0 16.0															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-15


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.1" W117° 21' 35.8"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS						
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W _p	W _L	W _U							
0		0.0 - 10.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp to dry. (GM)	GM		0.0	15-1	SH	3.8	NS	<u>2.6</u> 4.0					0-4': Damp, no odor, no staining, no sheen.					
5	10.0				15-2						SH	3.4	NS	<u>2.2</u> 4.0		20	40	60	80	4-8': Dry, no odor, no staining, no sheen.
10	10.0				15-3						SH	1.7	NS	<u>1.4</u> 2.0		20	40	60	80	
15		Boring completed at 10.0 ft.																		
20																				
25																				
30																				
35																				
40																				

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-15B


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u	W _s					
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, dry. (GM)	GM																
					15B-1	SH	0	NS	3.2 / 4.0										0-4': Dry, no odor, no staining, no sheen.
5					15B-2	SH	0.7	NS	2.2 / 4.0										4-8': Dry, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.
10					15B-3	SH	1.6	NS	1.8 / 4.0										8-12': Dry, no odor, no staining, no sheen.
15						15B-15	SH	.8	NS	4.0 / 4.0							12-16': Dry, no odor, no staining, no sheen.		
		Boring completed at 16.0 ft.			0.0 / 16.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-16


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.4" W117° 21' 39.1"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W _p	W _L	W _u					
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, wet to dry. (GM)	GM															
					16-1	SH	0.5	NS	2.8 4.0									0-4': Wet, no odor, no staining, no sheen.
5					16-2	SH	0.5	NS	2.5 4.0									4-8': Damp, no odor, no staining, no sheen.
10					16-3	SH	27.7	NS	3.3 4.0									8-12': Dry, no odor, no staining, no sheen.
15						16-15	SH	0.6	NS	4.0 4.0						12-16': Dry, no odor, no staining, no sheen.		
		Boring completed at 16.0 ft.			0.0 16.0													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-17


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.5" W117° 21' 37.8"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u	W _s					
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, damp. (GM)	GM																
5							17-1	SH	2.9	NS	3.2 4.0							0-4': Damp, no odor, no staining, no sheen.	
10								17-2	SH	1.7	NS	2.5 4.0							4-8': Damp, no odor, no staining, no sheen.
15								17-3	SH	1.8	NS	3.2 4.0							8-12': Damp, no odor, no staining, no sheen.
16								17-15	SH	1.2	NS	1.5 4.0							12-16': Damp, earthy odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.
		Boring completed at 16.0 ft.			0.0 16.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-18


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-07-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.1" W117° 21' 38.6"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u						
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, damp to dry. (GM)	GM																
5							18-1	SH	7.5	NS	2.4 4.0							0-4': Damp, no odor, no staining, no sheen.	
10								18-2	SH	0.6	NS	1.7 4.0							4-8': Damp, no odor, no staining, no sheen.
15								18-3	SH	0.7	NS	2.5 4.0							8-12': Dry, no odor, no staining, no sheen.
16		Boring completed at 16.0 ft.			18-15	SH	7.2	NS	3.2 4.0								12-16': Dry, slight petroleum-like odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube.		
16.0					0.0 16.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-19


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W _p	W _L	W _u					
0		0.0 - 15.9 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, dry. (GM)	GM															
					19-1	SH	1.3	NS	1.8 4.0									0-4': Dry, no odor, no staining, no sheen.
5					19-2	SH	1.5	NS	2.5 4.0									4-8': Dry, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube and shoe.
10					19-3	SH	1.0	NS	2.2 4.0									8-12': Dry, no odor, no staining, no sheen.
15						19-15	SH	1.6	NS	3.6 4.0						12-16': Dry, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.		
		Boring completed at 16.0 ft.			0.0 15.9													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-20


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.2" W117° 21' 41.2"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u	W _s					
0		0.0 - 15.0 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine to coarse sand, moist to dry. (GM)	GM																
					20-1	SH	7.1	NS	1.8 4.0										0-4': Moist, no odor, no staining, no sheen.
5					20-2	SH	4.6	NS	0.7 4.0										4-8': Moist, no odor, no staining, no sheen. Rock greater than 1.5" diameter in shoe.
10					20-3	SH	11.6	NS	3.3 4.0										8-12': Damp, no odor, no staining, no sheen.
15					20-15	SH	6.3	NS	3.0 3.0										12-15': Dry, no odor, no staining, no sheen. Refusal at 15'.
15		Boring completed at 15.0 ft.			0.0 15.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-21

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: 2035.58
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _U		W _g
0		0.0 - 7.1 Compact to dense, greyish-brown Silty fine to coarse SAND with fine to coarse gravel, wet to damp. (SM)	SM		2028.5	21-1	SH	1.6	NS	2.6 / 4.0					0-4': Wet, no odor, no staining, no sheen.
5					7.1	21-2	SH	2.7	NS	1.7 / 3.2					
		Boring completed at 7.2 ft.													4-7.1': Damp, no odor, no staining, no sheen. Refusal at 7.1'. Pulverized concrete in geoprobe shoe. (Move west 40 ft. to drill GGP-21B)
10															
15															
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-21B

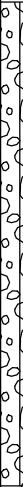
SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.3" W117° 21' 39.7"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS			
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)							
					DEPTH (ft)						W _p	W _L	W _u					
0		0.0 - 12.6 Compact to dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, wet to moist. (GM)	GM															
					21B-2	SH	8.8	SS	3.7 4.0									0-4': Wet, slight creosote-like odor, black staining with silvery sheen.
5					21B-7.5	SH	4.9	SS	2.5 4.0									4-8': Wet, slight creosote-like odor, black staining with silvery sheen. Sample contains wood debris with creosote-like odor at 7' to 8'.
10					21B-12	SH	2.6	NS	2.2 4.0									8-12': Moist, no odor, no staining, no sheen.
					21B-4	SH	2.6	NS	0.2 0.6									12-12.6': Moist, no odor, no staining, no sheen.
		Boring completed at 12.6 ft.		0.0 12.6												Note: Steam lines dripping continuously on the south side of the railroad tracks. Boring location at low point of surface flow. Refusal at 12.6'.		

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-22

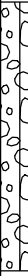
SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.3" W117° 21' 36.7"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 7.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, dry. (GM)	GM		0.0	22-2.5	SH	169	NS	3.3 4.0					0-4': Dry, no odor, no staining, no sheen. 4-7': Dry, no odor, no staining, no sheen. Refusal at 7'. Black, viscous, tar-like material in shoe. (Move west 5 ft. to drill GGP-22B.)
5	7.0				22-7						SH	8.9	NS	2.2 3.0	
10		Boring completed at 7.0 ft.													
15															
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-22B


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 7.5 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, dry. (GM)	GM		0.0	22B-1	SH	7.7	NS	17 4.0					0-4': Dry, no odor, no staining, no sheen. 4-7.5': Dry, no odor, no staining, no sheen. Refusal at 7.5'. (Move west 15 ft. to drill GGP-22C.)
5	7.5				22B-2						SH	7.4	NS	20 3.5	
10		Boring completed at 7.5 ft.				0.0									

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-22C


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 7.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand, dry. (GM)	GM		0.0	22C-1	SH	6.6	NS	3.7 4.0	10	20	30	40	0-4': Dry, no odor, no staining, no sheen. 4-7': Dry, no odor, no staining, no sheen. Refusal at 7'. Pulverized concrete in geoprobe shoe.
5	7.0				22C-2						SH	9.2	NS	2.0 3.0	
10		Boring completed at 7.0 ft.				0.0									

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-23


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.2" W117° 21' 35.6"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand and cobbles, damp. (GM)	GM		0.0	23-2.5	SH	47.1	NS	3.0 4.0					0-4': Damp, no odor, no staining, no sheen. 4-8': Damp, no odor, no staining, no sheen. Hard drilling at 6 to 8'. Rocks greater than 1.5" diameter in sample tube. 8-12': Damp, slight petroleum-like odor, no staining, no sheen. Hard drilling at 10 to 12'. Rocks greater than 1.5" diameter in sample tube. (Move north 25 ft. to drill GGP-23B.) 12-16': Damp, no odor, no staining, no sheen. Very hard drilling. Rocks greater than 1.5" diameter in sample tube. Sample contains slough.
5	23-5				SH	18.2	NS	2.2 4.0							
10	23-10				SH	18.9	NS	3.3 4.0							
15	23-15				SH	12.2	NS	4.0 4.0							
16.0	16.0				Boring completed at 16.0 ft.										

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

RECORD OF BOREHOLE GGP-23B


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W _p	W _L	W _u			
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine to coarse GRAVEL with fine sand and cobbles, damp. (GM)	GM													
					23B-1	SH	47.2	NS	3.0 4.0							0-4': Damp, no odor, no staining, no sheen.
5					23B-2	SH	3.5	NS	3.1 4.0							4-8': Damp, no odor, no staining, no sheen.
10					23B-3	SH	5.8	NS	2.4 4.0							8-12': Damp, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube.
15					23B-4	SH	2.2	NS	0.0 4.0							12-16': Damp, no odor, no staining, no sheen. Very hard drilling. Rocks greater than 1.5" diameter in sample tube.
		Boring completed at 16.0 ft.		0.0 16.0												

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-24

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.2" W117° 21' 35.2"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		W _s
0		0.0 - 4.0 Compact to very dense, greyish-brown fine GRAVEL with silt and fine to coarse sand, dry. (GP-GM)	GP-GM		0.0	24-2.5	SH	8066	NS	3.3 / 4.0					0-4': Dry, slight petroleum-like odor, black staining, no sheen.
5		4.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, dry. (GM)	GM		4.0	24-5	SH	52.2	NS	2.9 / 4.0					4-8': Dry, moderate petroleum-like odor, black staining, no sheen.
10						24-10	SH	58.5	NS	3.1 / 4.0					8-12': Dry, slight petroleum-like odor, no staining, no sheen. Black, viscous, tar-like material in sample sleeve at 8' to 12'. Hard drilling at 10 to 12'.
15						24-15	SH	78.2	NS	3.0 / 4.0					12-16': Dry, slight petroleum-like odor, no staining, no sheen.
16.0		Boring completed at 16.0 ft.			0.0 / 16.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-25

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 53.3" W117° 21' 33.2"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						10	20	30		40
0		0.0 - 4.0 Compact to very dense, greyish-brown Silty coarse SAND with fine fine to coarse GRAVEL, dry. (GM)	SM	[Graphic Log: Dotted pattern]	0.0	25B-1	SH	13.1	NS	2.8 4.0					0-4': Dry, no odor, no staining, no sheen.
5		4.0 - 15.5 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, dry. (GM)	GM	[Graphic Log: Pattern with circles]	4.0	25B-2	SH	10.9	NS	1.5 4.0					4-8': Dry, no odor, no staining, no sheen. Lost much of sample, poor recovery.
10						25B-3	SH	16.1	NS	2.5 4.0					8-12': Dry, no odor, no staining, no sheen. Lost much of sample.
15						25B-4	SH	20.3	NS	2.4 3.5					12-15.5': Dry, no odor, no staining, no sheen. Rocks greater than 1.5" diameter in sample tube. NOTE: Refusal at 15.5'. Lost bottom 18" of sample.
15.5		Boring completed at 15.5 ft.			0.0 15.5										(Move west 40 ft. to drill GGP-25B.)
20															
25															
30															
35															
40															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-25B

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-06-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: not surveyed

ELEVATION: 2036.89
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W _p	W _L	W _u	W _s						
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to medium sand, dry. (GM)	GM																	
					25-1	SH	16.4	NS	$\frac{3.2}{4.0}$										0-4': Dry, no odor, no staining, no sheen.	
5					25-2	SH	16.2	NS	$\frac{2.3}{4.0}$											4-8': Dry, no odor, no staining, no sheen.
10					25-3	SH	11.2	NS	$\frac{3.0}{4.0}$											8-12': Dry, no odor, no staining, no sheen.
15						25-15	SH	22.2	NS	$\frac{2.8}{4.0}$								12-16': Dry, no odor, no staining, no sheen.		
		Boring completed at 16.0 ft.			2020.9 16.0															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-26

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.1" W117° 21' 39.5"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W _p	W _L	W _u				
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0	26-1	SH	0.4	NS	2.9 4.0					0-4': Dry, no odor, no staining, no sheen.		
5								26-2	SH	0.2	NS	2.8 4.0					4-8': Dry, no odor, no staining, no sheen.
10								26-3	SH	6.4	NS	3.6 4.0					8-12': Dry, no odor, no staining, no sheen.
15								26-16	SH	.6	NS	3.5 4.0					12-16': Dry, no odor, no staining, no sheen.
16		Boring completed at 16.0 ft.			0.0 16.0										Refusal at 16'.		

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-27


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.1" W117° 21' 38.7"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS				
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)								
					DEPTH (ft)						W _p	W _L	W _u						
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, moist to dry. (GM)	GM																
					27-1	SH	0.4	NS	3.1 4.0										0-4': Damp, no odor, no staining, no sheen.
5					27-2	SH	0.8	NS	2.2 4.0										4-8': Moist 4 to 6'. Damp 6 to 8'. No odor, no staining, no sheen.
10					27-3	SH	0.6	NS	2.5 4.0										8-12': Moist 8 to 10'. Dry 10 to 12'. No odor, no staining, no sheen.
15						27-16	SH	3.3	NS	3.7 4.0							12-16': Dry, no odor, no staining, no sheen.		
		Boring completed at 16.0 ft.			0.0 16.0														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-28


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.3" W117° 21' 37.9"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to medium sand, moist to dry. (GM)	GM		0.0	28-1	SH	1.6	NS	1.8 4.0					0-4': Dry 0 to 2'. Moist 2 to 4'. No odor, no staining, no sheen. 4-8': Moist 4 to 6'. Damp 6 to 8'. No odor, no staining, no sheen. 8-12': Moist 8 to 10'. Damp 10 to 12'. No odor, no staining, no sheen. 12-16': Dry, no odor, no staining, no sheen.
5	28-2				SH	0.8	NS	1.3 4.0							
10	28-3				SH	0.4	NS	2.2 4.0							
15	28-16				SH	0.6	NS	1.4 4.0							
16.0	Boring completed at 16.0 ft.				16.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-29

SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 51.2" W117° 21' 36.8"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, dry. (GM)	GM		0.0	29-1	SH	1.8	NS	3.3 4.0					0-4': Dry, no odor, no staining, no sheen.
5					29-2	SH	1.2	NS	2.1 4.0					4-8': Dry, no odor, no staining, no sheen.	
10					29-3	SH	1.1	NS	2.2 4.0					8-12': Dry, no odor, no staining, no sheen.	
15					29-16	SH	5.4	NS	1.9 4.0					12-16': Dry, no odor, no staining, no sheen.	
16		Boring completed at 16.0 ft.		16.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GGP-30


SHEET 1 of 1

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: direct push
 DRILLING DATE: 10-08-2008
 DRILL RIG: GeoProbe 5400

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 50.8" W117° 21' 37.1"

ELEVATION: not surveyed
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS					
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)									
					DEPTH (ft)						W _p	W _L	W _u							
0		0.0 - 16.0 Compact to very dense, greyish-brown Silty fine GRAVEL with fine to coarse sand, damp to dry. (GM)	GM																	
5																				
10																				
15																				
		Boring completed at 16.0 ft.			0.0 16.0															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: M. Shill

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-01

SHEET 1 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-14-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.2" W117° 21' 33.4"

ELEVATION: 2036.65
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
											W_p W_L W_U 20 40 60 80					
0	Advance 10' of casing.	0.0 - 7.0 Loose, light brown, fine to coarse GRAVEL with silt, rounded, dry. (GP-GM) (FILL)	GP-GM		2029.7		GRAB		NS	5.0 5.0					concrete pad Note: PVC stick-up = +32"	
7.0		7.0 - 17.0 Loose, brownish-grey, fine to coarse GRAVEL with coarse sand and trace silt, rounded, dry. (GW) (OUTWASH)			GW	2019.7		GRAB		NS	5.0 5.0					
17.0	Advance 20' of casing.	17.0 - 27.0 Loose, brownish-grey, fine to coarse GRAVEL with trace silt, rounded, dry. (GP) (OUTWASH)	GP			2009.7		GRAB		NS	5.0 5.0					
27.0		27.0 - 34.0 Loose, brownish-grey, fine to coarse GRAVEL and COBBLES with trace silt and fine to coarse sand, rounded, dry. (GP) (OUTWASH)			GP	2002.7		GRAB		NS	5.0 5.0					
34.0		34.0 - 37.0 Loose, brownish-grey, fine to coarse GRAVEL with fine to coarse sand and silt, rounded, dry. (GW) (OUTWASH)				GW	1999.7		GRAB		NS	5.0 5.0				
37.0	37.0 - 57.0 Loose, grey, fine to coarse GRAVEL and COBBLES with medium to coarse sand, rounded, dry. (GP) (OUTWASH)	GP					GRAB		NS	5.0 5.0						
40																

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



**Monitoring Well Construction Logs
(GMW-01 to GMW-06)**

RECORD OF BOREHOLE GMW-01

SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-14-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.2" W117° 21' 33.4"

ELEVATION: 2036.65
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						10	20	30		40
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	37.0 - 57.0 Loose, grey, fine to coarse GRAVEL and COBBLES with medium to coarse sand, rounded, dry. (GP) (OUTWASH) <i>(Continued)</i>	GP		1979.7	GRAB		NS	5.0 / 5.0						
45		57.0			5.0 / 5.0										
50		57.0			5.0 / 5.0										
55		57.0	5.0 / 5.0												
60		57.0 - 60.0 Loose, grey, fine to coarse GRAVEL and COBBLES with trace fine sand and silt, rounded, dry. (GP) (OUTWASH)	GP	1976.7	57.0	GRAB		NS	5.0 / 5.0						
65	60.0 - 65.0 Loose, brownish-grey, Silty fine to coarse SAND with coarse gravel, rounded, damp. (SM) (OUTWASH)	SM	1971.7	60.0	GRAB		NS	5.0 / 5.0							
70	65.0 - 77.0 Loose, grey, coarse SAND and fine GRAVEL, damp. (SP) (OUTWASH)	SP		1959.7	GRAB		NS	5.0 / 5.0							
75	77.0			5.0 / 5.0											
80	77.0 - 80.0 Loose, grey, coarse SAND and fine GRAVEL, damp. (SP) (OUTWASH)	SP	1956.7	77.0	GRAB		NS	5.0 / 5.0							
		Log continued on next page													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

Sch. 80 PVC casing (2" dia.)

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-01





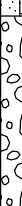

SHEET 3 of 5

PROJECT: SEM Materials RI/FS
PROJECT NUMBER: 073-93170
LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
DRILLING DATE: 10-14-2008
DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
AZIMUTH: N/A
COORDINATES: N47° 41' 54.2" W117° 21' 33.4"

ELEVATION: 2036.65
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC							
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)										
					DEPTH (ft)						10	20	30		40						
					W ₁						W ₂	W _L	W _p								
80	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	80.0 - 85.0	GP		80.0		GRAB		NS	5.0 5.0	 W ₁ ----- W ₂ ----- W _L ----- W _p										
85		85.0 - 97.0			SP											1951.7		GRAB		NS	5.0 5.0
90		97.0 - 101.0	GP			1939.7		GRAB		NS						5.0 5.0					
95		101.0 - 105.0				SM															
100		105.0 - 112.0	GP-GM		1931.7			GRAB		NS					5.0 5.0						
105		112.0 - 115.0			GW											1924.7		GRAB		NS	5.0 5.0
110		115.0 - 120.0														GP-GM					
115		1916.7	1	GRAB	1.8	NS	2.5 2.5														
120	Log continued on next page																				

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
DRILLING CONTRACTOR: Environmental West
DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
CHECKED: D. Morell
DATE: 12/22/2008



RECORD OF BOREHOLE GMW-01

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-14-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.2" W117° 21' 33.4"

ELEVATION: 2036.65
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W_p ----- W_u 20 40 60 80				
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	120.0 - 124.0 Loose, light brown fine to coarse SAND with trace silt. (SW) (OUTWASH)	SW	[Graphic: Dotted pattern]	120.0	3	GRAB	2.7	NS	2.5 2.5					
125		124.0 - 125.0 Compact, light brown, Silty SAND, dry. (SM) (OUTWASH)	SM	[Graphic: Dotted pattern]	1912.7 124.0 1911.7	1-125	GRAB	3.9	NS	2.5 2.5					
		125.0 - 130.0 Loose, light brown fine to coarse SAND with trace silt. (SW) (OUTWASH)	SW	[Graphic: Dotted pattern]	125.0	5	GRAB	2.2	NS	2.5 2.5					
					1906.7	6	GRAB	2.1	NS	2.5 2.5					
130		130.0 - 137.0 Loose, greyish-brown, fine GRAVEL with coarse sand and trace silt, dry. (GP) (OUTWASH)	GP	[Graphic: Irregular shapes]	130.0	7	GRAB	2.3	NS	2.5 2.5					
					1899.7	8	GRAB	2.4	NS	2.5 2.5					
					1899.7	9	GRAB	1.6	NS	2.5 2.5					
140		137.0 - 142.0 Loose, greyish-brown, coarse SAND with fine gravel, dry. (SP) (OUTWASH)	SP	[Graphic: Dotted pattern]	137.0		GRAB		NS	2.5 2.5					
					1894.7		GRAB		NS	5.0 5.0					
145		142.0 - 157.0 Loose, greyish-brown, fine to coarse SAND with silt. (SW-SM) (OUTWASH)	SW-SM	[Graphic: Dotted pattern]	142.0		GRAB		NS	5.0 5.0					
				1879.7		GRAB		NS	5.0 5.0						
150				1879.7		GRAB		NS	5.0 5.0						
155				1879.7		GRAB		NS	5.0 5.0						
160		157.0 - 170.0 Loose, greyish-brown, medium to coarse SAND with trace silt, damp. (SP) (OUTWASH)	SP	[Graphic: Dotted pattern]	157.0		GRAB		NS	5.0 5.0					
		Log continued on next page													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-01

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-14-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.2" W117° 21' 33.4"

ELEVATION: 2036.65
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
160	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	157.0 - 170.0 Loose, greyish-brown, medium to coarse SAND with trace silt, damp. (SP) (OUTWASH) (Continued)	SP	[Graphic: SP]	1866.7										<p>Bentonite chips (162' to 172')</p> <p>No odor, no staining, no sheen.</p> <p>No indication of floating product with interface probe.</p> <p>10 - 20 silica sand (168' to 193')</p> <p>0.020, Sch. 80 PVC screen (2" dia.) (173' to 193')</p>
165							10	GRAB	3.7	NS	$\frac{2.0}{2.0}$				
170		170.0 - 171.0 Loose, greyish-brown, fine to medium SAND with trace silt, damp. (SP) (OUTWASH)	SP	[Graphic: SP/SM]	1865.7	170.0	GRAB	8.8	NS	$\frac{2.0}{2.0}$					
		171.0 - 172.0 Dense, light brown, fine Silty fine to coarse SAND, damp. (SM) (OUTWASH)	SM		1864.7	171.0									
		172.0 - 174.0 Dense, light brown, fine Sandy SILT, damp. (SM) (OUTWASH)	ML	1862.7	172.0	174.0	GRAB	108	NS	$\frac{2.0}{2.0}$					
175		174.0 - 187.0 Dense, greyish-brown, medium to coarse SAND with trace silt, moist to wet. (SP) (OUTWASH)	SP	[Graphic: SP]	1849.7										
					13	GRAB	7.2	NS	$\frac{2.0}{2.0}$						
					14	GRAB	4.1	NS	$\frac{2.0}{2.0}$						
					15	GRAB	4.3	NS	$\frac{2.0}{2.0}$						
180					1849.2										
			187.0 - 187.5 Very dense, greyish-brown Clayey SILT with fine sand, wet. (ML-CL) (OUTWASH)	ML-CL	1849.2		GRAB		NS	$\frac{5.0}{5.0}$					
185			187.5 - 197.0 Dense, greyish-brown, medium to coarse SAND with trace silt, moist to wet. (SP) (OUTWASH)	SP	[Graphic: SP]	1839.7									
									GRAB		NS	$\frac{7.0}{7.0}$			
190			Boring completed at 197.0 ft.			1839.7									
195						197.0									
200															

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-02

SHEET 1 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-16-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.1" W117° 21' 34.5"

ELEVATION: 2038.85
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W_p W_L W_u				
0	Advance 10' of casing.	0.0 - 7.0 Loose, light brown, fine to coarse GRAVEL with silt, rounded, dry. (GP-GM) (FILL)	GP-GM		2031.9		GRAB		NS	5.0 5.0					concrete pad PVC stick-up =
5		7.0 - 17.0 Loose, brownish-grey, fine to coarse GRAVEL with coarse sand and trace silt, rounded, dry. (GW) (OUTWASH)			GW	7.0		GRAB		NS	5.0 5.0				
10	8" casing with 4" core barrel and tubex bit.	17.0 - 27.0 Loose, brownish-grey, fine to coarse GRAVEL with trace silt, rounded, dry. (GP) (OUTWASH)	GP			2021.9		GRAB		NS	5.0 5.0				
15		27.0 - 34.0 Loose, brownish-grey, fine to coarse GRAVEL and COBBLES with trace silt and fine to coarse sand, rounded, dry. (GP) (OUTWASH)			GP	2011.9		GRAB		NS	5.0 5.0				
20		34.0 - 37.0 Loose, brownish-grey, fine to coarse GRAVEL with fine to medium sand and silt, rounded, dry. (GW) (OUTWASH)				GW	2004.9		GRAB		NS	5.0 5.0			
25	Advance 20' of casing.	37.0 - 57.0 Loose, grey, fine to coarse GRAVEL and COBBLES with medium to coarse sand and trace silt, rounded, dry. (GP) (OUTWASH)	GP		2001.9			GRAB		NS	5.0 5.0				
30		57.0 - 60.0 Log continued on next page													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-02

SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-16-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.85
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						20	40	60		80	
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	37.0 - 57.0 Loose, grey, fine to coarse GRAVEL and COBBLES with medium to coarse sand and trace silt, rounded, dry. (GP) (OUTWASH) (Continued)	GP		1981.9	GRAB		NS	5.0 / 5.0					Sch. 80 PVC casing (2" dia.)		
45																
50																
55																
60		57.0 - 60.0 Loose, grey, fine to coarse GRAVEL and COBBLES with trace fine sand silt, rounded, dry. (GP) (OUTWASH)	GP		1978.9	GRAB		NS	5.0 / 5.0							
65	60.0 - 65.0 Loose, brownish-grey, Silty fine to coarse SAND with coarse gravel, rounded, damp. (SM) (OUTWASH)	SM		1973.9	GRAB		NS	5.0 / 5.0								
70	Bentonite grout viscous mix (0' to 155').	65.0 - 77.0 Loose, grey, coarse SAND and fine GRAVEL, damp. (SP) (OUTWASH)	SP		1961.9	GRAB		NS	5.0 / 5.0							
75																
80		77.0 - 80.0 Loose, grey, coarse SAND and fine GRAVEL, damp. (SP) (OUTWASH)	SP		1958.9	GRAB		NS	5.0 / 5.0							
		Log continued on next page														

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-02

SHEET 3 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-16-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.85
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W_p ----- W_u 20 40 60 80				
80	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	80.0 - 85.0 Loose, grey, fine to coarse GRAVEL and COBBLES with coarse sand and trace silt, damp. (GP) (OUTWASH)	GP		80.0										
85		85.0 - 97.0 Loose, grey, coarse SAND and fine GRAVEL, damp. (SP) (OUTWASH)	SP		1953.9 85.0		GRAB		NS	5.0 5.0					
90							GRAB		NS	5.0 5.0					
95			97.0 - 101.0 Loose, grey, fine to coarse GRAVEL and COBBLES with trace silt, damp. (GP) (OUTWASH)	GP		1941.9 97.0	1	GRAB	3.8	NS	5.0 5.0				
100			101.0 - 105.0 Loose, brownish-grey, Silty fine to coarse SAND with fine to coarse gravel, dry. (SM) (OUTWASH)	SM		1937.9 101.0	2-105	GRAB	9.5	NS	5.0 5.0				
105			105.0 - 112.0 Compact, light brown, fine to coarse GRAVEL and COBBLES with silt and fine to coarse sand, rounded, dry. (GP-GM) (OUTWASH)	GP-GM		1933.9 105.0	3	GRAB	14.1	NS	5.0 5.0				
110			112.0 - 115.0 Loose, light brown Sandy fine to coarse GRAVEL with trace silt and cobbles, dry. (GW) (OUTWASH)	GW		1926.9 112.0	4	GRAB	14.5	NS	5.0 5.0				
115			115.0 - 120.0 Loose, light brown fine to coarse GRAVEL with silt and fine to coarse sand, dry. (GP-GM) (OUTWASH)	GP-GM		1923.9 115.0	5	GRAB	12.5	NS	2.5 2.5				
120					1918.9	6	GRAB	16.1	NS	2.5 2.5					
		Log continued on next page													

Stainless steel centralizers @ 40' spacing.

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-02

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-16-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.85
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W_p ----- W_u 20 40 60 80					
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	120.0 - 124.0 Loose, light brown fine to coarse SAND with trace silt. (SW) (OUTWASH)	SW	[Graphic: Dotted pattern]	120.0	7	GRAB	12	NS	2.5 2.5						
					1914.9 124.0 1913.9	2-125	GRAB	9.4	NS	2.5 2.5						
125		124.0 - 125.0 Compact, light brown, Silty fine to coarse SAND, dry. (SM) (OUTWASH)	SM	[Graphic: Dotted pattern]	125.0											
		125.0 - 130.0 Loose, light brown fine to coarse SAND with trace silt. (SW) (OUTWASH)	SW	[Graphic: Dotted pattern]	125.0	2-128	GRAB	7.4	NS	2.5 2.5						
					1908.9	10	GRAB	10.1	NS	2.5 2.5						
130		130.0 - 137.0 Loose, greyish-brown, fine GRAVEL with coarse sand and trace silt, dry. (GP) (OUTWASH)	GP	[Graphic: Irregular shapes]	130.0	11	GRAB	9.3	NS	2.5 2.5						
					1901.9	12	GRAB	7.3	NS	2.5 2.5						
					137.0	13	GRAB	7.8	NS	2.5 2.5						
140		137.0 - 142.0 Loose, greyish-brown, coarse SAND with fine gravel, dry. (SP) (OUTWASH)	SP	[Graphic: Dotted pattern]	137.0	14	GRAB	10.6	NS	2.5 2.5						
					1896.9	15	GRAB	11.8	NS	2.5 2.5						
145		142.0 - 157.0 Loose, greyish-brown, fine to coarse SAND with silt. (SW-SM) (OUTWASH)	SW-SM	[Graphic: Dotted pattern]	142.0	16	GRAB	12.1	NS	2.5 2.5						
					1881.9	17	GRAB	9.7	NS	5.0 5.0						
					157.0	18	GRAB	7.4	NS	5.0 5.0						
155					157.0	19	GRAB	13.8	NS	5.0 5.0						
160			157.0 - 170.0 Loose, greyish-brown, medium to coarse SAND with trace silt, damp. (SP) (OUTWASH)	SP	[Graphic: Dotted pattern]	157.0	19	GRAB	13.8	NS	5.0 5.0					
			Log continued on next page													

Bentonite chips (155' to 164.5')

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-02

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Sonic
 DRILLING DATE: 10-16-2008
 DRILL RIG: S1000

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.85
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u	W _h	
160	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	157.0 - 170.0 Loose, greyish-brown, medium to coarse SAND with trace silt, damp. (SP) (OUTWASH) (Continued)	SP		1868.9	20	GRAB	13.1	NS	5.0 / 5.0					<p>No odor, no staining, no sheen.</p> <p>No indication of floating product with interface probe.</p> <p>10 - 20 silica sand (164.5' to 191') 0.020, stainless steel screen (2" dia.) (167' to 187')</p>
165		170.0 - 171.0 Loose, greyish-brown, fine to medium SAND with trace silt, damp. (SP) (OUTWASH)			1867.9	21	GRAB	12.1	NS	2.0 / 2.0					
170		171.0 - 172.0 Dense, light brown, fine Silty fine to coarse SAND, damp. (SM) (OUTWASH)	SM	171.0	2-174.3	GRAB	6.2	NS	2.0 / 2.0						
175		172.0 - 174.0 Dense, light brown, fine Sandy SILT, damp. (SM) (OUTWASH)	ML	1864.9											
175		174.0 - 187.0 Dense, greyish-brown, medium to coarse SAND with trace silt, moist to wet. (SP) (OUTWASH)	SP		174.0	2-176	GRAB	10.7	NS	2.0 / 2.0					
180		25			GRAB	6.1	NS	2.0 / 2.0							
185		26			GRAB	7.7	NS	2.0 / 2.0							
185		27			GRAB	7.3	NS	5.0 / 5.0							
190		187.0 - 187.5 Very dense, greyish-brown Clayey SILT with fine sand, wet. (ML-CL) (OUTWASH)	ML-CL	1851.9	28	GRAB	8.2	NS	6.0 / 6.0						
190		187.5 - 191.0 Dense, greyish-brown, medium to coarse SAND with trace silt, moist to wet. (SP) (OUTWASH)	SP	1851.4											
190	Boring completed at 191.0 ft.			1847.9											
195				191.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: D. Minden

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-03


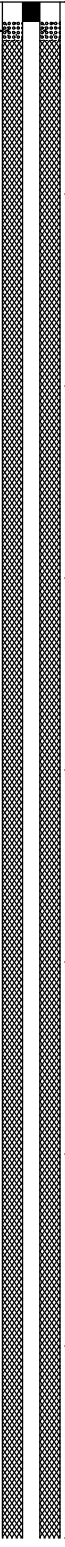


SHEET 1 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-20-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.2" W117° 21' 35.9"

ELEVATION: 2037.89
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
0	Advance 10' of casing.	0.0 - 15.0 Loose, light brownish-grey, fine to coarse GRAVEL with silt and fine to coarse sand, rounded, dry. (GW-GM) (FILL)	GW-GM		2022.9										concrete pad PVC stick-up = 
5					GRAB	NS	5.0 5.0								
10					GRAB	NS	5.0 5.0								
15	8" casing with 4" core barrel and tubex bit.	15.0 - 25.0 Loose, brownish-grey, fine to coarse GRAVEL with coarse sand and trace silt, rounded, dry. (GW) (OUTWASH)	GW		2012.9										
20					GRAB	NS	5.0 5.0								
25					GRAB	NS	5.0 5.0								
30	Advance 20' of casing.	25.0 - 55.0 Loose, light brownish-grey, fine to coarse GRAVEL with silt and fine to coarse sand, rounded, dry. (GW-GM) (OUTWASH)	GW-GM		2012.9										
35					GRAB	NS	5.0 5.0								
40					GRAB	NS	5.0 5.0								

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-03


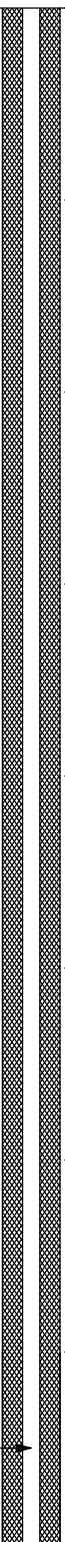

SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-20-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2037.89
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)						
					DEPTH (ft)						W_p W_L 20 40 60 80						
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	25.0 - 55.0 Loose, light brownish-grey, fine to coarse GRAVEL with silt and fine to coarse sand, rounded, dry. (GW-GM) (OUTWASH) <i>(Continued)</i>	GW-GM		1982.9												
45					GRAB		NS	5.0 5.0									
50					GRAB		NS	5.0 5.0									
55		55.0 - 90.0 Loose, brownish-grey, fine to coarse GRAVEL with coarse sand and trace silt, rounded, dry. (GW) (OUTWASH)			GW		55.0										
60							GRAB		NS	5.0 5.0							
65							GRAB		NS	5.0 5.0							
70		GRAB		NS			5.0 5.0										
75		GRAB		NS			5.0 5.0										
80		GRAB		NS	5.0 5.0												

Log continued on next page

Sch. 80 PVC casing (2" dia.)

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-03

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-20-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2037.89
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W _p	W _L	W _u		W _s	
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	115.0 - 125.0 Loose, brownish-grey, fine to coarse SAND with fine gravel, rounded, dry. (SW) (OUTWASH) (Continued)	SW		1912.9	1	SS	2.3	NS	2.0 / 2.0						
125		125.0 - 140.0 Loose, grey, fine to medium SAND with trace fine gravel, damp. (SP) (OUTWASH)	SP		125.0	3	SS	4.6	NS	2.0 / 2.0						
									GRAB		NS	2.0 / 2.0				
									GRAB		NS	2.5 / 2.5				
									GRAB		NS	2.5 / 2.5				
									GRAB		NS	2.5 / 2.5				
140		140.0 - 145.0 Loose, grey, fine to coarse SAND with fine gravel, rounded, dry. (SW) (OUTWASH)	SW		1897.9		GRAB		NS	5.0 / 5.0						
145		145.0 - 150.0 Loose, grey, fine to medium SAND with trace fine gravel, damp. (SP) (OUTWASH)	SP		1892.9		GRAB		NS	5.0 / 5.0						
150	150.0 - 165.0 Loose, brownish-grey, fine to medium SAND with trace fine gravel, damp. (SP) (OUTWASH)	SP		1887.9		GRAB		NS	5.0 / 5.0							
155								GRAB		NS	5.0 / 5.0					
160																

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-03

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-20-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2037.89
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		
160	6" casing with 4" core barrel and tubex bit. Advance 20" of casing.	150.0 - 165.0 Loose, brownish-grey, fine to medium SAND with trace fine gravel, damp. (SP) (OUTWASH) (Continued)	SP		1872.9		GRAB		NS	5.0 5.0					Bentonite chips (156' to 166') No odor, no staining, no sheen. No indication of floating product with interface probe. 10 - 20 silica sand (166' to 193') 0.020, Sch. 80 PVC screen (2" dia.) (168' to 188')
165		165.0 - 170.0 Loose, brownish-grey fine to medium SAND with silt and trace fine gravel, damp. (SP-SM) (OUTWASH)	SP-SM		1867.9		GRAB		NS	2.0 2.0					
170		170.0 - 173.0 Loose, brownish-grey fine to medium SAND, wet. (SP) (OUTWASH)	SP		1864.9	5	SS	1.3	NS	2.0 2.0					
175		173.0 - 173.5 Loose, brownish-grey fine SAND with silt, wet. (SP-SM) (OUTWASH)	SP-SM		1864.4	6	SS	1.5	NS	2.0 2.0					
		173.5 - 176.5 Loose, brownish-grey fine to coarse SAND, wet. (SW) (OUTWASH)	SW		1861.4	7	SS	3.6	NS	2.0 2.0					
180		176.5 - 179.5 Loose, brownish-grey medium to coarse SAND, wet. (SP) (OUTWASH)	SP		1858.4	8	SS	5.0	NS	2.0 2.0					
		179.5 - 190.0 Loose, brownish-grey coarse SAND with trace fine gavel, wet. (SP) (OUTWASH)	SP		1847.9	9	SS	4.0	NS	2.0 2.0					
					190.0	10	SS	1.1	NS	2.0 2.0					
185							GRAB		NS	8.0 8.0					
190			Boring completed at 190.0 ft.		190.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-04

SHEET 1 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-27-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 54.1" W117° 21' 37.9"

ELEVATION: 2038.99
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W_p W_L W_U 20 40 60 80				
0	Advance 10' of casing.	0.0 - 5.0 Loose, brown, Silty fine to coarse GRAVEL with coarse sand, rounded, dry. (GM) (FILL)	GM		2034.0		GRAB		NS	5.0 5.0					concrete pad PVC stick-up=
5		5.0 - 20.0 Loose, grey, fine to coarse GRAVEL with coarse sand and trace silt, rounded, dry. (GW) (OUTWASH)	GW		5.0		GRAB		NS	5.0 5.0					
10	8" casing with 4" core barrel and tubex bit.		GW				GRAB		NS	5.0 5.0					
15			GW				GRAB		NS	5.0 5.0					
20			20.0 - 25.0 Loose, grey, Silty fine to coarse SAND with fine to coarse gravel, rounded, dry. (SM) (OUTWASH)	SM		2019.0 20.0		GRAB		NS	5.0 5.0				
25	Advance 20' of casing.	25.0 - 30.0 Loose, grey, fine to coarse GRAVEL with medium to coarse sand, rounded, dry. (GW) (OUTWASH)	GW		2014.0 25.0		GRAB		NS	5.0 5.0					
30		30.0 - 40.0 Loose, grey, fine GRAVEL with medium to coarse sand, rounded, dry. (GP) (OUTWASH)	GP		2009.0 30.0		GRAB		NS	5.0 5.0					
35			GP				GRAB		NS	5.0 5.0					
40		Log continued on next page			1999.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-04

SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-27-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.99
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W_p -----○----- W_L 20 40 60 80				
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	40.0 - 45.0	GP		40.0	GRAB		NS	5.0 5.0						
45		45.0 - 50.0			1994.0 45.0										
50		50.0 - 55.0			1989.0 50.0										
55		55.0 - 60.0			1984.0 55.0										
60		60.0 - 65.0			1979.0 60.0										
65		65.0 - 70.0			1974.0 65.0										
70		70.0 - 75.0			1969.0 70.0										
75		75.0 - 80.0			1964.0 75.0										
80	Log continued on next page			1959.0											

Sch. 80 PVC casing (2" dia.)

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-04

SHEET 3 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-27-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.99
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						10	20	30		40
80	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	80.0 - 85.0 Loose, brownish-grey medium to coarse SAND with fine gravel and trace silt, dry. (SP) (OUTWASH)	SP		80.0										<p>Bentonite grout viscous mix (0' to 158').</p> <p style="text-align: center;">Stainless steel centralizers @ 40' spacing.</p>
85		85.0 - 90.0 Loose, brownish-grey medium to coarse SAND with fine to coarse gravel and trace silt, dry. (SP) (OUTWASH)	SP		1954.0 85.0		GRAB		NS	5.0 5.0					
90		90.0 - 100.0 Loose, brownish-grey fine to coarse SAND with fine to coarse gravel and trace silt, dry. (SW) (OUTWASH)	SW		1949.0 90.0		GRAB		NS	5.0 5.0					
95					1949.0 95.0		GRAB		NS	5.0 5.0					
100		100.0 - 105.0 Loose, brownish-grey fine GRAVEL with fine to coarse sand, dry. (GP) (OUTWASH)	GP		1939.0 100.0		GRAB		NS	5.0 5.0					
105		105.0 - 110.0 Loose, brownish-grey fine GRAVEL with coarse sand, dry. (GP) (OUTWASH)	GP		1934.0 105.0		GRAB		NS	5.0 5.0					
110		110.0 - 115.0 Loose, brownish-grey fine to coarse SAND with fine to coarse gravel and trace silt, dry. (SW) (OUTWASH)	SW		1929.0 110.0		GRAB		NS	5.0 5.0					
115	115.0 - 120.0 Loose, brownish-grey fine to coarse SAND with silt and fine gravel, dry. (SW-SM) (OUTWASH)	SW-SM		1924.0 115.0		GRAB		NS	2.5 2.5						
120				1919.0 120.0		GRAB		NS	2.5 2.5						
		Log continued on next page													

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAG.DT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-04

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-27-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.99
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES					PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W_p -----○ ^W ----- W_L 20 40 60 80					
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	120.0 - 125.0 Loose, brownish-grey fine to coarse SAND with fine gravel and trace silt, dry. (SW) (OUTWASH)	SW		120.0		GRAB		NS	2.5 2.5						
125		125.0 - 130.0 Loose, brownish-grey medium to coarse SAND with trace fine gravel and silt, damp. (SP) (OUTWASH)	SP		1914.0		GRAB		NS	2.5 2.5						
130		130.0 - 140.0 Loose, brownish-grey fine to coarse SAND with fine gravel and trace silt, damp. (SW) (OUTWASH)	SW		1909.0		GRAB		NS	2.5 2.5						
135									GRAB		NS	2.5 2.5				
									GRAB		NS	2.5 2.5				
140		140.0 - 150.0 Loose, brownish-grey fine to coarse SAND with silt and fine gravel, damp. (SW-SM) (OUTWASH)	SW-SM		1899.0		GRAB		NS	5.0 5.0						
145							GRAB		NS	5.0 5.0						
150		150.0 - 170.0 Loose, brownish-grey fine to coarse SAND with silt, damp. (SW-SM) (OUTWASH)	SW-SM		1889.0		GRAB		NS	5.0 5.0						
155						GRAB		NS	5.0 5.0							
160																

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-04

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 10-27-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2038.99
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		W _g
160	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	150.0 - 170.0 Loose, brownish-grey fine to coarse SAND with silt, damp. (SW-SM) (OUTWASH) <i>(Continued)</i>	SW-SM		1869.0	GRAB		NS	5.0 / 5.0					<p>Bentonite chips (158' to 168')</p> <p>No odor, no staining, no sheen.</p> <p>No indication of floating product with interface probe.</p> <p>10 - 20 silica sand (168' to 193') 0.020, Sch. 80 PVCscreen (2" dia.) (170' to 190')</p>	
165					GRAB		NS	5.0 / 5.0							
170		170.0 - 175.0 Loose, brownish-grey fine to coarse SAND with silt, damp. (SW-SM) (OUTWASH)	SW-SM		170.0	GRAB		NS	2.0 / 2.0						
175					GRAB		NS	2.0 / 2.0							
175		175.0 - 180.0 Loose, brownish-grey fine to coarse SAND with silt and trace fine gravel, damp. (SW-SM) (OUTWASH)	SW-SM		1864.0	GRAB		NS	2.0 / 2.0						
180					GRAB		NS	2.0 / 2.0							
185					GRAB		NS	2.0 / 2.0							
180			180.0 - 193.0 Loose, brownish-grey medium to coarse SAND with trace fine gravel, wet. (SP) (OUTWASH)	SP		1859.0	GRAB		NS	5.0 / 5.0					
185						GRAB		NS	8.0 / 8.0						
190						1846.0									
195		Boring completed at 193.0 ft.			193.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-05

SHEET 1 of 5

PROJECT: SEM Materials RI/FS
PROJECT NUMBER: 073-93170
LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
DRILLING DATE: 11-03-2008
DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
AZIMUTH: N/A
COORDINATES: N47° 41' 54.4" W117° 21' 40.3"
ELEVATION: 2039.87
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE			SAMPLES					PENETRATION RESISTANCE BLOWS / ft				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W _p W _l				
											10 20 30 40				
0	Advance 10' of casing.	0.0 - 5.0 Loose, brown, fine GRAVEL with fine to coarse sand and silt, rounded, damp. (GP) (FILL)	GP		2034.9		GRAB	NS	5.0 / 5.0					Flush mount monument, concrete pad Sch. 80 PVC casing (2" dia.)	
5		5.0 - 20.0 Loose, brownish-grey, fine GRAVEL with fine to coarse sand and silt, rounded, dry. (GP) (OUTWASH)	GP		2019.9		GRAB	NS	5.0 / 5.0						
10	8" casing with 4" core barrel and tubex bit.		GP				GRAB	NS	5.0 / 5.0						
15			GP				GRAB	NS	5.0 / 5.0						
20	Advance 20' of casing.	20.0 - 25.0 Loose, grey, fine to coarse GRAVEL with occasional cobbles, rounded, dry. (GW) (OUTWASH)	GW		2014.9		GRAB	NS	5.0 / 5.0						
25		25.0 - 45.0 Loose, grey, fine to coarse GRAVEL with medium to coarse sand and silt, rounded, dry. (GW) (OUTWASH)	GW				GRAB	NS	5.0 / 5.0						
30			GW				GRAB	NS	5.0 / 5.0						
35			GW				GRAB	NS	5.0 / 5.0						
40															

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/16/09

1 in to 5 ft
DRILLING CONTRACTOR: Environmental West
DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
CHECKED: D. Morell
DATE: 12/22/2008



RECORD OF BOREHOLE GMW-05






SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-03-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2039.87
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		W _s
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	25.0 - 45.0 Loose, grey, fine to coarse GRAVEL with medium to coarse sand and silt, rounded, dry. (GW) (OUTWASH) (Continued)	GW		1994.9		GRAB		NS	5.0 / 5.0					
45		45.0 - 50.0 Loose, grey, medium to coarse SAND with some fine GRAVEL, rounded, dry. (SP) (OUTWASH)	GP		45.0		GRAB		NS	5.0 / 5.0					
50		50.0 - 60.0 Loose, grey, fine to coarse GRAVEL with coarse sand and silt, rounded, dry. (GW) (OUTWASH)	GW		1989.9		GRAB		NS	5.0 / 5.0					
55		50.0 - 60.0 Loose, grey, fine to coarse GRAVEL with coarse sand and silt, rounded, dry. (GW) (OUTWASH)			50.0		GRAB		NS	5.0 / 5.0					
60		60.0 - 70.0 Loose, light brown, fine GRAVEL and coarse sand, rounded, dry. (GP) (OUTWASH)	GP		1979.9		GRAB		NS	5.0 / 5.0					
65	60.0 - 70.0 Loose, light brown, fine GRAVEL and coarse sand, rounded, dry. (GP) (OUTWASH)	60.0				GRAB		NS	5.0 / 5.0						
70		70.0 - 90.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand, rounded, dry. (GP) (OUTWASH)	GP		1969.9		GRAB		NS	5.0 / 5.0					
75		70.0 - 90.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand, rounded, dry. (GP) (OUTWASH)			70.0		GRAB		NS	5.0 / 5.0					
80		70.0 - 90.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand, rounded, dry. (GP) (OUTWASH)					GRAB		NS	5.0 / 5.0					

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-05


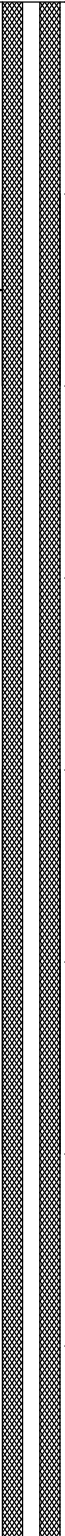

SHEET 3 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-03-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2039.87
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _u		W _s
80	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	70.0 - 90.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand, rounded, dry. (GP) (OUTWASH) (Continued)	GP		1949.9										<div style="text-align: center;">  <p style="margin-top: 100px;">Bentonite grout viscous mix (0' to 160').</p> <p style="margin-top: 200px;">Stainless steel centralizers @ 40' spacing.</p> </div>
85					GRAB		NS	5.0 5.0							
90		90.0 - 120.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand and silt, occasional cobbles, rounded, dry. (GP) (OUTWASH)	GP		90.0										
95					GRAB		NS	5.0 5.0							
100					GRAB		NS	5.0 5.0							
105					GRAB		NS	5.0 5.0							
110					GRAB		NS	5.0 5.0							
115					GRAB		NS	5.0 5.0							
120					GRAB		NS	5.0 5.0							
120					GRAB		NS	5.0 5.0							

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-05

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-03-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2039.87
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W _p	W _L	W _u			
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	120.0 - 130.0 Loose, greyish-brown medium to coarse SAND with fine gravel, dry. (SP) (OUTWASH)	SP	[Dotted Pattern]	120.0											
125					GRAB	NS	5.0 5.0									
130		130.0 - 160.0 Loose, greyish-brown, fine to coarse SAND with trace silt, dry. (SW) (OUTWASH)	SW	[Dotted Pattern]	1909.9 130.0											
135					GRAB	NS	5.0 5.0									
140					GRAB	NS	5.0 5.0									
145					GRAB	NS	5.0 5.0									
150	GRAB	NS	5.0 5.0													
155	GRAB	NS	5.0 5.0													
160	Log continued on next page			1879.9												

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-05

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-03-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2039.87
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W _p	W _L	W _p		W _L	
160	6" casing with 4" core barrel and tubex bit.	160.0 - 175.0 Loose, light brown, Silty fine to medium SAND, damp. (SM) (OUTWASH)	SM		160.0										Bentonite chips (160' to 170') No odor, no staining, no sheen. No indication of floating product with interface probe. 10 - 20 silica sand (170' to 193') 0.020, Sch. 80 PVC screen (2" dia.) (172' to 192')	
165						GRAB	NS	5.0 / 5.0								
170						GRAB	NS	5.0 / 5.0								
175	Advance 20' of casing.	175.0 - 193.0 Loose, greyish-brown, fine GRAVEL with fine to coarse sand and silt, occasional cobbles, rounded, dry. (GW) (OUTWASH)	GW		1864.9 175.0											
180						GRAB	NS	5.0 / 5.0								
185						GRAB	NS	5.0 / 5.0								
190						GRAB	NS	8.0 / 8.0								
193		Boring completed at 193.0 ft.			1846.9 193.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/16/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-06

SHEET 1 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-10-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.3" W117° 21' 42.5"

ELEVATION: 2036.03
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
											W_p ----- W_L 20 40 60 80				
0	Advance 10' of casing.	0.0 - 5.0 Loose, dark brown to black, Silty fine to coarse Gravel, rounded, damp. (GM) (FILL) Strong cheical odor (like mothballs), black staining, no sheen.	GM		2031.0		GRAB		NS	5.0 5.0					Flush mount monument. concrete pad
5		5.0 - 8.0 Loose, black, Silty fine to coarse SAND, rounded, dry. (SM) (FILL) Strong chemical odor (like mothballs), no staining, no sheen. Wood remnants.	SM		2028.0		GRAB		NS	5.0 5.0					
10	8" casing with 4" core barrel and tubex bit.	8.0 - 15.0 Loose, grey, fine GRAVEL and coarse sand, rounded, dry. (GP) (OUTWASH) Moderate chemical odor, no staining, no sheen.	GP		2021.0		GRAB		NS	5.0 5.0					
15		15.0 - 18.0 Loose, grey, fine GRAVEL with medium to coarse sand, rounded, dry. (GP) (OUTWASH) Moderate chemical odor, no staining, no sheen.	GP		2018.0		GRAB		NS	5.0 5.0					
20	Advance 20' of casing.	18.0 - 20.0 Loose, grey, fine GRAVEL with fine to coarse sand and little silt, rounded, dry. (GP) (OUTWASH) Moderate chemical odor, no staining, no sheen.	GP		2016.0										
25		20.0 - 25.0 Loose, fine to coarse GRAVEL, dry. (GW) (OUTWASH) Slight chemical odor, no staining, no sheen.	GW		2011.0										
30		25.0 - 30.0 Loose, grey, fine to coarse GRAVEL with occasional cobbles and boulders, rounded, dry. (GW) (OUTWASH) Slight chemical odor, no staining, no sheen	GW		2006.0										
35		30.0 - 35.0 Loose, grey, fine GRAVEL with coarse sand, occasional cobbles, rounded, dry. (GP) (OUTWASH) Faint chemical odor, no staining, no sheen	GP		2001.0										
40		35.0 - 45.0 Loose, grey, coarse SAND with fine gravel, dry. (SP) (OUTWASH) Faint chemical odor, no staining, no sheen	SP												

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-06

SHEET 2 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-10-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.3" W117° 21' 42.5"

ELEVATION: 2036.03
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						10	20	30		40
40	8" casing with 4" core barrel and tubex bit to about 58'. Advance 20' of casing.	35.0 - 45.0 Loose, grey, coarse SAND with fine gravel, dry. (SP) (OUTWASH) Faint chemical odor, no staining, no sheen <i>(Continued)</i>	SP		1991.0		GRAB		NS	5.0 5.0					Sch. 80 PVC casing (2" dia.)
45		45.0 - 50.0 Loose, brownish-grey, fine GRAVEL with medium to coarse sand and silt, rounded, dry. (GP-GM) (OUTWASH) Faint chemical odor, no staining, no sheen	GP-GM		1986.0		GRAB		NS	5.0 5.0					
50		50.0 - 65.0 Loose, brownish-grey, fine to coarse GRAVEL with silt, rounded, dry. (GP-GM) (OUTWASH) No chemical odor, no staining, no sheen.	GP-GM		1971.0		GRAB		NS	5.0 5.0					
55			GP-GM		1966.0		GRAB		NS	5.0 5.0					
60			GP		1966.0		GRAB		NS	5.0 5.0					
65			70.0 - 85.0 Loose, brownish-grey, fine to coarse GRAVEL, rounded, dry. (GW) (OUTWASH)	GW		1966.0		GRAB		NS	5.0 5.0				
70				1966.0		GRAB		NS	5.0 5.0						
75				1966.0		GRAB		NS	5.0 5.0						
80				1966.0		GRAB		NS	5.0 5.0						

Log continued on next page

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-06


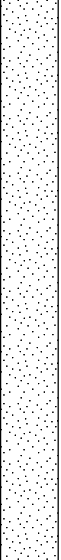

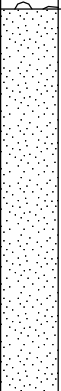
SHEET 3 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-10-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.3" W117° 21' 42.5"

ELEVATION: 2036.03
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)					
					DEPTH (ft)						W _p	W _L	W _u		W _s	
80	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	70.0 - 85.0 Loose, brownish-grey, fine to coarse GRAVEL, rounded, dry. (GW) (OUTWASH) (Continued)	GW		1951.0		GRAB		NS	5.0 / 5.0					<div style="text-align: center;">Bentonite grout viscous mix (0' to 152')</div> <div style="text-align: center; margin-top: 100px;">Stainless steel centralizers @ 40' spacing.</div>	
85		85.0 - 100.0 Loose, brownish-grey coarse SAND with fine gravel, dry. (SP) (OUTWASH)	SP		85.0		GRAB		NS	5.0 / 5.0						
90								GRAB		NS	5.0 / 5.0					
95								GRAB		NS	5.0 / 5.0					
100		100.0 - 110.0 Loose, brownish-grey fine GRAVEL with coarse sand, dry. (GP) (OUTWASH)	GP		1936.0	100.0		GRAB		NS	5.0 / 5.0					
105							GRAB		NS	5.0 / 5.0						
110	110.0 - 120.0 Loose, brownish-grey medium to coarse SAND with fine gravel, dry. (SW) (OUTWASH)	SP		1926.0	110.0		GRAB		NS	5.0 / 5.0						
115							GRAB		NS	5.0 / 5.0						
120		Log continued on next page			1916.0											

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDA.GDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-06

SHEET 4 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-10-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N47° 41' 52.3" W117° 21' 42.5"

ELEVATION: 2036.03
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W_p ----- W_L 20 40 60 80				
120	6" casing with 4" core barrel and tubex bit. Advance 20' of casing.	120.0 - 130.0 Loose, light brown, Silty fine to medium SAND, damp. (SM) (OUTWASH)	SM		120.0										
					GRAB	NS	5.0 / 5.0								
125							GRAB	NS	5.0 / 5.0						
130		130.0 - 140.0 Loose, light brown, medium to coarse SAND with some fine gravel and trace silt, damp. (SP) (OUTWASH)	SP		1906.0										
					GRAB	NS	5.0 / 5.0								
135							GRAB	NS	5.0 / 5.0						
140		140.0 - 150.0 Loose, light brown, Silty medium to coarse SAND, damp. (SM) (OUTWASH)	SM		1896.0										
					GRAB	NS	5.0 / 5.0								
145							GRAB	NS	5.0 / 5.0						
150		150.0 - 160.0 Loose, medium brown Silty fine to medium SAND, damp. (SM) (OUTWASH)	SM		1886.0										
	GRAB				NS	5.0 / 5.0									
155						GRAB	NS	5.0 / 5.0							
160					1876.0										
		Log continued on next page													

Bentonite chips (152' to 162')

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



RECORD OF BOREHOLE GMW-06

SHEET 5 of 5

PROJECT: SEM Materials RI/FS
 PROJECT NUMBER: 073-93170
 LOCATION: Spokane, Washington

DRILLING METHOD: Air Rotary
 DRILLING DATE: 11-10-2008
 DRILL RIG: Schramm T300

DATUM: NAD 83, NAVD 88
 AZIMUTH: N/A
 COORDINATES: N: 47.70 E: 117.36

ELEVATION: 2036.03
 INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE				SAMPLES				PENETRATION RESISTANCE BLOWS / ft ■				NOTES WATER LEVELS WELL GRAPHIC	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	NUMBER	TYPE	PID Reading PPM	Sheen	REC / ATT	WATER CONTENT (PERCENT)				
					DEPTH (ft)						W _p	W _L	W _p		W _L
160	6" casing with 4" core barrel and tubex bit.	160.0 - 177.0 Loose, medium brown, medium to coarse SAND with silt and trace fine gravel, moist. (SP-SM) (OUTWASH)	SP-SM		160.0										<p>No odor, no staining, no sheen.</p> <p>No indication of floating product with interface probe.</p> <p>10 - 20 silica sand (162' to 193') 0.020. Sch. 80 PVC screen (2" dia.) (164' to 189')</p>
						GRAB		NS	5.0 / 5.0						
165						GRAB		NS	5.0 / 5.0						
170						GRAB		NS	5.0 / 5.0						
175	Advance 20' of casing.	177.0 - 193.0 Loose, medium brown, medium to coarse SAND with silt and trace fine gravel, wet. (SP-SM) (OUTWASH)	SP-SM		1859.0										
						GRAB		NS	5.0 / 5.0						
180						GRAB		NS	5.0 / 5.0						
185						GRAB		NS	8.0 / 8.0						
190					1843.0										
193.0		Boring completed at 193.0 ft.			193.0										

ENVIRONMENTAL BOREHOLE-BB SEM MATERIALS.GPJ BRENDAGDT 2/13/09

1 in to 5 ft
 DRILLING CONTRACTOR: Environmental West
 DRILLER: T. Smith

LOGGED: P. VanMiddlesworth
 CHECKED: D. Morell
 DATE: 12/22/2008



APPENDIX C

Remedial Investigation Soil Sample Analytical Results

**Soil Borings
(GGP01 to GGP30)**



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Client: Golder Associates
18300 NE Union Hill Rd, #200
Redmond, WA 98052-3333

Project Name:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Date Received:	10/10/2008 9:15:00AM
		Date Reported:	10/24/2008

Enclosed are the analytical results for the sample(s) received by the laboratory on October 10, 2008. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after January 22, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

Shannon Schelinder



Pace Analytical Services, Inc.

Sample Summary

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Project:	SemMaterials Spokane Facility R1	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time	Type
GGP-19-15	GOLSP0801-001	10/06/2008 16:45	Soil
GGP-20-15	GOLSP0801-002	10/06/2008 16:15	Soil
GGP-21B-7.5	GOLSP0801-003	10/06/2008 15:15	Soil
GGP-21B-12	GOLSP0801-004	10/06/2008 15:20	Soil
GGP-22-2.5	GOLSP0801-005	10/06/2008 14:15	Soil
GGP-22-7	GOLSP0801-006	10/06/2008 14:25	Soil
GGP-23-2.5	GOLSP0801-007	10/06/2008 12:15	Soil
GGP-23-15	GOLSP0801-008	10/06/2008 12:20	Soil
GGP-24-15	GOLSP0801-009	10/06/2008 11:00	Soil
GGP-25-15	GOLSP0801-010	10/06/2008 10:45	Soil
GGP-21B-2	GOLSP0801-011	10/06/2008 15:10	Soil



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Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-19-15	Matrix:	Soil
Collected On:	10/6/08 16:45	Lab Sample ID:	GOLSP0801-001
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1	6.9	6.9	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	54	% Rec	1	35-110	35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	73	% Rec	1	45-120	45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	79	% Rec	1	50-150	50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1	5.1	5.1	Q35357	10/10/2008	10/16/2008	
Oil Range Organics	ND	mg/Kg dry	1	21	21	Q35357	10/10/2008	10/16/2008	
<i>Surrogates:</i>									
o-Terphenyl	92	% Rec	1	50-150	50-150	Q35357	10/10/2008	10/16/2008	
n-Octacosane	100	% Rec	1	50-150	50-150	Q35357	10/10/2008	10/16/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.3	%	1	0.1	0.1	Q35355	10/10/2008	10/10/2008	



Pace Analytical Services, Inc.

Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-20-15	Matrix:	Soil
Collected On:	10/6/08 16:15	Lab Sample ID:	GOLSP0801-002
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS									
Methods (Preparation Analysis): 3545A 8270-PNA									
Naphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	100	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	88	% Rec	10		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	108	% Rec	10		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	132	% Rec	10		50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel									
Methods (Preparation Analysis): 3545A NWTPH-D									
Diesel Range Organics	24	mg/Kg dry	3		16	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	150	mg/Kg dry	3		62	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	96	% Rec	3		50-150	Q35357	10/10/2008	10/17/2008	
n-Octacosane	100	% Rec	3		50-150	Q35357	10/10/2008	10/17/2008	
Total Solids, Dried at 103-105 deg C									
Methods (Preparation Analysis): NONE SM2540B									
Solids, Total	95.4	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-21B-7.5	Matrix:	Soil
Collected On:	10/6/08 15:15	Lab Sample ID:	GOLSP0801-003
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Acenaphthene	2600	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Fluorene	2800	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Phenanthrene	21000	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Anthracene	3600	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Fluoranthene	27000	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Pyrene	19000	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	6200	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Chrysene	6700	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	4000	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	3100	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	2800	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	1300	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	950	ug/kg dry	20		650	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	105	% Rec	20		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	140	% Rec	20		45-120	Q35356	10/10/2008	10/22/2008	*
Pyrene-d10	211	% Rec	20		50-150	Q35356	10/10/2008	10/22/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	530	mg/Kg dry	20		110	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	1300	mg/Kg dry	20		450	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	29	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
n-Octacosane	0	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	88.6	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-21B-12	Matrix:	Soil
Collected On:	10/6/08 15:20	Lab Sample ID:	GOLSP0801-004
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20		580	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	96	% Rec	20		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	96	% Rec	20		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	191	% Rec	20		50-150	Q35356	10/10/2008	10/22/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	280	mg/Kg dry	20		110	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	1200	mg/Kg dry	20		430	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	40	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
n-Octacosane	0	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	92.1	%	1		0.1	Q35355	10/10/2008	10/10/2008	



Pace Analytical Services, Inc.

Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-22-2.5	Matrix:	Soil
Collected On:	10/6/08 14:15	Lab Sample ID:	GOLSP0801-005
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		69	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	40	% Rec	10		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	48	% Rec	10		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	72	% Rec	10		50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	8.7	mg/Kg dry	1		5.1	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	62	mg/Kg dry	1		20	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	101	% Rec	1		50-150	Q35357	10/10/2008	10/17/2008	
n-Octacosane	109	% Rec	1		50-150	Q35357	10/10/2008	10/17/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	95.8	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-22-7	Matrix:	Soil
Collected On:	10/6/08 14:25	Lab Sample ID:	GOLSP0801-006
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		72	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	72	% Rec	10		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	92	% Rec	10		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	100	% Rec	10		50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	15	mg/Kg dry	2		11	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	110	mg/Kg dry	2		43	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	103	% Rec	2		50-150	Q35357	10/10/2008	10/17/2008	
n-Octacosane	107	% Rec	2		50-150	Q35357	10/10/2008	10/17/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	93.2	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-23-2.5	Matrix:	Soil
Collected On:	10/6/08 12:15	Lab Sample ID:	GOLSP0801-007
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20		850	Q35356	10/10/2008	10/22/2008	
Surrogates:									
1-Fluoronaphthalene	143	% Rec	20		35-110	Q35356	10/10/2008	10/22/2008	*
Fluorene-d10	144	% Rec	20		45-120	Q35356	10/10/2008	10/22/2008	*
Pyrene-d10	>250	% Rec	20		50-150	Q35356	10/10/2008	10/22/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	130	mg/Kg dry	20		100	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	1000	mg/Kg dry	20		420	Q35357	10/10/2008	10/17/2008	
Surrogates:									
o-Terphenyl	35	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
n-Octacosane	0	% Rec	20		50-150	Q35357	10/10/2008	10/17/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	95.4	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-23-15	Matrix:	Soil
Collected On:	10/6/08 12:20	Lab Sample ID:	GOLSP0801-008
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		70	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	76	% Rec	10		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	96	% Rec	10		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	136	% Rec	10		50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	9.8	mg/Kg dry	1		5.1	Q35357	10/10/2008	10/16/2008	
Oil Range Organics	100	mg/Kg dry	4		82	Q35357	10/10/2008	10/16/2008	
<i>Surrogates:</i>									
o-Terphenyl	96	% Rec	1		50-150	Q35357	10/10/2008	10/16/2008	
n-Octacosane	103	% Rec	1		50-150	Q35357	10/10/2008	10/16/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	95.5	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-24-15	Matrix:	Soil
Collected On:	10/6/08 11:00	Lab Sample ID:	GOLSP0801-009
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	1200	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	9300	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	7500	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Acenaphthene	1200	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Fluorene	1500	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Phenanthrene	5500	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Anthracene	800	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Fluoranthene	510	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Pyrene	3500	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	1600	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Chrysene	3300	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	710	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	890	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	540	ug/kg dry	20		340	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	>250	% Rec	20		35-110	Q35356	10/10/2008	10/22/2008	*
Fluorene-d10	>250	% Rec	20		45-120	Q35356	10/10/2008	10/22/2008	*
Pyrene-d10	>250	% Rec	20		50-150	Q35356	10/10/2008	10/22/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	2200	mg/Kg dry	50		270	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	3100	mg/Kg dry	50		1100	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	>250	% Rec	50		50-150	Q35357	10/10/2008	10/17/2008	*
n-Octacosane	0	% Rec	50		50-150	Q35357	10/10/2008	10/17/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	93.2	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-25-15	Matrix:	Soil
Collected On:	10/6/08 10:45	Lab Sample ID:	GOLSP0801-010
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	170	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	73	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Phenanthrene	73	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		67	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	76	% Rec	10		35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	96	% Rec	10		45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	124	% Rec	10		50-150	Q35356	10/10/2008	10/22/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	48	mg/Kg dry	4		20	Q35357	10/10/2008	10/17/2008	
Oil Range Organics	170	mg/Kg dry	4		80	Q35357	10/10/2008	10/17/2008	
<i>Surrogates:</i>									
o-Terphenyl	102	% Rec	4		50-150	Q35357	10/10/2008	10/17/2008	
n-Octacosane	95	% Rec	4		50-150	Q35357	10/10/2008	10/17/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	99.2	%	1		0.1	Q35355	10/10/2008	10/10/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-21B-2	Matrix:	Soil
Collected On:	10/6/08 15:10	Lab Sample ID:	GOLSP0801-011
Received On:	10/10/08 9:15		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
2-Methylnaphthalene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
1-Methylnaphthalene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Acenaphthylene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Acenaphthene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Fluorene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Phenanthrene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Anthracene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Fluoranthene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Pyrene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Benzo(a)anthracene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Chrysene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Benzo(a)pyrene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20	290	290	Q35356	10/10/2008	10/22/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	80	% Rec	20	35-110	35-110	Q35356	10/10/2008	10/22/2008	
Fluorene-d10	112	% Rec	20	45-120	45-120	Q35356	10/10/2008	10/22/2008	
Pyrene-d10	175	% Rec	20	50-150	50-150	Q35356	10/10/2008	10/22/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	270	mg/Kg dry	20		110	Q35357	10/10/2008	10/16/2008	
Oil Range Organics	1200	mg/Kg dry	20		430	Q35357	10/10/2008	10/16/2008	
<i>Surrogates:</i>									
o-Terphenyl	35	% Rec	20	50-150	50-150	Q35357	10/10/2008	10/16/2008	*
n-Octacosane	0	% Rec	20	50-150	50-150	Q35357	10/10/2008	10/16/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	92.4	%	1		0.1	Q35355	10/10/2008	10/10/2008	



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
 940 Harney St.
 Seattle, WA 98108
 Phone: 206.767.5060
 Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
QC Batch(es):	Q35355	Analysis Method:	SM2540B
QC Batch Method:	SM2540BPR	Analysis Description:	Total Solids, Dried at 103-105 deg C
Preparation Started:	10/10/2008		
Sample Duplicate: GOLSP0801-005D		Parent Sample: GOLSP0801-005	

Analyte	Duplicate			Parent			RPD	RPD Limit	Qualifiers
	Result	Units	DF	Result					
Solids, Total	95.4	%	1	95.8			0.4	30	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35356	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/10/2008		

Blank: B101008GSVSLG

Analyte	Blank		DF	Detection Limit	Control	Qualifiers
	Result	Units		Threshold	Limit	
Naphthalene	ND	ug/kg dry	1		6.7	
2-Methylnaphthalene	ND	ug/kg dry	1		6.7	
1-Methylnaphthalene	ND	ug/kg dry	1		6.7	
Acenaphthylene	ND	ug/kg dry	1		6.7	
Acenaphthene	ND	ug/kg dry	1		6.7	
Fluorene	ND	ug/kg dry	1		6.7	
Phenanthrene	ND	ug/kg dry	1		6.7	
Anthracene	ND	ug/kg dry	1		6.7	
Fluoranthene	ND	ug/kg dry	1		6.7	
Pyrene	ND	ug/kg dry	1		6.7	
Benzo(a)anthracene	ND	ug/kg dry	1		6.7	
Chrysene	ND	ug/kg dry	1		6.7	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(a)pyrene	ND	ug/kg dry	1		6.7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.7	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.7	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.7	
<i>Surrogates:</i>				% Rec		
1-Fluoronaphthalene			1		65	35-110
Fluorene-d10			1		71	45-120
Pyrene-d10			1		87	50-150

LCS: S101008GSVSLG

Analyte	Blank Spike		DF	Spike	% Rec	% Rec	Qualifiers
	Result	Units		Cone.		Limits	
Naphthalene	310	ug/kg dry	1	625	50	40-105	
2-Methylnaphthalene	320	ug/kg dry	1	625	51	45-105	
1-Methylnaphthalene	320	ug/kg dry	1	625	51	45-105	
Acenaphthylene	310	ug/kg dry	1	625	49	45-105	
Acenaphthene	310	ug/kg dry	1	625	50	45-110	
Fluorene	320	ug/kg dry	1	625	51	50-110	
Phenanthrene	380	ug/kg dry	1	625	61	50-110	
Anthracene	390	ug/kg dry	1	625	63	55-105	
Fluoranthene	440	ug/kg dry	1	625	70	55-115	
Pyrene	370	ug/kg dry	1	625	60	45-125	
Benzo(a)anthracene	420	ug/kg dry	1	625	68	50-110	
Chrysene	400	ug/kg dry	1	625	65	55-110	
Benzo(b)fluoranthene	500	ug/kg dry	1	625	79	45-115	
Benzo(k)fluoranthene	410	ug/kg dry	1	625	66	45-125	
Benzo(a)pyrene	430	ug/kg dry	1	625	69	50-110	
Indeno(1,2,3-cd)pyrene	500	ug/kg dry	1	625	80	40-120	
Dibenzo(a,h)anthracene	490	ug/kg dry	1	625	78	40-125	
Benzo(g,h,i)perylene	420	ug/kg dry	1	625	68	40-125	
<i>Surrogates:</i>							
1-Fluoronaphthalene			1		49	35-110	
Fluorene-d10			1		53	45-120	



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Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35356	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/10/2008		

LCS: S101008GSVSLG

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	Qualifiers
<i>Surrogates:</i>							
Pyrene-d10			1		62	50-150	

Matrix Spike: GOLSP0801-003MS Parent Sample: GOLSP0801-003
 Matrix Spike Duplicate: GOLSP0801-003MSD

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	Limits	RPD	RPD Limit	Qualifiers
Naphthalene	840	ug/kg dry	20	696	ND	89	40-105			
	750			702	76	40-105	11	30		
2-Methylnaphthalene	1200	ug/kg dry	20	696	ND	106	45-105			*
	1100			702	81	45-105	15	30		
1-Methylnaphthalene	1000	ug/kg dry	20	696	ND	100	45-105			
	910			702	81	45-105	14	30		
Acenaphthylene	720	ug/kg dry	20	696	ND	104	45-105			
	670			702	96	45-105	8	30		
Acenaphthene	4500	ug/kg dry	20	696	2600	276	45-110			*
	3500			702	135	45-110	25	30		
Fluorene	4800	ug/kg dry	20	696	2800	281	50-110			*
	3700			702	120	50-110	27	30		
Phenanthrene	29000	ug/kg dry	20	696	21000	1141	50-110			*
	23000			702	313	50-110	23	30		
Anthracene	6300	ug/kg dry	20	696	3600	392	55-105			*
	4500			702	126	55-105	35	30	*,#	
Fluoranthene	38000	ug/kg dry	20	696	27000	1577	55-115			*
	24000			702	0	55-115	45	30	*,#	
Pyrene	39000	ug/kg dry	20	696	19000	2820	45-125			*
	21000			702	291	45-125	60	30	*,#	
Benzo(a)anthracene	11000	ug/kg dry	20	696	6200	712	50-110			*
	6300			702	9	50-110	57	30	*,#	
Chrysene	12000	ug/kg dry	20	696	6700	714	55-110			*
	6700			702	0	55-110	55	30	*,#	
Benzo(b)fluoranthene	7900	ug/kg dry	20	696	4000	562	45-115			*
	4500			702	67	45-115	56	30	#	
Benzo(k)fluoranthene	5800	ug/kg dry	20	696	3100	390	45-125			*
	3200			702	19	45-125	58	30	*,#	
Benzo(a)pyrene	5200	ug/kg dry	20	696	2800	340	50-110			*
	3000			702	22	50-110	55	30	*,#	
Indeno(1,2,3-cd)pyrene	2400	ug/kg dry	20	696	1300	162	40-120			*
	1600			702	44	40-120	42	30	#	
Dibenzo(a,h)anthracene	980	ug/kg dry	20	696	ND	113	40-125			
	710			702	73	40-125	33	30	#	
Benzo(g,h,i)perylene	1500	ug/kg dry	20	696	950	83	40-125			
	1000			702	14	40-125	38	30	*,#	

<i>Surrogates:</i>										
1-Fluoronaphthalene			20			96	35-110			
						80	35-110			



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Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	
QC Batch(es):	Q35356	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:			
Matrix Spike:	GOLSP0801-003MS	Parent Sample:	GOLSP0801-003
Matrix Spike Duplicate:	GOLSP0801-003MSD		

Analyte	Matrix Spike			Spike Conc.	Parent Result	% Rec	% Rec		RPD	RPD Limit	Qualifiers
	Result	Units	DF				Limits	RPD			
<i>Surrogates:</i>											
Fluorene-d10			20			160	45-120				*
						112	45-120				*
Pyrene-d10			20			207	50-150				*
						175	50-150				*



Pace Analytical Services, Inc.

Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0801
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35357	Analysis Method:	NWTPH-D
QC Batch Method:	3545A (NWTPH-Low)	Analysis Description:	NWTPH Diesel
Preparation Started:	10/10/2008		

Blank: B101008GSVSLG

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1		2.5	
Oil Range Organics	ND	mg/Kg dry	1		10	
<i>Surrogates:</i>				% Rec		
o-Terphenyl			1		95 50-150	
n-Octacosane			1		103 50-150	

LCS: S101008GSVSLG

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	78	mg/Kg dry	1	100	78	56-124	
Oil Range Organics	86	mg/Kg dry	1	100	86	20-160	
<i>Surrogates:</i>							
o-Terphenyl			1		88	50-150	
n-Octacosane			1		95	50-150	

Matrix Spike: GOLSP0801-007MS Parent Sample: GOLSP0801-007
Matrix Spike Duplicate: GOLSP0801-007D

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
Diesel Range Organics	320	mg/Kg dry	20	105	130	182	50-150			*
	290			104		154	50-150	9	50	*
Oil Range Organics	1100	mg/Kg dry	20	105	1000	61	20-160			
	580			104		0	20-160	57	50	*,#
<i>Surrogates:</i>										
o-Terphenyl			20			65	50-150			
						42	50-150			*
n-Octacosane			20			0	50-150			*
						0	50-150			*



Pace Analytical Services, Inc.
Notes and Definitions

Pace Analytical Services, Inc.
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Seattle, WA 98108
Phone: 206.767.5060
Fax: 206.767.5063

SDG No: GOLSP0801

Report Specific Notes:

- ND The analyte of interest was not detected, to the limit of detection indicated
- # RPD outside established control limits
- * Recovery result outside established control limits

Laboratory Reporting Conventions:

- DF Dilution factor
- Detection Limit Threshold The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.
- MDL The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.
- IDL Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.
- Reporting Limit The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.
- QC Batch Group Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
- % Rec Percent recovery.
- Limits The upper and lower control limits for spike recoveries.
- RPD Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.
- RPD Limit The maximum RPD allowed for a set of duplicate measurements (see RPD).
- Spike conc. The measured concentration, in sample basis units, of a spiked sample.
- PQL Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.
- LCS Laboratory Control Sample

LS#8971

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



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SDG: GOLSPO801

Page: 1 of 1
1255215

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location
STATE: WA

Section A
Required Client Information:
Company: Golden Assoc
Address: 1200 W Edmond
Coast d' Mar, ED
Email To: 206.266.9433

Section B
Required Project Information:
Report To: Doug Murrell
Copy To: Paul VanMiddleborough
Purchase Order No.: 073-93170

Section C
Invoice Information:
Attention: Golden Assoc
Company Name: Golden Assoc
Address: Redmond, WA
Phone: (425) 883-0777
Pace Project Manager: SEM Materlaks
Pace Profile #: 073-93170

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Y/N	Requested Analysis Filtered (Y/N)		Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB							DATE	TIME	
1	G4P-19-15	Drinking Water DW	10/10/08	1645				Unpreserved	X				
2	-20-15	Water WT		1615				H ₂ SO ₄					
3	-21B-7.5	Waste Water WW		1575			2	HCl					
4	-21B-12	Product P		1520			2	NaOH					
5	-22-2.5	Soil/Solid SL		1415			2	HNO ₃					
6	-22-7	Oil OL		1425			2	H ₂ O ₂					
7	-23-2.5	Wipe WP		1215			2	Unpreserved					
8	-23-15	Air AR		1220			2	Unpreserved					
9	-24-15	Tissue TS		1100			2	Unpreserved					
10	-25-15	Other OT		1045			2	Unpreserved					
11	-21B-2			1570			2	Unpreserved					

ADDITIONAL COMMENTS
Paul VanMiddleborough 10/10/08 1620 Natalie Jayne
 10/10/08 9:15

RELINQUISHED BY / AFFILIATION
 DATE TIME

ACCEPTED BY / AFFILIATION
 DATE TIME

SAMPLE CONDITIONS
 Received on _____
 Ice (Y/N) _____
 Custody Sealed (Y/N) _____
 Samples Intact (Y/N) _____

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Paul VanMiddleborough
 SIGNATURE of SAMPLER: Paul VanMiddleborough DATE Signed: 10/10/08 TIME: 1620

ORIGINAL

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0801

Cooler: AAD830

Temperatures: 4.5, 4.0, 5.0

COC #: 1255215

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0801-001	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-002	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-003	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-004	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-005	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-006	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-007	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-008	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-009	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-010	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0801-011	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

DATA VALIDATION
G0LSP0801

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170.05		SITE: SEM MATERIALS, IDAHO	
LABORATORY: PACE Analytical, Seattle		SDG: GOLSP0801	
SAMPLES		MATRIX: Soil	
GGP-19-15		GOLSP0801-001	
GGP-20-15		GOLSP0801-002	
GGP-21B-7.5	*	GOLSP0801-003 #	
GGP-21B-12		GOLSP0801-004 #	
GGP-22-2.5		GOLSP0801-005 #	
GGP-22-2.5DUP		GOLSP0801-005D	
GGP-22-7		GOLSP0801-006 #	
GGP-23-2.5	*	GOLSP0801-007 #	
GGP-23-15		GOLSP0801-008 #	
GGP-24-15	*	GOLSP0801-009	
GGP-25-15		GOLSP0801-010	
GGP-21B-2		GOLSP0801-011 #	
* Qualification Applied # Tested for EPH in ARI SDG # NT-96.			

DATA ASSESSMENT SUMMARY

REVIEW ITEM	VOA	BNA 8270	Pest/ PCB	NWTPH- Dx	Total Solids	OTHER EPH	OTHER
1. Data Completeness		O		O			
2. Holding Times		O		O			
3. Field Blanks		-		-	-		
4. Laboratory Blanks		O		O	-	-	
5. Surrogates (1)		X		X	-	-	
6. Lab Duplicate, Field Duplicate		-		-			
7. LCS, Blank Spike		O		O			
8. Matrix Spike /MS Duplicate (2)		X		X			
9. Result Verify, Detection Limits		O		O			
10. Overall Summary		O		O			

O = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or U)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/U)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: (1) Surrogates out of limit qualify SVOA detects as estimated 'J'; NWTPH-Dx surrogates out of limit qualify diesel & oil results as estimated 'J / UJ'.

(2) SVOA MS/MSD and/or RPD out of limit; Sample GGP-21B-7.5 qualified for select analytes; NWTPH-Dx MS/MSD and/or RPD out of limit; Sample GGP-23-2.5 qualified for select analytes;

Validated by: *Jan [Signature]* Date: April 19, 2009
 Reviewed by: _____ Date: _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.
- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

/ Acceptable
 x Absent
 o Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: all holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS); Chart other Contaminants: Qualif. Results <5X RLS according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Examples:

Comments/Qualified Results: Acceptable.

BLANK			SAMPLE	
MDL	Result	PQL	Result	Q Applied
0.3	0.45	1.0	0.8	1.0 U
0.3	0.99	1.0	1.8	1.8 J
0.3	1.5	1.0	1.1	1.5 U
0.3	1.5	1.0	1.8	1.8 J
0.3	0	1.0	0.85	0.85 J
0.3	0	1.0	1.8	1.8

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....

- Yes__ Surrogates analyzed
- NO__ Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)
- __ Recoveries above Method Control limits (J detects only)
- __ Recoveries below Method Control limits but >20% (J/UJ)
- __ Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results _____ SVOA; exceeded for Pyrene-d10: GGP-21B-7.5, GGP-24-15. Exceeded for Flourene-d10: GGP-21B-7.5, GGP-24-15. Exceeded for fluoronapthalene: GGP-24-15. Associated results qualified J for detects. _____ NWTPH-Dx; below limit for GGP-21B-12, GGP-21B-7.5, GGP-23-2.5, GGP-24-15, and GGP-25-15. Associated results qualified J/UJ. _____

6. Duplicate, Field Duplicates (Check all that apply).....

- __ Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL Parent ID:
- __ Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL Duplicate ID:
- __ Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results _____ Not Applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

- LCS %R 80-120% [Provided: LCS, LCSD, ~~BS, BSD ?~~ *MS*]
- __ LCS %R 50-79% or >120%, results >IDL estimated (J)
- __ LCS %R 50-79% and results <IDL estimated (UJ)
- __ LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: _____

8. MS / MSD Recovery on samples for associated Data Package...
MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

- MS/MSD %R 80-120% SPIKED SAMPLE IDs: GGP-21B-7.5
- MS/MSD %R 50-79% or >120%, results >IDL estimated (J) GGP-23-2.5
- __ MS/MSD %R 50-79% and results <IDL estimated (UJ)
- __ MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: SVOA Batch Q35356: MS/MSD on GGP-21B-7.5; Recovery limit out for Acenaphthene, Ideno 1,2,3 pyrene; RPD out for Anthracene, Fluoranthene, Pyrene, Ideno 1,2,3 pyrene, dibenzo a,h, anthracene, B(a)P, Chrysene, Benzo(b), Benzo(k), Benzo(g,h,i), and benzopyrene; Assoc. results qualified as estimated (J). NWTPH BATCH Q35357: MS on GGP-23-2.5; Recovery out for Diesel, and RPD out for Oil fraction; Assoc. results (J).

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported ~~in raw data~~: [Raw data provided / (Not Provided)] *TMS*
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____
GGP-21B-12; -22-7; and -23-15 tested for extractable Petroleum hydrocarbons
in SDG #NT-96 from ARI laboratory.

10. Overall Assessment..... Acceptable: **Yes** **NO**

Comments/Qualified Results: _____



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Client: Golder Associates
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Redmond, WA 98052-3333

Project Name:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Date Received:	10/11/2008 11:17:00AM
		Date Reported:	10/27/2008

Enclosed are the analytical results for the sample(s) received by the laboratory on October 11, 2008. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after January 25, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

Shannon Schelinder



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Sample Summary

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time	Type
GGP-2-15	GOLSP0802-001	10/07/2008 07:15	Soil
GGP-3-15	GOLSP0802-002	10/07/2008 07:45	Soil
GGP-4-10	GOLSP0802-003	10/07/2008 08:30	Soil
GGP-4-15	GOLSP0802-004	10/07/2008 08:35	Soil
GGP-5-15	GOLSP0802-005	10/07/2008 08:45	Soil
GGP-9-2.5	GOLSP0802-006	10/07/2008 13:40	Soil
GGP-9-10	GOLSP0802-007	10/07/2008 13:45	Soil
GGP-9-15	GOLSP0802-008	10/07/2008 13:50	Soil
GGP-10-2	GOLSP0802-009	10/07/2008 11:15	Soil
GGP-10-15	GOLSP0802-010	10/07/2008 11:25	Soil
GGP-11-12	GOLSP0802-011	10/07/2008 14:20	Soil
GGP-11-15	GOLSP0802-012	10/07/2008 14:25	Soil
GGP-13-15	GOLSP0802-013	10/07/2008 13:00	Soil
GGP-14-10	GOLSP0802-014	10/07/2008 12:30	Soil
GGP-14-15	GOLSP0802-015	10/07/2008 12:35	Soil
GGP-17-15	GOLSP0802-016	10/07/2008 10:45	Soil
GGP-18-15	GOLSP0802-017	10/07/2008 10:30	Soil
GGP-12B-2.5	GOLSP0802-018	10/08/2008 08:45	Soil
GGP-12B-7.5	GOLSP0802-019	10/08/2008 09:15	Soil
GGP-12B-15	GOLSP0802-020	10/08/2008 09:20	Soil
GGP-8-2.5	GOLSP0802-021	10/08/2008 10:45	Soil
GGP-8-7.5	GOLSP0802-022	10/08/2008 10:55	Soil
GGP-6-5	GOLSP0802-023	10/08/2008 12:00	Soil
GGP-6-15	GOLSP0802-024	10/08/2008 12:10	Soil



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Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-2-15	Matrix:	Soil
Collected On:	10/7/08 7:15	Lab Sample ID:	GOLSP0802-001
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	61	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	71	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	63	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.1	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	91	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	97	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.5	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-3-15	Matrix:	Soil
Collected On:	10/7/08 7:45	Lab Sample ID:	GOLSP0802-002
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20		280	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	64	% Rec	20		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	96	% Rec	20		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	128	% Rec	20		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	7.2	mg/Kg dry	1		5.1	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	49	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	81	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	87	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	95.8	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-4-10	Matrix:	Soil
Collected On:	10/7/08 8:30	Lab Sample ID:	GOLSP0802-003
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.4	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		22	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	86	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	92	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.9	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-4-15	Matrix:	Soil
Collected On:	10/7/08 8:35	Lab Sample ID:	GOLSP0802-004
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.9	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	49	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	64	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	59	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.0	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	85	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	91	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.0	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-5-15	Matrix:	Soil
Collected On:	10/7/08 8:45	Lab Sample ID:	GOLSP0802-005
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	7.1	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.8	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	54	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	67	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	61	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.0	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	69	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	74	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.5	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-9-2.5	Matrix:	Soil
Collected On:	10/7/08 13:40	Lab Sample ID:	GOLSP0802-006
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	2300	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	30000	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	20000	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	800	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Acenaphthene	4200	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Fluorene	3500	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Phenanthrene	5900	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Anthracene	1400	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Fluoranthene	1800	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Pyrene	10000	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	5700	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Chrysene	13000	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	3200	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	4000	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	1500	ug/kg dry	20		800	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	>250	% Rec	20		35-110	Q35418	10/14/2008	10/25/2008	*
Fluorene-d10	>250	% Rec	20		45-120	Q35418	10/14/2008	10/25/2008	*
Pyrene-d10	>250	% Rec	20		50-150	Q35418	10/14/2008	10/25/2008	*
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	3700	mg/Kg dry	10		160	Q35419	10/14/2008	10/20/2008	
Oil Range Organics	5500	mg/Kg dry	10		660	Q35419	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	240	% Rec	10		50-150	Q35419	10/14/2008	10/20/2008	*
n-Octacosane	0	% Rec	10		50-150	Q35419	10/14/2008	10/20/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.5	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-9-10	Matrix:	Soil
Collected On:	10/7/08 13:45	Lab Sample ID:	GOLSP0802-007
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	800	mg/Kg dry	10		53	Q35419	10/14/2008	10/20/2008	
Oil Range Organics	1300	mg/Kg dry	10		210	Q35419	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	26	% Rec	10		50-150	Q35419	10/14/2008	10/20/2008	*
n-Octacosane	10	% Rec	10		50-150	Q35419	10/14/2008	10/20/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	93.4	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-9-15	Matrix:	Soil
Collected On:	10/7/08 13:50	Lab Sample ID:	GOLSP0802-008
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.5	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	60	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	69	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	73	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.0	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	88	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	98.0	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-10-2	Matrix:	Soil
Collected On:	10/7/08 11:15	Lab Sample ID:	GOLSP0802-009
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20		250	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	80	% Rec	20		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	96	% Rec	20		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	112	% Rec	20		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	12	mg/Kg dry	1		5.1	Q35417	10/14/2008	10/21/2008	
Oil Range Organics	64	mg/Kg dry	1		20	Q35417	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	96	% Rec	1		50-150	Q35417	10/14/2008	10/21/2008	
n-Octacosane	102	% Rec	1		50-150	Q35417	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.2	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-10-15	Matrix:	Soil
Collected On:	10/7/08 11:25	Lab Sample ID:	GOLSP0802-010
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		4.9	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	82	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	88	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.4	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-11-12	Matrix:	Soil
Collected On:	10/7/08 14:20	Lab Sample ID:	GOLSP0802-011
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.3	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		21	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	88	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.4	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-11-15	Matrix:	Soil
Collected On:	10/7/08 14:25	Lab Sample ID:	GOLSP0802-012
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	68	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	79	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	72	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.1	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	82	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	86	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.2	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-13-15	Matrix:	Soil
Collected On:	10/7/08 13:00	Lab Sample ID:	GOLSP0802-013
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.4	Q35418	10/14/2008	10/24/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	60	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	71	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	66	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		4.7	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		19	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	95	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	104	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.8	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-14-10	Matrix:	Soil
Collected On:	10/7/08 12:30	Lab Sample ID:	GOLSP0802-014
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	20		290	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	64	% Rec	20		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	80	% Rec	20		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	96	% Rec	20		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	20	mg/Kg dry	1		5.0	Q35417	10/14/2008	10/21/2008	
Oil Range Organics	100	mg/Kg dry	1		20	Q35417	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	93	% Rec	1		50-150	Q35417	10/14/2008	10/21/2008	
n-Octacosane	97	% Rec	1		50-150	Q35417	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	92.3	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-14-15	Matrix:	Soil
Collected On:	10/7/08 12:35	Lab Sample ID:	GOLSP0802-015
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		4.9	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	90	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.3	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-17-15	Matrix:	Soil
Collected On:	10/7/08 10:45	Lab Sample ID:	GOLSP0802-016
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Acenaphthylene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Acenaphthene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Fluorene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Phenanthrene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Anthracene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Fluoranthene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Pyrene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Chrysene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.7	Q35418	10/14/2008	10/24/2008	
Surrogates:									
1-Fluoronaphthalene	60	% Rec	1		35-110	Q35418	10/14/2008	10/24/2008	
Fluorene-d10	69	% Rec	1		45-120	Q35418	10/14/2008	10/24/2008	
Pyrene-d10	67	% Rec	1		50-150	Q35418	10/14/2008	10/24/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		4.7	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		19	Q35417	10/14/2008	10/20/2008	
Surrogates:									
o-Terphenyl	81	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	87	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.9	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-18-15	Matrix:	Soil
Collected On:	10/7/08 10:30	Lab Sample ID:	GOLSP0802-017
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.3	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	58	% Rec	1		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	65	% Rec	1		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	67	% Rec	1		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.3	Q35417	10/14/2008	10/20/2008	
Oil Range Organics	ND	mg/Kg dry	1		21	Q35417	10/14/2008	10/20/2008	
<i>Surrogates:</i>									
o-Terphenyl	81	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
n-Octacosane	86	% Rec	1		50-150	Q35417	10/14/2008	10/20/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.2	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-12B-2.5	Matrix:	Soil
Collected On:	10/8/08 8:45	Lab Sample ID:	GOLSP0802-018
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.4	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		21	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	90	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	86.4	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-12B-7.5	Matrix:	Soil
Collected On:	10/8/08 9:15	Lab Sample ID:	GOLSP0802-019
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.1	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	56	% Rec	1		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	66	% Rec	1		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	67	% Rec	1		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.2	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		21	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	81	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	87	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.0	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-12B-15	Matrix:	Soil
Collected On:	10/8/08 9:20	Lab Sample ID:	GOLSP0802-020
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.1	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		20	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	93	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	99	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.3	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-8-2.5	Matrix:	Soil
Collected On:	10/8/08 10:45	Lab Sample ID:	GOLSP0802-021
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	220	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	710	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	430	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Phenanthrene	450	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Chrysene	160	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		130	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	72	% Rec	10		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	88	% Rec	10		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	80	% Rec	10		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	93	mg/Kg dry	1		5.5	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	140	mg/Kg dry	1		22	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Terphenyl	90	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	95	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	91.1	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-8-7.5	Matrix:	Soil
Collected On:	10/8/08 10:55	Lab Sample ID:	GOLSP0802-022
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		5.1	Q35419	10/14/2008	10/21/2008	
Oil Range Organics	ND	mg/Kg dry	1		21	Q35419	10/14/2008	10/21/2008	
<i>Surrogates:</i>									
o-Torphenyl	84	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
n-Octacosane	91	% Rec	1		50-150	Q35419	10/14/2008	10/21/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	95.4	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-6-5	Matrix:	Soil
Collected On:	10/8/08 12:00	Lab Sample ID:	GOLSP0802-023
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	1100	mg/Kg dry	20		99	Q35419	10/14/2008	10/22/2008	
Oil Range Organics	2700	mg/Kg dry	20		400	Q35419	10/14/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	0	% Rec	20		50-150	Q35419	10/14/2008	10/22/2008	*
n-Octacosane	46	% Rec	20		50-150	Q35419	10/14/2008	10/22/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540E					
Solids, Total	94.0	%	1		0.1	Q35443	10/14/2008	10/14/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-6-15	Matrix:	Soil
Collected On:	10/8/08 12:10	Lab Sample ID:	GOLSP0802-024
Received On:	10/11/08 11:17		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Acenaphthylene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Acenaphthene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Fluorene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Phenanthrene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Anthracene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Fluoranthene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Pyrene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Chrysene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		140	Q35418	10/14/2008	10/25/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	72	% Rec	10		35-110	Q35418	10/14/2008	10/25/2008	
Fluorene-d10	88	% Rec	10		45-120	Q35418	10/14/2008	10/25/2008	
Pyrene-d10	104	% Rec	10		50-150	Q35418	10/14/2008	10/25/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	57	mg/Kg dry	1		4.9	Q35419	10/14/2008	10/22/2008	
Oil Range Organics	130	mg/Kg dry	1		20	Q35419	10/14/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	85	% Rec	1		50-150	Q35419	10/14/2008	10/22/2008	
n-Octacosane	97	% Rec	1		50-150	Q35419	10/14/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.0	%	1		0.1	Q35443	10/14/2008	10/14/2008	



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
 940 Harney St.
 Seattle, WA 98108
 Phone: 206.767.5060
 Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35417	Analysis Method:	NWTPH-D
QC Batch Method:	3545A (NWTPH-Low)	Analysis Description:	NWTPH Diesel
Preparation Started:	10/14/2008		

Blank: B101408GSVSLO

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1		2.5	
Oil Range Organics	ND	mg/Kg dry	1		10	
<i>Surrogates:</i>				% Rec		
o-Terphenyl			1		89 50-150	
n-Octacosane			1		95 50-150	

LCS: S101408GSVSLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	91	mg/Kg dry	1	100	91	56-124	
Oil Range Organics	100	mg/Kg dry	1	100	101	20-160	
<i>Surrogates:</i>							
o-Terphenyl			1		110	50-150	
n-Octacosane			1		102	50-150	

Matrix Spike: GOLSP0802-002MS Parent Sample: GGP-3-15

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	130	mg/Kg dry	1	103	7.2	122	50-150	
Oil Range Organics	190	mg/Kg dry	1	103	49	134	20-160	
<i>Surrogates:</i>								
o-Terphenyl			1			93	50-150	
n-Octacosane			1			92	50-150	

Sample Duplicate: GOLSP0802-002D Parent Sample: GOLSP0802-002

Analyte	Duplicate Result	Units	DF	Parent Result	RPD	RPD Limit	Qualifiers
Diesel Range Organics	6.5	mg/Kg dry	1	7.2	10.7	50	
Oil Range Organics	41	mg/Kg dry	1	49	17.6	50	
<i>Surrogates:</i>					% Rec		
o-Terphenyl			1			92	50-150
n-Octacosane			1			98	50-150



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
 940 Harney St.
 Seattle, WA 98108
 Phone: 206.767.5060
 Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35418	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/14/2008		

Blank: B101408MPNSLO

Analyte	Blank			Detection Limit Threshold	Control Limit	Qualifiers
	Result	Units	DF			
Naphthalene	ND	ug/kg dry	1		6.7	
2-Methylnaphthalene	ND	ug/kg dry	1		6.7	
1-Methylnaphthalene	ND	ug/kg dry	1		6.7	
Acenaphthylene	ND	ug/kg dry	1		6.7	
Acenaphthene	ND	ug/kg dry	1		6.7	
Fluorene	ND	ug/kg dry	1		6.7	
Phenanthrene	ND	ug/kg dry	1		6.7	
Anthracene	ND	ug/kg dry	1		6.7	
Fluoranthene	ND	ug/kg dry	1		6.7	
Pyrene	ND	ug/kg dry	1		6.7	
Benzo(a)anthracene	ND	ug/kg dry	1		6.7	
Chrysene	ND	ug/kg dry	1		6.7	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(a)pyrene	ND	ug/kg dry	1		6.7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.7	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.7	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.7	
<i>Surrogates:</i>					% Rec	
1-Fluoronaphthalene			1		59	35-110
Fluorene-d10			1		65	45-120
Pyrene-d10			1		66	50-150

LCS: S101408MPNSLO

Analyte	Blank Spike			Spike Conc.	% Rec	% Rec Limits	Qualifiers
	Result	Units	DF				
Naphthalene	52	ug/kg dry	1	62.5	82	40-105	
2-Methylnaphthalene	50	ug/kg dry	1	62.5	79	45-105	
1-Methylnaphthalene	50	ug/kg dry	1	62.5	80	45-105	
Acenaphthylene	51	ug/kg dry	1	62.5	81	45-105	
Acenaphthene	50	ug/kg dry	1	62.5	80	45-110	
Fluorene	55	ug/kg dry	1	62.5	87	50-110	
Phenanthrene	52	ug/kg dry	1	62.5	82	50-110	
Anthracene	54	ug/kg dry	1	62.5	86	55-105	
Fluoranthene	58	ug/kg dry	1	62.5	93	55-115	
Pyrene	46	ug/kg dry	1	62.5	73	45-125	
Benzo(a)anthracene	54	ug/kg dry	1	62.5	86	50-110	
Chrysene	53	ug/kg dry	1	62.5	84	55-110	
Benzo(b)fluoranthene	60	ug/kg dry	1	62.5	96	45-115	
Benzo(k)fluoranthene	55	ug/kg dry	1	62.5	88	45-125	
Benzo(a)pyrene	53	ug/kg dry	1	62.5	85	50-110	
Indeno(1,2,3-cd)pyrene	44	ug/kg dry	1	62.5	70	40-120	
Dibenzo(a,h)anthracene	45	ug/kg dry	1	62.5	72	40-125	
Benzo(g,h,i)perylene	39	ug/kg dry	1	62.5	62	40-125	
<i>Surrogates:</i>							
1-Fluoronaphthalene			1		76	35-110	
Fluorene-d10			1		83	45-120	



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
 940 Harney St.
 Seattle, WA 98108
 Phone: 206.767.5060
 Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	
QC Batch(es):	Q35418	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/14/2008		
LCS: S101408MPNSLO			

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
<i>Surrogates:</i>							
Pyrene-d10			1		75	50-150	

Matrix Spike: GOLSP0802-024MS	Parent Sample: GOLSP0802-024
Matrix Spike Duplicate: GOLSP0802-024MSD	

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
Naphthalene	140	ug/kg dry	10	63.7	ND	80	40-105			
	140			64.6		88	40-105	10	30	
2-Methylnaphthalene	140	ug/kg dry	10	63.7	ND	88	45-105			
	140			64.6		96	45-105	9	30	
1-Methylnaphthalene	140	ug/kg dry	10	63.7	ND	88	45-105			
	140			64.6		88	45-105	0	30	
Acenaphthylene	140	ug/kg dry	10	63.7	ND	80	45-105			
	140			64.6		88	45-105	10	30	
Acenaphthene	140	ug/kg dry	10	63.7	ND	80	45-110			
	140			64.6		88	45-110	10	30	
Fluorene	140	ug/kg dry	10	63.7	ND	96	50-110			
	140			64.6		104	50-110	8	30	
Phenanthrene	140	ug/kg dry	10	63.7	ND	87	50-110			
	140			64.6		87	50-110	0	30	
Anthracene	140	ug/kg dry	10	63.7	ND	88	55-105			
	140			64.6		96	55-105	9	30	
Fluoranthene	140	ug/kg dry	10	63.7	ND	96	55-115			
	140			64.6		112	55-115	15	30	
Pyrene	140	ug/kg dry	10	63.7	ND	53	45-125			
	140			64.6		70	45-125	9	30	
Benzo(a)anthracene	140	ug/kg dry	10	63.7	ND	70	50-110			
	140			64.6		79	50-110	6	30	
Chrysene	140	ug/kg dry	10	63.7	ND	53	55-110			*
	140			64.6		54	55-110	0	30	*
Benzo(b)fluoranthene	140	ug/kg dry	10	63.7	ND	96	45-115			
	140			64.6		112	45-115	15	30	
Benzo(k)fluoranthene	140	ug/kg dry	10	63.7	ND	80	45-125			
	140			64.6		96	45-125	18	30	
Benzo(a)pyrene	140	ug/kg dry	10	63.7	ND	104	50-110			
	140			64.6		112	50-110	7	30	*
Indeno(1,2,3-cd)pyrene	140	ug/kg dry	10	63.7	ND	96	40-120			
	140			64.6		104	40-120	8	30	
Dibenzo(a,h)anthracene	140	ug/kg dry	10	63.7	ND	80	40-125			
	140			64.6		88	40-125	10	30	
Benzo(g,h,i)perylene	140	ug/kg dry	10	63.7	ND	63	40-125			
	140			64.6		63	40-125	0	30	
<i>Surrogates:</i>										
1-Fluoronaphthalene			10			72	35-110			
						72	35-110			



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
940 Harney St.
Seattle, WA 98108
Phone: 206.767.5060
Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35418	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:			

Matrix Spike:	GOLSP0802-024MS	Parent Sample:	GOLSP0802-024
Matrix Spike Duplicate:	GOLSP0802-024MSD		

Analyte	Matrix Spike			Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
	Result	Units	DF							
<i>Surrogates:</i>										
Fluorene-d10			10			88	45-120			
						96	45-120			
Pyrene-d10			10			104	50-150			
						112	50-150			



Pace Analytical Services, Inc.
Quality Control Results

Pace Analytical Services, Inc.
 940 Harney St.
 Seattle, WA 98108
 Phone: 206.767.5060
 Fax: 206.767.5063

Project:	SemMaterials Spokane Facility RJ	SDG Number:	GOLSP0802
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35419	Analysis Method:	NWTPH-D
QC Batch Method:	3545A (NWTPH-Low)	Analysis Description:	NWTPH Diesel
Preparation Started:	10/14/2008		

Blank: B101408GSVSLO2

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1		2.5	
Oil Range Organics	ND	mg/Kg dry	1		10	
<i>Surrogates:</i>					% Rec	
o-Terphenyl			1		83	50-150
n-Octacosane			1		90	50-150

LCS: S101408GSVSLO2

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	89	mg/Kg dry	1	100	89	56-124	
Oil Range Organics	100	mg/Kg dry	1	100	100	20-160	
<i>Surrogates:</i>							
o-Terphenyl			1		107	50-150	
n-Octacosane			1		99	50-150	

Matrix Spike: GOLSP0802-024MS Parent Sample: GGP-6-15

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	99	mg/Kg dry	1	104	57	40	50-150	*
Oil Range Organics	130	mg/Kg dry	1	104	130	8	20-160	*
<i>Surrogates:</i>								
o-Terphenyl			1			107	50-150	
n-Octacosane			1			97	50-150	

Sample Duplicate: GOLSP0802-024D Parent Sample: GOLSP0802-024

Analyte	Duplicate Result	Units	DF	Parent Result	RPD	RPD Limit	Qualifiers
Diesel Range Organics	38	mg/Kg dry	1	57	40.2	50	
Oil Range Organics	91	mg/Kg dry	1	130	32.4	50	
<i>Surrogates:</i>					% Rec		
o-Terphenyl			1			89	50-150
n-Octacosane			1			98	50-150



Pace Analytical Services, Inc.

Notes and Definitions

Pace Analytical Services, Inc.

940 Harney St.

Seattle, WA 98108

Phone: 206.767.5060

Fax: 206.767.5063

SDG No: **GOLSP0802**

Report Specific Notes:

ND The analyte of interest was not detected, to the limit of detection indicated

* Recovery result outside established control limits

Laboratory Reporting Conventions:

DF Dilution factor

Detection Limit Threshold The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.

MDL The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.

IDL Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.

Reporting Limit The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.

QC Batch Group Quality Control Batch Group. The entity that links analytical results and supporting quality control results.

% Rec Percent recovery.

Limits The upper and lower control limits for spike recoveries.

RPD Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.

RPD Limit The maximum RPD allowed for a set of duplicate measurements (see RPD).

Spike conc. The measured concentration, in sample basis units, of a spiked sample.

PQL Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.

LCS Laboratory Control Sample

GOLSP0802
LS# 8986

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A
Required Client Information:

Company: Golder Assee
Address: 18300 Union Hill Rd
Redmond, WA 98053
Email To: amarell@golder.com
Phone: (425) 882-0777
Requested Due Date/TAT: 5/14

Section B
Required Project Information:

Report To: Douglas Maxwell
Copy To: Paul Van Middlesworth
Purchase Order No.: (208) 676-9833
Project Name:
Project Number: 073-93170

Section C
Invoice Information:

Attention:
Company Name: Golder Assee
Address: Redmond, WA
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Section D
Regulatory Agency:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
Site Location: WA
STATE:

Page: 1 of 2
1255217

ITEM #	SAMPLE ID (A-Z, 0-9 / -)	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=RAB C=COMP)	MATRIX CODE (see valid codes to left)	DATE	TIME	COMPOSITE ENDIGRAB	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test (Y/N)	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
			COMPOSITE START	COMPOSITE ENDIGRAB																
1	GGP-2-15	DW WT WW P SL OL WP AR TS OT				SL	6/17/08	0715					2	Unpreserved	X					
2	GGP-3-15	Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other						0745					2	H ₂ O ₂ HCl HNO ₃ NaOH Na ₂ S ₂ O ₈ Methanol Other	X					
3	GGP-4-10							0830					2							
4	GGP-4-15							0835					2							
5	GGP-5-15							0845					2							
6	GGP-9-2.5							1340					2							
7	GGP-9-10							1345					2							
8	GGP-9-15							1350					2							
9	GGP-10-2							1115					2							
10	GGP-10-15							1125					2							
11	GGP-11-12							1420					2							
12	GGP-11-15							1425					2							

Relinquished By / Affiliation: Paul Van Middlesworth / Golder Assee
Date: 10/18/11
Time: 11:17

Additional Comments: Residual Chlorine (Y/N)

Requested Analysis Filtered (Y/N): Y

Temp in °C:

Received on Ice (Y/N):

Custody Sealed Cooler (Y/N):

Samples Intact (Y/N):

DATE SIGNED (MM/DD/YY):

SIGNATURE OF SAMPLER:

PRINT NAME OF SAMPLER:

SAMPLER NAME AND SIGNATURE:

ORIGINAL

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

GOLSP0800
LS# 8916



Pace Analytical
www.pacelabs.com

Section A
Required Client Information:
Company: Golden Assets
Address: 18300 Union Hill
Redmond, WA
Email To: _____
Phone: (509) 883-0717
Requested Due Date/TAT: 5th.

Section B
Required Project Information:
Report To: Douglas Mored
Copy To: Paul Van Middleburg
Purchase Order No.: _____
Project Name: _____
Project Number: 073-93170

Section C
Invoice Information:
Attention: _____
Company Name: _____
Address: _____
Pace Order Scientist: _____
Pace Project Manager: _____
Pace Profile #: _____

Section D
Required Client Information:
Matrix Codes: DW Drinking Water, WT Waste Water, WW Wastewater Product, P Product, SL Soil/Solid, OL Oil, WP Wipe, AR Air, TS Tissue, OT Other
Matrix J. CODE: _____
SAMPLE ID: _____
(A-Z, 0-9 / -)

Page: 2 of 2
1255218

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location: _____
 STATE: WA

ITEM #	Matrix Codes	SAMPLE ID (A-Z, 0-9 / -)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Temp in °C	Received on	Custody	Sealed Cooler	Samples Intact	
					COMPOSITE START	COMPOSITE END										
13		GGP-13-15	9	G	10/17/08 1300		2	Unpreserved	X							
14		GGP-14-10	1	G	1230			H ₂ SO ₄	X							
15		GGP-14-15	1	G	1235			HNO ₃	X							
16		GGP-17-15	1	G	1045			HCl	X							
17		GGP-18-15	1	G	1030			NaOH	X							
18		GGP-12B-2.5	1	G	10/18/08 0845		2	Na ₂ S ₂ O ₃	X							
19		GGP-12B-7.5	1	G	10/18/08 0915		2	NaOH	X							
20		GGP-12B-15	1	G	10/18/08 0920		2	HNO ₃	X							
21		GGP-8-2.5	1	G	10/18/08 1045		2	HCl	X							
22		GGP-8-7.5	1	G	10/18/08 1055		2	Unpreserved	X							
23		GGP-6-5	1	G	10/18/08 1200		2	H ₂ SO ₄	X							
24		GGP-6-15	1	G	10/18/08 1210		2	HNO ₃	X							

ADDITIONAL COMMENTS
Paul Van Middleburg
10/11/08
10/11/08
10/11/08

RELINQUISHED BY / AFFILIATION
Paul Van Middleburg
10/11/08

ACCEPTED BY / AFFILIATION
Stacy Pace
10/11/08

DATE SIGNED (MM/DD/YY)
 DATE SIGNED (MM/DD/YY): _____

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____

ORIGINAL



CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

* updated COC rec'd via email 10/13/08 -8

Section A Required Client Information:
 Company: *Walker Assoc.*
 Address: *18300 Union Hill Rd., Kirkland, WA 98052*
 Email To: *l.mercer@walker.com*
 Phone: *883-0171*
 Requested Dup Data/TAT: *360*

Section B Required Project Information:
 Report To: *Paul Van Alstede*
 Copy To: *Paul Van Alstede*
 Purchase Order No.: *(208) 676-9433*
 Project Name: *073-93170*

Section C Invoice Information:
 Page: *1* of *2*
 Invoice Number: *1255217*

REGULATORY AGENCY:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location:
 STATE: *WA*

ITEM #	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Preservatives	Analysis Test (Y/N)	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No. / Lab I.D.
			COMPOSITE STRIP	COMPOSITE ENDOGAP													
1	GGP-2-15	↓			9/18	0715											
2	GGP-3-15	↓			9/18	0745											
3	GGP-4-15	↓			9/18	0830											
4	GGP-4-15	↓			9/18	0835											
5	GGP-5-15	↓			9/18	0845											
6	GGP-9-10	↓			10/10	1340											
7	GGP-9-15	↓			10/10	1345											
8	GGP-9-15	↓			10/10	1350											
9	GGP-10-2	↓			10/10	1415											
10	GGP-10-15	↓			10/10	1425											
11	GGP-11-12	↓			10/10	1430											
12	GGP-11-15	↓			10/10	1435											

ADDITIONAL COMMENTS:
Paul Van Alstede

RELINQUISHED BY / AFFILIATION:
Paul Van Alstede

DATE: *10/10*

TIME: *1640*

ACCEPTED BY / AFFILIATION:

DATE:

TIME:

SAMPLER NAME AND SIGNATURE:

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

Femp in °C:

Received on Ice (Y/N):

Custody Sealed (Y/N):

Samples Intact (Y/N):

Important Note: By signing this form you are accepting Face's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

* updated col rec'd via email 10/13/08 - n

CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:
 Company: Golden Assoc.
 Address: 1320 Union Hill
 Email To: Kodward WA

Section B Required Project Information:
 Report To: Douglas Maxwell
 Copy To: Paul Van Melle
 Purchase Order No: _____
 Project Name: _____
 Requested Due Date/TAT: Std.

Section C Invoice Information:
 Attention: _____
 Company Name: _____
 Address: _____
 Pace Quote Reference: _____
 Pace Project Manager: _____
 Pace Profile #: _____

Page: 2 of 2
 Invoice Number: 1255218

REGULATORY AGENCY:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location: _____
 STATE: WA

ITEM #	Section D Required/Client Information	Matrix Codes MATRIX / CODE DW WT WW P SL OL WP AR TS OT	COLLECTED		SAMPLE TYPE (G=GRAB O=COMP)	MATRIX CODE (see vial codes to left)	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
			COMPOSITE START	COMPOSITE END/GRAB															
1	GAP - 13-15				G		Paul Van Melle	10/13/08	1300										
2	GAP - 14-10				G				1330										
3	GAP - 14-15				G				1235										
4	GAP - 17-15				G				1045										
5	GAP - 18-15				G				1030										
6	GAP - 12B-2.5				G				1200										
7	GAP - 12B-7.5				G				1200										
8	GAP - 12B-15				G				1200										
9	GAP - 8-2.5				G				1200										
10	GAP - 8-7.5				G				1200										
11	GAP - 6-5				G				1210										
12	GAP - 6-15				G				1210										

Requested Analysis: Filtered (Y/N)

Preservatives: H₂SO₄, HNO₃, HCl, NaOH, Na₂S₂O₃, Methanol, Other

Analysis Test: Unpreserved Preserved

Residual Chlorine (Y/N) PAH analysis

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION Paul Van Melle

DATE 10/13/08

TIME 12:10

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

F-ALL-Q-020rev.07.15-May-2007

4

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0802 Taken By: Client
Cooler: AAD809 Transferred: FedEx
COC #: 1255217/18
Project: SemMaterials Spokane Facility RI (Golder Associates)

Date samples were received at the laboratory: 10/11/2008
Date cooler was opened: 10/11/2008 11:17AM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 862584499838
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: Custody Seals Description: 2 in front
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: RF

B. LOG-IN PHASE:

Date samples were logged-in: 10/13/2008 10:18AM
Logged-in by Rachel Frank (sign) RF

9. Describe type of packing in cooler:

10. Were all bottles sealed in separate plastic bags? NO
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 3.2

DISCREPANCIES:

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0802
Cooler: AAD809
Temperatures: 3.2
COC #: 1255217/18

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0802-001	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-002	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-003	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-004	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-005	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-006	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-007	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-008	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-009	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-010	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-011	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-012	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-013	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-014	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-015	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-016	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-017	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-018	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-019	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-020	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-021	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-022	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Basic Preserved pH pH must be greater than 12
 NC Not Checked for pH

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0802

Cooler: AAD809

Temperatures: 3.2

COC #: 1255217/18

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0802-023	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0802-024	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

DATA VALIDATION
G0LSP0802

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170.05			SITE: SEM MATERIALS, IDAHO		
LABORATORY: PACE Analytical, Seattle			SDG: GOLSP0802		
SAMPLES / Collect / Lab ID#			MATRIX: Soil		
GGP-2-15	10/07/2008 07:15	GOLSP0802-001	GGP-13-15	10/07/2008 13:00	GOLSP0802-013
GGP-3-15 *	10/07/2008 07:45	GOLSP0802-002	GGP-14-10	10/07/2008 12:30	GOLSP0802-014
GGP-4-10	10/07/2008 08:30	GOLSP0802-003	GGP-14-15	10/07/2008 12:35	GOLSP0802-015
GGP-4-15	10/07/2008 08:35	GOLSP0802-004	GGP-17-15	10/07/2008 10:45	GOLSP0802-016
GGP-5-15	10/07/2008 08:45	GOLSP0802-005	GGP-18-15	10/07/2008 10:30	GOLSP0802-017
GGP-9-2.5 *	10/07/2008 13:40	GOLSP0802-006	GGP-12B-2.5	10/08/2008 08:45	GOLSP0802-018
GGP-9-10 *	10/07/2008 13:45	GOLSP0802-007	GGP-12B-7.5	10/08/2008 09:15	GOLSP0802-019
GGP-9-15	10/07/2008 13:50	GOLSP0802-008	GGP-12B-15	10/08/2008 09:20	GOLSP0802-020
GGP-10-2	10/07/2008 11:15	GOLSP0802-009	GGP-8-2.5	10/08/2008 10:45	GOLSP0802-021
GGP-10-15	10/07/2008 11:25	GOLSP0802-010	GGP-8-7.5	10/08/2008 10:55	GOLSP0802-022
GGP-11-12	10/07/2008 14:20	GOLSP0802-011	GGP-6-5 *	10/08/2008 12:00	GOLSP0802-023
GGP-11-15	10/07/2008 14:25	GOLSP0802-012	GGP-6-15 *	10/08/2008 12:10	GOLSP0802-024

③ Subcontracted EPH analysis; See ARI SDG#NT-96.

* Qualification applied this sample.

DATA ASSESSMENT SUMMARY

REVIEW ITEM	VOA	BNA 8270	NWTPH- Dx	Total Solids	OTHER EPH	OTHER
1. Data Completeness		○	○	○	Sub-contract ③	
2. Holding Times		○	○	○	Sub-contract	
3. Field Blanks		-	-	-		
4. Laboratory Blanks		○	○	-	-	
5. Surrogates ①		X	X	-	-	
6. Lab Duplicate, Field Duplicate		○	○			
7. LCS, Blank Spike		○	○	-		
8. Matrix Spike /MS Duplicate ②		X	X	-		
9. Result Verify, Detection Limits		○	○	-	Sub-contract	
10. Overall Summary		○	○	○	Sub-contract	

○ = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or UJ)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: ① Surrogates out of limit qualify SVOA detects as estimated 'T'; NWTPH-Dx surrogates out of limit qualify diesel & oil results as estimated 'J'.

② SVOA MS/MSD and/or RPD out of limit; Sample GGP-6-15 qualified for select analytes; NWTPH-Dx MS/MSD and/or RPD out of limit; Sample GGP-6-15 qualified for select analytes;

Validated by: Tom Stapp
 Reviewed by: _____

Date: April 19, 2009
 Date: _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

Acceptable
 Absent
 Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: all holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not Applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs); Chart other Contaminants: Qualif. Results <5X RLs according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Comments/Qualified Results: _____

ACCEPTABLE

MDL	BLANK		SAMPLE		Q Applied
	Result	PQL	Result		
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....

Yes Surrogates analyzed

NO Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)

Recoveries above Method Control limits (J detects only)

Recoveries below Method Control limits but >20% (J/UJ)

Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results SVOA; exceeded for Pyrene-d10, Flourene-d10, and fluoronapthalene: GGP-9-2.5. Associated results qualified J for detects. NWTPH-Dx; below limit for GGP-9-2.5, GGP-9-10, AND GGP-6-5. Associated results qualified J/UJ.

6. Duplicate, Field Duplicates (Check all that apply).....

Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL

Parent ID:

Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL

Duplicate ID:

Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results Not Applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]

LCS %R 50-79% or >120%, results >IDL estimated (J)

LCS %R 50-79% and results <IDL estimated (UJ)

LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: ACCEPTABLE

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

MS/MSD %R 50-79% and results <IDL estimated (UJ)

MS/MSD %R <50% and all results rejected (R/UR)

GGP-6-15
GGP-3-15

Comments/Qualified Results: SVOA MS/MSD out of limit for GGP-6-15; Qual. Chrysene 'UJ' estimated. NWTPH-Dx: MS/MSD out of limit for GGP-6-15; Qual. Diesel and Oil as estimated 'J'.

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported in raw data; [Raw data provided / Not Provided] *TWO*
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____
_____ GGP-4-15, GGP-9-2.5, GGP-9-15, GGP-10-2, GGP-11-15, GGP-14-10, GGP-12B-2.5, GGP-12B-7.5, GGP-8-2.5, GGP-6-15 tested for extractable Petroleum hydrocarbons. See ARI report. *SDG # NT-96*

10. Overall Assessment..... Acceptable: Yes NO

Comments/Qualified Results: _____



Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
Phone: (206)767-5060
Fax: (206)767-5063

Client: Golder Associates
18300 NE Union Hill Rd, #200
Redmond, WA 98052-3333

Project Name:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Date Received:	10/15/2008 9:30:00AM
		Date Reported:	10/30/2008

Enclosed are the analytical results for the sample(s) received by the laboratory on October 15, 2008. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after January 27, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

A handwritten signature in black ink, appearing to read 'Shannon Schelinder', written in a cursive style.

Shannon Schelinder



Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
Phone: (206)767-5060
Fax: (206)767-5063

Sample Summary

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time	Type
GGP-1-12.5	GOLSP0803-001	10/08/2008 13:15	Soil
GGP-7-15	GOLSP0803-002	10/08/2008 11:15	Soil
GGP-26-16	GOLSP0803-003	10/08/2008 14:15	Soil
GGP-27-16	GOLSP0803-004	10/08/2008 15:00	Soil
GGP-28-16	GOLSP0803-005	10/08/2008 15:30	Soil
GGP-29-16	GOLSP0803-006	10/08/2008 16:20	Soil
GGP-30-5	GOLSP0803-007	10/08/2008 16:45	Soil
GGP-30-16	GOLSP0803-008	10/08/2008 16:50	Soil
GGP-16-15	GOLSP0803-009	10/07/2008 09:30	Soil
GGP-15B-15	GOLSP0803-010	10/07/2008 10:15	Soil
GGP-24-10	GOLSP0803-011	10/06/2008 11:10	Soil
GGP-24-2.5	GOLSP0803-012	10/06/2008 11:20	Soil
GGP-3-7.5	GOLSP0803-013	10/07/2008 07:55	Soil
GGP-14-2.5	GOLSP0803-014	10/07/2008 12:45	Soil
GGP-11-2.5	GOLSP0803-015	10/07/2008 14:24	Soil
GGP-4-2.5	GOLSP0803-016	10/07/2008 08:40	Soil
GGP-3-2.5	GOLSP0803-017	10/07/2008 07:50	Soil
GGP-6-2.5	GOLSP0803-018	10/08/2008 12:15	Soil
GGP-8-15	GOLSP0803-019	10/08/2008 11:00	Soil



Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
 940 South Harney
 Seattle, WA 98108
 Phone: (206)767-5060
 Fax: (206)767-5063

Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-1-12.5	Matrix:	Soil
Collected On:	10/8/08 13:15	Lab Sample ID:	GOLSP0803-001
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	55	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	72	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	80	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	88	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.0	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-7-15	Matrix:	Soil
Collected On:	10/8/08 11:15	Lab Sample ID:	GOLSP0803-002
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Pyrene	160	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	10		140	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	80	% Rec	10		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	128	% Rec	10		45-120	Q35498	10/16/2008	10/28/2008	*
Pyrene-d10	96	% Rec	10		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	95	mg/Kg dry	1		26	Q35496	10/16/2008	10/27/2008	
Oil Range Organics	300	mg/Kg dry	1		110	Q35496	10/16/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	88	% Rec	1		50-150	Q35496	10/16/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	88.9	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-26-16	Matrix:	Soil
Collected On:	10/8/08 14:15	Lab Sample ID:	GOLSP0803-003
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	58	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	70	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	75	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		25	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	92	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	91.2	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-27-16	Matrix:	Soil
Collected On:	10/8/08 15:00	Lab Sample ID:	GOLSP0803-004
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	4		28	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	67	% Rec	4		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	86	% Rec	4		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	83	% Rec	4		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	87	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	91.6	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-28-16	Matrix:	Soil
Collected On:	10/8/08 15:30	Lab Sample ID:	GOLSP0803-005
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Accnaphthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	60	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	71	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	69	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		25	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	89	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.1	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-29-16	Matrix:	Soil
Collected On:	10/8/08 16:20	Lab Sample ID:	GOLSP0803-006
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	65	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	75	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	86	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	84	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	86.6	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-30-5	Matrix:	Soil
Collected On:	10/8/08 16:45	Lab Sample ID:	GOLSP0803-007
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel						Methods (Preparation Analysis): 3545A NWTPH-D			
Diesel Range Organics	470	mg/Kg dry	4		110	Q35496	10/16/2008	10/27/2008	
Oil Range Organics	1900	mg/Kg dry	4		440	Q35496	10/16/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	95	% Rec	4		50-150	Q35496	10/16/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C						Methods (Preparation Analysis): NONE SM2540B			
Solids, Total	80.2	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-30-16	Matrix:	Soil
Collected On:	10/8/08 16:50	Lab Sample ID:	GOLSP0803-008
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthenc	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthenc	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracenc	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylenc	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	60	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	71	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	81	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	88.0	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-16-15	Matrix:	Soil
Collected On:	10/7/08 9:30	Lab Sample ID:	GOLSP0803-009
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.8	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	59	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	75	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	93	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		25	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	91	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	93.3	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-15B-15	Matrix:	Soil
Collected On:	10/7/08 10:15	Lab Sample ID:	GOLSP0803-010
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Accenaphthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.9	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	57	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	66	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	81	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	82	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	90.9	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-24-10	Matrix:	Soil
Collected On:	10/6/08 11:10	Lab Sample ID:	GOLSP0803-011
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	850	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	760	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Chrysene	1500	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	2000	ug/kg dry	20		580	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	191	% Rec	20		35-110	Q35498	10/16/2008	10/28/2008	*
Fluorene-d10	>250	% Rec	20		45-120	Q35498	10/16/2008	10/28/2008	*
Pyrene-d10	128	% Rec	20		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	600	mg/Kg dry	20		540	Q35496	10/16/2008	10/23/2008	
Oil Range Organics	3000	mg/Kg dry	20		2200	Q35496	10/16/2008	10/23/2008	
<i>Surrogates:</i>									
o-Terphenyl	24	% Rec	20		50-150	Q35496	10/16/2008	10/23/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	85.4	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-24-2.5	Matrix:	Soil
Collected On:	10/6/08 11:20	Lab Sample ID:	GOLSP0803-012
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	13000	mg/Kg dry	20		550	Q35496	10/16/2008	10/23/2008	
Oil Range Organics	13000	mg/Kg dry	20		2200	Q35496	10/16/2008	10/23/2008	
<i>Surrogates:</i>									
o-Terphenyl	>250	% Rec	20		50-150	Q35496	10/16/2008	10/23/2008	*
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	80.7	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-24-2.5	Matrix:	Soil
Collected On:	10/6/08 11:20	Lab Sample ID:	GOLSP0803-012DL
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	9300	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
2-Methylnaphthalene	86000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
1-Methylnaphthalene	63000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Acenaphthylene	2000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Acenaphthene	10000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Fluorene	13000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Phenanthrene	44000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Anthracene	6000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Fluoranthene	3600	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Pyrene	17000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Benzo(a)anthracene	9500	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Chrysene	16000	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Benzo(b)fluoranthene	2700	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Benzo(a)pyrene	3800	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
Benzo(g,h,i)perylene	1200	ug/kg dry	40		1200	Q35498	10/16/2008	10/29/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	>250	% Rec	40		35-110	Q35498	10/16/2008	10/29/2008	*
Fluorene-d10	>250	% Rec	40		45-120	Q35498	10/16/2008	10/29/2008	*
Pyrene-d10	>250	% Rec	40		50-150	Q35498	10/16/2008	10/29/2008	*



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-3-7.5	Matrix:	Soil
Collected On:	10/7/08 7:55	Lab Sample ID:	GOLSP0803-013
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	79	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	88.2	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility R1	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-14-2.5	Matrix:	Soil
Collected On:	10/7/08 12:45	Lab Sample ID:	GOLSP0803-014
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	54	mg/Kg dry	1		32	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	270	mg/Kg dry	1		130	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	91	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	57.1	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-11-2.5	Matrix:	Soil
Collected On:	10/7/08 14:24	Lab Sample ID:	GOLSP0803-015
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel						Methods (Preparation Analysis): 3545A NWTPH-D			
Diesel Range Organics	190	mg/Kg dry	4		110	Q35496	10/16/2008	10/23/2008	
Oil Range Organics	490	mg/Kg dry	4		440	Q35496	10/16/2008	10/23/2008	
<i>Surrogates:</i>									
o-Terphenyl	82	% Rec	4		50-150	Q35496	10/16/2008	10/23/2008	
Total Solids, Dried at 103-105 deg C						Methods (Preparation Analysis): NONE SM2540B			
Solids, Total	80.0	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-4-2.5	Matrix:	Soil
Collected On:	10/7/08 8:40	Lab Sample ID:	GOLSP0803-016
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	88	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	90.6	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-3-2.5	Matrix:	Soil
Collected On:	10/7/08 7:50	Lab Sample ID:	GOLSP0803-017
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	71	mg/Kg dry	1		26	Q35496	10/16/2008	10/23/2008	
Oil Range Organics	210	mg/Kg dry	1		100	Q35496	10/16/2008	10/23/2008	
<i>Surrogates:</i>									
o-Terphenyl	90	% Rec	1		50-150	Q35496	10/16/2008	10/23/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	88.2	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-6-2.5	Matrix:	Soil
Collected On:	10/8/08 12:15	Lab Sample ID:	GOLSP0803-018
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	34	mg/Kg dry	1		28	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	83	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	77.1	%	1		0.1	Q35502	10/16/2008	10/16/2008	



Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
 940 South Harney
 Seattle, WA 98108
 Phone: (206)767-5060
 Fax: (206)767-5063

Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
Client Sample ID:	GGP-8-15	Matrix:	Soil
Collected On:	10/8/08 11:00	Lab Sample ID:	GOLSP0803-019
Received On:	10/15/08 9:30		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthylene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Acenaphthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluorene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Phenanthrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Chrysene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.0	Q35498	10/16/2008	10/28/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	62	% Rec	1		35-110	Q35498	10/16/2008	10/28/2008	
Fluorene-d10	75	% Rec	1		45-120	Q35498	10/16/2008	10/28/2008	
Pyrene-d10	104	% Rec	1		50-150	Q35498	10/16/2008	10/28/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35496	10/16/2008	10/22/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35496	10/16/2008	10/22/2008	
<i>Surrogates:</i>									
o-Terphenyl	89	% Rec	1		50-150	Q35496	10/16/2008	10/22/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	92.2	%	1		0.1	Q35502	10/16/2008	10/16/2008	



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Quality Control Results

Pace Analytical Services, Inc.
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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35496	Analysis Method:	NWTPH-D
QC Batch Method:	3545A (NWTPH-Med.)	Analysis Description:	NWTPH Diesel
Preparation Started:	10/16/2008		

Blank: B101608GSVSLO

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1		12.5	
Oil Range Organics	ND	mg/Kg dry	1		50	
<i>Surrogates:</i>					% Rec	
o-Terphenyl			1		89	50-150

LCS: S101608GSVSLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	430	mg/Kg dry	1	500	85	56-124	
Oil Range Organics	430	mg/Kg dry	1	500	87	20-160	
<i>Surrogates:</i>							
o-Terphenyl			1		84	50-150	

Matrix Spike: GOLSP0803-019MS **Parent Sample:** GOLSP0803-019

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	460	mg/Kg dry	1	518	ND	88	50-150	
Oil Range Organics	460	mg/Kg dry	1	518	ND	88	20-160	
<i>Surrogates:</i>								
o-Terphenyl			1			101	50-150	

Sample Duplicate: GOLSP0803-019DUP **Parent Sample:** GOLSP0803-019

Analyte	Duplicate Result	Units	DF	Parent Result	RPD	RPD Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1	ND	200	50	
Oil Range Organics	ND	mg/Kg dry	1	ND	200	50	
<i>Surrogates:</i>					% Rec		
o-Terphenyl			1		84	50-150	



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Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35498	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/16/2008		

Blank: B101608MPNSLO

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Naphthalene	ND	ug/kg dry	1		6.7	
2-Methylnaphthalene	ND	ug/kg dry	1		6.7	
1-Methylnaphthalene	ND	ug/kg dry	1		6.7	
Acenaphthylene	ND	ug/kg dry	1		6.7	
Acenaphthene	ND	ug/kg dry	1		6.7	
Fluorene	ND	ug/kg dry	1		6.7	
Phenanthrene	ND	ug/kg dry	1		6.7	
Anthracene	ND	ug/kg dry	1		6.7	
Fluoranthene	ND	ug/kg dry	1		6.7	
Pyrene	ND	ug/kg dry	1		6.7	
Benzo(a)anthracene	ND	ug/kg dry	1		6.7	
Chrysene	ND	ug/kg dry	1		6.7	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(a)pyrene	ND	ug/kg dry	1		6.7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.7	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.7	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.7	
<i>Surrogates:</i>				% Rec		
1-Fluoronaphthalene			1		68	35-110
Fluorenc-d10			1		69	45-120
Pyrene-d10			1		83	50-150

LCS: S101608MPNSLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Naphthalene	42	ug/kg dry	1	62.5	67	40-105	
2-Methylnaphthalene	40	ug/kg dry	1	62.5	64	45-105	
1-Methylnaphthalene	40	ug/kg dry	1	62.5	64	45-105	
Acenaphthylene	43	ug/kg dry	1	62.5	68	45-105	
Acenaphthene	39	ug/kg dry	1	62.5	62	45-110	
Fluorene	44	ug/kg dry	1	62.5	71	50-110	
Phenanthrene	49	ug/kg dry	1	62.5	78	50-110	
Anthracene	50	ug/kg dry	1	62.5	79	55-105	
Fluoranthene	52	ug/kg dry	1	62.5	83	55-115	
Pyrene	53	ug/kg dry	1	62.5	84	45-125	
Benzo(a)anthracene	56	ug/kg dry	1	62.5	90	50-110	
Chrysene	52	ug/kg dry	1	62.5	83	55-110	
Benzo(b)fluoranthene	60	ug/kg dry	1	62.5	96	45-115	
Benzo(k)fluoranthene	49	ug/kg dry	1	62.5	79	45-125	
Benzo(a)pyrene	56	ug/kg dry	1	62.5	90	50-110	
Indeno(1,2,3-cd)pyrene	55	ug/kg dry	1	62.5	87	40-120	
Dibenzo(a,h)anthracene	56	ug/kg dry	1	62.5	89	40-125	
Benzo(g,h,i)perylene	53	ug/kg dry	1	62.5	84	40-125	
<i>Surrogates:</i>							
1-Fluoronaphthalene			1		62	35-110	
Fluorenc-d10			1		66	45-120	



Pace Analytical Services, Inc.

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Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	

QC Batch(es):	Q35498	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/16/2008		

LCS: S101608MPNSLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
<i>Surrogates:</i>							
Pyrene-d10			1		75	50-150	

Matrix Spike: GOLSP0803-008MS **Parent Sample:** GOLSP0803-008
 Matrix Spike Duplicate: GOLSP0803-008MSD

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
Naphthalene	36	ug/kg dry	1	66.5	ND	53	40-105			
	37			66.5		54	40-105	1	30	
2-Methylnaphthalene	38	ug/kg dry	1	66.5	ND	57	45-105			
	41			66.5		62	45-105	8	30	
1-Methylnaphthalene	37	ug/kg dry	1	66.5	ND	56	45-105			
	40			66.5		60	45-105	7	30	
Acenaphthylene	42	ug/kg dry	1	66.5	ND	64	45-105			
	52			66.5		78	45-105	20	30	
Acenaphthene	40	ug/kg dry	1	66.5	ND	60	45-110			
	46			66.5		69	45-110	14	30	
Fluorene	46	ug/kg dry	1	66.5	ND	69	50-110			
	50			66.5		75	50-110	8	30	
Phenanthrene	46	ug/kg dry	1	66.5	ND	68	50-110			
	52			66.5		77	50-110	11	30	
Anthracene	46	ug/kg dry	1	66.5	ND	68	55-105			
	51			66.5		75	55-105	9	30	
Fluoranthene	45	ug/kg dry	1	66.5	ND	67	55-115			
	44			66.5		66	55-115	2	30	
Pyrene	65	ug/kg dry	1	66.5	ND	97	45-125			
	66			66.5		98	45-125	2	30	
Benzo(a)anthracene	53	ug/kg dry	1	66.5	ND	80	50-110			
	55			66.5		83	50-110	4	30	
Chrysene	47	ug/kg dry	1	66.5	ND	68	55-110			
	45			66.5		65	55-110	5	30	
Benzo(b)fluoranthene	51	ug/kg dry	1	66.5	ND	76	45-115			
	60			66.5		91	45-115	17	30	
Benzo(k)fluoranthene	64	ug/kg dry	1	66.5	ND	95	45-125			
	53			66.5		79	45-125	18	30	
Benzo(a)pyrene	54	ug/kg dry	1	66.5	ND	82	50-110			
	53			66.5		80	50-110	2	30	
Indeno(1,2,3-cd)pyrene	49	ug/kg dry	1	66.5	ND	73	40-120			
	50			66.5		75	40-120	2	30	
Dibenzo(a,h)anthracene	49	ug/kg dry	1	66.5	ND	74	40-125			
	50			66.5		76	40-125	3	30	
Benzo(g,h,i)perylene	47	ug/kg dry	1	66.5	ND	70	40-125			
	48			66.5		72	40-125	2	30	
<i>Surrogates:</i>										
1-Fluoronaphthalene			1			55	35-110			
						46	35-110			



Pace Analytical Services, Inc.

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Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0803
Project Number:	073-93170	Project Manager:	
QC Batch(es):	Q35498	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:			
Matrix Spike:	GOLSP0803-008MS	Parent Sample:	GOLSP0803-008
Matrix Spike Duplicate:	GOLSP0803-008MSD		

Analyte	Matrix Spike			Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
	Result	Units	DF							
<i>Surrogates:</i>										
Fluorene-d10			1			71	45-120			
						71	45-120			
Pyrene-d10			1			108	50-150			
						96	50-150			



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Pace Analytical Services, Inc.

Notes and Definitions

SDG No: **GOLSP0803**

Report Specific Notes:

ND The analyte of interest was not detected, to the limit of detection indicated

Laboratory Reporting Conventions:

DF Dilution factor

Detection Limit Threshold The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.

MDL The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.

IDL Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.

Reporting Limit The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.

QC Batch Group Quality Control Batch Group. The entity that links analytical results and supporting quality control results.

% Rec Percent recovery.

Limits The upper and lower control limits for spike recoveries.

RPD Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.

RPD Limit The maximum RPD allowed for a set of duplicate measurements (see RPD).

Spike conc. The measured concentration, in sample basis units, of a spiked sample.

PQL Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.

LCS Laboratory Control Sample

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG								
Mtx	Sample ID (SDG-#)	VTSR	Collected On	Client ID	2540B Total Solids, soil (by Organics dept.)	8270 (MSPNA (SIM) Soil	NWTPH Dx Soil Low Level	Subcontract EPH, WADOE 97-602
SO	GOLSP0803-001	10/15/2008 09:30 AM	10/08/2008 01:15 PM	GGP-1-12.5	IN	IN	IN	
SO	GOLSP0803-002	10/15/2008 09:30 AM	10/08/2008 11:15 AM	GGP-7-15	IN	IN	IN	
SO	GOLSP0803-003	10/15/2008 09:30 AM	10/08/2008 02:15 PM	GGP-26-16	IN	IN	IN	
SO	GOLSP0803-004	10/15/2008 09:30 AM	10/08/2008 03:00 PM	GGP-27-16	IN	IN	IN	
SO	GOLSP0803-005	10/15/2008 09:30 AM	10/08/2008 03:30 PM	GGP-28-16	IN	IN	IN	
SO	GOLSP0803-006	10/15/2008 09:30 AM	10/08/2008 04:20 PM	GGP-29-16	IN	IN	IN	
SO	GOLSP0803-007	10/15/2008 09:30 AM	10/08/2008 04:45 PM	GGP-30-5	IN		IN	
SO	GOLSP0803-008	10/15/2008 09:30 AM	10/08/2008 04:50 PM	GGP-30-16	IN	IN	IN	
SO	GOLSP0803-009	10/15/2008 09:30 AM	10/07/2008 09:30 AM	GGP-16-15	IN	IN	IN	
SO	GOLSP0803-010	10/15/2008 09:30 AM	10/07/2008 10:15 AM	GGP-15B-15	IN	IN	IN	
SO	GOLSP0803-011	10/15/2008 09:30 AM	10/06/2008 11:10 AM	GGP-24-10	IN	IN	IN	
SO	GOLSP0803-012	10/15/2008 09:30 AM	10/06/2008 11:20 AM	GGP-24-2.5	IN	IN	IN	IN
SO	GOLSP0803-013	10/15/2008 09:30 AM	10/07/2008 07:55 AM	GGP-3-7.5	IN		IN	
SO	GOLSP0803-014	10/15/2008 09:30 AM	10/07/2008 12:45 PM	GGP-14-2.5	IN		IN	
SO	GOLSP0803-015	10/15/2008 09:30 AM	10/07/2008 02:24 PM	GGP-11-2.5	IN		IN	
SO	GOLSP0803-016	10/15/2008 09:30 AM	10/07/2008 08:40 AM	GGP-4-2.5	IN		IN	
SO	GOLSP0803-017	10/15/2008 09:30 AM	10/07/2008 07:50 AM	GGP-3-2.5	IN		IN	
SO	GOLSP0803-018	10/15/2008 09:30 AM	10/08/2008 12:15 PM	GGP-6-2.5	IN		IN	
SO	GOLSP0803-019	10/15/2008 09:30 AM	10/08/2008 11:00 AM	GGP-8-15	IN	IN	IN	
Approved By:								
Notes:								
On:								
Samples identified with a '*' client has requested QC for								
LEGEND: -:Started , +:Completed , IN:Logged In , P:Preparation , A:Analysis , X:Cancelled, PL:Pre-logged								
Matrices: Soil=SO								
FORM LTL-PM-8.0								

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
1255222

Section A
Required Client Information:
Company: GOLDER Assoc.
Address: 18300 NE Union Hwy
City: Redmond, WA
State: WA
Phone: 509-885-0777
Requested Due Date (A/T): Std.

Section B
Required Project Information:
Report To: Douglas Morell
Copy To: Paul Van Middlesworth
(208) 755-3202
Purchase Order No.:
Project Name: Sem Master Labs
Project Number: 073-93170

Section C
Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE DW WT WW Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	SAMPLE CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃				
1	GGP - 1-12-15		SL G191815					1											
2	GGP - 7-15		1115					1											
3	GGP - 26-16		1415					1											
4	GGP - 27-16		1500					1											
5	GGP - 28-16		1530					1											
6	GGP - 29-16		1620					1											
7	GGP - 30-5		1645					1											
8	GGP - 30-16		1650					1											
9	GGP - 16-15		107/08 0930					1											
10	GGP - 15B-15		107/08 1015					1											
11																			
12																			

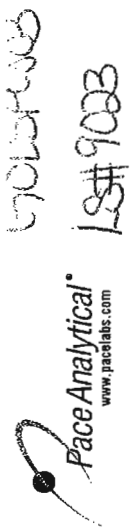
ADDITIONAL COMMENTS
Paul Van Middlesworth 10/15/08 930
Paul Van Middlesworth 10/15/08 930

RELINQUISHED BY / AFFILIATION DATE TIME
Paul Van Middlesworth 10/15/08 930

ACCEPTED BY / AFFILIATION DATE TIME
Paul Van Middlesworth 10/15/08 930

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Paul Van Middlesworth
SIGNATURE of SAMPLER: Paul Van Middlesworth
DATE Signed: 10/15/08
TIME (MMDDYY): 10/15/08

Temp in °C
Received on Ice (Y/N)
Sealed Cooler (Y/N)
Samples Intact (Y/N)



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

1255221

Section A
Required Client Information:
Company: GOLDER Assoc.
Address: Redmond, WA
Phone: _____ Fax: _____
Requested Due Date/TAT: 5HA

Section B
Required Project Information:
Report To: Douglas Morell
Copy To: _____
Purchase Order No.: _____
Project Name: Sea Materials
Project Number: 073-93170

Section C
Invoice Information:
Attention: _____
Company Name: _____
Address: _____
Pace Quote Reference: _____
Pace Project Manager: _____
Pace Profile #: _____

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX L CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)		Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB				Residual Chlorine (Y/N)		
11	GGP-24-10	DW	SLG	10/16/08 1110		1	Unpreserved	X			
12	GGP-24-2.5	WT		10/16/08 1120		2		X			
13	GGP-3-7.5	WW		10/17/08 0755		1		X			
14	GGP-14-2.5	P		10/17/08 1245		1		X			
15	GGP-11-2.5	SL		10/17/08 1424		1		X			
16	GGP-4-2.5	OL		10/17/08 0840		1		X			
17	GGP-3-2.5	WP		10/17/08 0750		1		X			
18	GGP-6-2.5	AR		10/18/08 1215		1		X			
19	GGP-8-15	TS		10/18/08 1100		1		X			
20		OT									

ADDITIONAL COMMENTS
Pace V. Madsen
10/14/08 1620 Start of Pace
10/15/08 980

RELINQUISHED BY / AFFILIATION
 DATE TIME

ACCEPTED BY / AFFILIATION
 DATE TIME

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Paul Van Middelkoop
 SIGNATURE of SAMPLER: Paul Van Middelkoop
 DATE Signed (MM/DD/YY): 10/14/08

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

**Cooler Receipt Form
Pace Analytical Services, Inc.**

SDG: GOLSP0803 Taken By: Client
Cooler: AAD793 Transferred: FedEx
COC #: 1255221/22

Project: SemMaterials Spokane Facility RI (Golder Associates)

Date samples were received at the laboratory: 10/15/2008
Date cooler was opened: 10/15/2008 9:30AM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 862584500103
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: 10/14/2008 Custody Seals Description: 1 in front
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: RF

B. LOG-IN PHASE:

Date samples were logged-in: 10/15/2008 11:37AM
Logged-in by Rachel Frank (sign) [Signature]

9. Describe type of packing in cooler:

10. Were all bottles sealed in separate plastic bags? NO
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 5.0, 4.3, 4.2

DISCREPANCIES:

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0803

Cooler: AAD793

Temperatures: 5.0, 4.3, 4.2

COC #: 1255221/22

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0803-001	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-002	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-003	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-004	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-005	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-006	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-007	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-008	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-009	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-010	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-011	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-012	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-013	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-014	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-015	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-016	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-017	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-018	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0803-019	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Base Preserved pH pH must be greater than 12
 NC Not Checked for pH

DATA VALIDATION
G0LSP0803

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

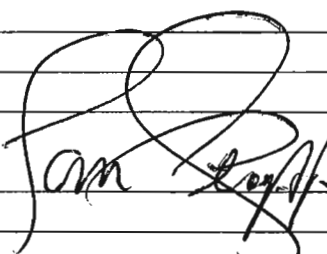
GOLDER PROJECT #: 073-93170.05		SITE: SEM MATERIALS, IDAHO	
LABORATORY: PACE Analytical, Seattle		SDG: GOLSP0803	
SAMPLES			MATRIX: Soil
GGP-1-12.5	GOLSP0803-001	GGP-24-10	GOLSP0803-011
GGP-7-15	GOLSP0803-002	GGP-24-2.5 ★	GOLSP0803-012
GGP-26-16	GOLSP0803-003	GGP-3-7.5	GOLSP0803-013
GGP-27-16	GOLSP0803-004	GGP-14-2.5	GOLSP0803-014
GGP-28-16	GOLSP0803-005	GGP-11-2.5	GOLSP0803-015
GGP-29-16	GOLSP0803-006	GGP-4-2.5	GOLSP0803-016
GGP-30-5	GOLSP0803-007	GGP-3-2.5	GOLSP0803-017
GGP-30-16	GOLSP0803-008	GGP-6-2.5	GOLSP0803-018
GGP-16-15	GOLSP0803-009	GGP-8-15	GOLSP0803-019
GGP-15B-15	GOLSP0803-010		
★ - Qualification applied.			

DATA ASSESSMENT SUMMARY

REVIEW ITEM	VOA	BNA 8270	Pest / PCB	NWTPH- Dx	Total Solids	OTHER EPH	OTHER
1. Data Completeness		O		O			
2. Holding Times		O		O			
3. Field Blanks		-		-			
4. Laboratory Blanks		O		O	-	-	
5. Surrogates (1)		X		X	-	-	
6. Lab Duplicate, Field Duplicate		-		-			
7. LCS, Blank Spike		O		O			
8. Matrix Spike /MS Duplicate		O		O			
9. Result Verify, Detection Limits		O		O			
10. Overall Summary		⊖		⊖			

O = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or UJ)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: (1) Surrogates out of limit qualify SVOA detects as estimated 'J'; NWTPH-Dx surrogates out of limit qualify diesel & oil results as estimated 'J / UJ'.

Validated by:  Date: April 19, 2009
 Reviewed by: _____ Date: _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: all holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____

Storage Blanks; Target Cmpnds <RL, MeCl₂ & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS)

All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not applicable.

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl₂ & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS); Chart other Contaminants: Qualif. Results <5X RLS according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Examples:

Comments/Qualified Results: _____

Acceptable; No defects found.

MDL	BLANK		SAMPLE		Q Applied
	Result	PQL	Result		
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....



Yes Surrogates analyzed

NO Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)

Recoveries above Method Control limits (J detects only)

Recoveries below Method Control limits but >20% (J/UJ)

Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results SVOA; exceeded for Pyrene-d10: GGP-21B-7.5, GGP-24-15. Exceeded for Flourene-d10: GGP-21B-7.5, GGP-24-15. Exceeded for fluoronaphthalene: GGP-24-15. Associated results qualified J for detects. NWTPH-Dx; below limit for GGP-21B-12, GGP-21B-7.5, GGP-23-2.5, GGP-24-15, and GGP-25-15. Associated results qualified J/UJ.

6. Duplicate, Field Duplicates (Check all that apply).....

Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL

Parent ID:

Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL

Duplicate ID:

Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results

Not applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]

LCS %R 50-79% or >120%, results >IDL estimated (J)

LCS %R 50-79% and results <IDL estimated (UJ)

LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results:

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

MS/MSD %R 50-79% and results <IDL estimated (UJ)

MS/MSD %R <50% and all results rejected (R/UR)

GGP-30-16
GGP-8-15

Comments/Qualified Results:

Batch 35498 : SVOA MS/MSD on Sample GGP-30-16 ; No qualified analytes;

" 35496 : NWTPH-Dx MS; on Sample GGP-8-15; No qualified analytes;

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported in raw data; [Raw data provided / Not Provided]
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____

#12 = GGP-24-2.5 tested for extractable Petroleum hydrocarbons; See ARI

SDG# ~~10-NV-81~~ NV-81.

TRG

Acceptable: Yes NO

10. Overall Assessment.....

Comments/Qualified Results: _____

**Monitoring Wells
(GMW-01 to GMW-02)**



Pace Analytical Services, Inc.
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Fax: (206)767-5063

Client: Golder Associates
18300 NE Union Hill Rd, #200
Redmond, WA 98052-3333

Project Name: **SemMaterials Spokane Facility RI** SDG Number: **GOLSP0804**
Project Number: **073-93120** Date Received: **10/22/2008 9:00:00AM**
Date Reported: **11/06/2008**

Enclosed are the analytical results for the sample(s) received by the laboratory on October 22, 2008. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after February 3, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

A handwritten signature in black ink, appearing to read "Shannon Schelinder". The signature is fluid and cursive, with the first name being more prominent.

Shannon Schelinder



Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
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Sample Summary

Project:	SemMaterials Spokane Facility R1	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time		Type
GMW-01-120	GOLSP0804-001	10/15/2008	16:00	Soil
GMW-01-125	GOLSP0804-002	10/15/2008	16:15	Soil
GMW-01-170.5	GOLSP0804-003	10/15/2008	18:30	Soil
GMW-01-174.5	GOLSP0804-004	10/15/2008	18:35	Soil
GMW-02-105	GOLSP0804-005	10/17/2008	13:30	Soil
GMW-02-125	GOLSP0804-006	10/17/2008	13:50	Soil
GMW-02-128	GOLSP0804-007	10/17/2008	14:00	Soil
GMW-02-174.5	GOLSP0804-008	10/17/2008	15:35	Soil
GMW-02-176	GOLSP0804-009	10/17/2008	15:45	Soil



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-01-120	Matrix:	Soil
Collected On:	10/15/08 16:00	Lab Sample ID:	GOLSP0804-001
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Acenaphthylene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Acenaphthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Fluorene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Phenanthrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Chrysene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	11/05/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	49	% Rec	1		35-110	Q35679	10/23/2008	11/05/2008	
Fluorene-d10	51	% Rec	1		45-120	Q35679	10/23/2008	11/05/2008	
Pyrene-d10	57	% Rec	1		50-150	Q35679	10/23/2008	11/05/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	88	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	94	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	91.8	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-01-125	Matrix:	Soil
Collected On:	10/15/08 16:15	Lab Sample ID:	GOLSP0804-002
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Acenaphthylene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Acenaphthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Fluorene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Phenanthrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Chrysene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.3	Q35679	10/23/2008	10/30/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	47	% Rec	1		35-110	Q35679	10/23/2008	10/30/2008	
Fluorene-d10	42	% Rec	1		45-120	Q35679	10/23/2008	10/30/2008	*
Pyrene-d10	51	% Rec	1		50-150	Q35679	10/23/2008	10/30/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		27	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	94	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	100	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	91.0	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-01-170.5	Matrix:	Soil
Collected On:	10/15/08 18:30	Lab Sample ID:	GOLSP0804-003
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		28	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphcnyl	96	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	104	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	89.2	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-01-174.5	Matrix:	Soil
Collected On:	10/15/08 18:35	Lab Sample ID:	GOLSP0804-004
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
2-Methylnaphthalene	7.6	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Acenaphthylene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Acenaphthone	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Fluorene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Phenanthrene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Anthracene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Fluoranthene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Pyrene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Chrysene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.6	Q35679	10/23/2008	10/30/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	57	% Rec	1		35-110	Q35679	10/23/2008	10/30/2008	
Fluorene-d10	65	% Rec	1		45-120	Q35679	10/23/2008	10/30/2008	
Pyrene-d10	65	% Rec	1		50-150	Q35679	10/23/2008	10/30/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		29	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		110	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	87	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	95	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	86.9	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-02-105	Matrix:	Soil
Collected On:	10/17/08 13:30	Lab Sample ID:	GOLSP0804-005
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		25	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	93	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	99	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	97.1	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-02-125	Matrix:	Soil
Collected On:	10/17/08 13:50	Lab Sample ID:	GOLSP0804-006
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
2-Methylnaphthalene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
1-Methylnaphthalene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Acenaphthylene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Acenaphthene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Fluorene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Phenanthrene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Anthracene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Fluoranthene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Pyrene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Benzo(a)anthracene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Chrysene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Benzo(a)pyrene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1	7.7	7.7	Q35679	10/23/2008	10/30/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	45	% Rec	1	35-110	35-110	Q35679	10/23/2008	10/30/2008	
Fluorene-d10	55	% Rec	1	45-120	45-120	Q35679	10/23/2008	10/30/2008	
Pyrene-d10	55	% Rec	1	50-150	50-150	Q35679	10/23/2008	10/30/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1	28	28	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1	110	110	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	99	% Rec	1	50-150	50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	104	% Rec	1	50-150	50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	87.3	%	1	0.1	0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-02-128	Matrix:	Soil
Collected On:	10/17/08 14:00	Lab Sample ID:	GOLSP0804-007
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Acenaphthylene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Acenaphthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Fluorene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Phenanthrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Chrysene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/30/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	49	% Rec	1		35-110	Q35679	10/23/2008	10/30/2008	
Fluorene-d10	48	% Rec	1		45-120	Q35679	10/23/2008	10/30/2008	
Pyrene-d10	55	% Rec	1		50-150	Q35679	10/23/2008	10/30/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	85	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	97	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	94.8	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-02-174.5	Matrix:	Soil
Collected On:	10/17/08 15:35	Lab Sample ID:	GOLSP0804-008
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		25	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	90	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	91	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	96.6	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Analytical Results

Project:	SemMaterials Spokane Facility R1	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
Client Sample ID:	GMW-02-176	Matrix:	Soil
Collected On:	10/17/08 15:45	Lab Sample ID:	GOLSP0804-009
Received On:	10/22/08 9:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3545A 8270-PNA					
Naphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
2-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
1-Methylnaphthalene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Acenaphthylene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Acenaphthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Fluorene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Phenanthrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Benzo(a)anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Chrysene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Benzo(b)fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Benzo(k)fluoranthene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Benzo(a)pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		7.0	Q35679	10/23/2008	10/31/2008	
<i>Surrogates:</i>									
1-Fluoronaphthalene	39	% Rec	1		35-110	Q35679	10/23/2008	10/31/2008	
Fluorene-d10	53	% Rec	1		45-120	Q35679	10/23/2008	10/31/2008	
Pyrene-d10	56	% Rec	1		50-150	Q35679	10/23/2008	10/31/2008	
NWTPH Diesel				Methods (Preparation Analysis): 3545A NWTPH-D					
Diesel Range Organics	ND	mg/Kg dry	1		26	Q35676	10/22/2008	10/27/2008	
Oil Range Organics	ND	mg/Kg dry	1		100	Q35676	10/22/2008	10/27/2008	
<i>Surrogates:</i>									
o-Terphenyl	92	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
n-Octacosane	145	% Rec	1		50-150	Q35676	10/22/2008	10/27/2008	
Total Solids, Dried at 103-105 deg C				Methods (Preparation Analysis): NONE SM2540B					
Solids, Total	93.9	%	1		0.1	Q35680	10/22/2008	10/22/2008	



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Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	

QC Batch(es):	Q35676	Analysis Method:	NWTPH-D
QC Batch Method:	3545A (NWTPH-Med.)	Analysis Description:	NWTPH Diescl
Preparation Started:	10/22/2008		

Blank: B102308GSVSLA

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1		12.5	
Oil Range Organics	ND	mg/Kg dry	1		50	
<i>Surrogates:</i>					% Rec	
o-Terphenyl			1		99	50-150
n-Octacosane			1		105	50-150

LCS: S102308GSVSLA

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	420	mg/Kg dry	1	494	86	56-124	
Oil Range Organics	470	mg/Kg dry	1	494	95	20-160	
<i>Surrogates:</i>							
o-Terphenyl			1		104	50-150	
n-Octacosane			1		97	50-150	

Matrix Spike: GOLSP0804-002MS **Parent Sample:** GOLSP0804-002

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	500	mg/Kg dry	1	540	ND	93	50-150	
Oil Range Organics	520	mg/Kg dry	1	540	ND	96	20-160	
<i>Surrogates:</i>								
o-Terphenyl			1			111	50-150	
n-Octacosane			1			105	50-150	

Sample Duplicate: GOLSP0804-002Dup **Parent Sample:** GOLSP0804-002

Analyte	Duplicate Result	Units	DF	Parent Result	RPD	RPD Limit	Qualifiers
Diesel Range Organics	ND	mg/Kg dry	1	ND	200	50	
Oil Range Organics	ND	mg/Kg dry	1	ND	200	50	
<i>Surrogates:</i>					% Rec		
o-Terphenyl			1		89	50-150	
n-Octacosane			1		98	50-150	



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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	

QC Batch(es):	Q35679	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/23/2008		

Blank: B102208MPNSLO

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Naphthalene	ND	ug/kg dry	1		6.7	
2-Methylnaphthalene	ND	ug/kg dry	1		6.7	
1-Methylnaphthalene	ND	ug/kg dry	1		6.7	
Acenaphthylene	ND	ug/kg dry	1		6.7	
Acenaphthene	ND	ug/kg dry	1		6.7	
Fluorene	ND	ug/kg dry	1		6.7	
Phenanthrene	ND	ug/kg dry	1		6.7	
Anthracene	ND	ug/kg dry	1		6.7	
Fluoranthene	ND	ug/kg dry	1		6.7	
Pyrene	ND	ug/kg dry	1		6.7	
Benzo(a)anthracene	ND	ug/kg dry	1		6.7	
Chrysene	ND	ug/kg dry	1		6.7	
Benzo(b)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(k)fluoranthene	ND	ug/kg dry	1		6.7	
Benzo(a)pyrene	ND	ug/kg dry	1		6.7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg dry	1		6.7	
Dibenzo(a,h)anthracene	ND	ug/kg dry	1		6.7	
Benzo(g,h,i)perylene	ND	ug/kg dry	1		6.7	
<i>Surrogates:</i>					% Rec	
1-Fluoronaphthalene			1		70	35-110
Fluorene-d10			1		84	45-120
Pyrene-d10			1		69	50-150

LCS: S102208MPNSLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Naphthalene	51	ug/kg dry	1	62.5	81	40-105	
2-Methylnaphthalene	52	ug/kg dry	1	62.5	83	45-105	
1-Methylnaphthalene	53	ug/kg dry	1	62.5	85	45-105	
Acenaphthylene	51	ug/kg dry	1	62.5	82	45-105	
Acenaphthene	53	ug/kg dry	1	62.5	84	45-110	
Fluorene	59	ug/kg dry	1	62.5	94	50-110	
Phenanthrene	57	ug/kg dry	1	62.5	92	50-110	
Anthracene	57	ug/kg dry	1	62.5	90	55-105	
Fluoranthene	70	ug/kg dry	1	62.5	112	55-115	
Pyrene	41	ug/kg dry	1	62.5	66	45-125	
Benzo(a)anthracene	57	ug/kg dry	1	62.5	91	50-110	
Chrysene	58	ug/kg dry	1	62.5	93	55-110	
Benzo(b)fluoranthene	56	ug/kg dry	1	62.5	90	45-115	
Benzo(k)fluoranthene	53	ug/kg dry	1	62.5	84	45-125	
Benzo(a)pyrene	44	ug/kg dry	1	62.5	70	50-110	
Indeno(1,2,3-cd)pyrene	62	ug/kg dry	1	62.5	99	40-120	
Dibenzo(a,h)anthracene	62	ug/kg dry	1	62.5	99	40-125	
Benzo(g,h,i)perylene	57	ug/kg dry	1	62.5	91	40-125	
<i>Surrogates:</i>							
1-Fluoronaphthalene			1		74	35-110	
Fluorene-d10			1		91	45-120	



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Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
QC Batch(es):	Q35679	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	10/23/2008		
LCS: S102208MPNSLO			

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
<i>Surrogates:</i>							
Pyrene-d10			1		64	50-150	

Matrix Spike: GOLSP0804-001MS	Parent Sample: GOLSP0804-001
Matrix Spike Duplicate: GOLSP0804-001MSD	

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
Naphthalene	43	ug/kg dry	1	67.6	ND	64	40-105			
	42			67.4		62	40-105	4	30	
2-Methylnaphthalene	44	ug/kg dry	1	67.6	ND	65	45-105			
	44			67.4		65	45-105	1	30	
1-Methylnaphthalene	44	ug/kg dry	1	67.6	ND	66	45-105			
	43			67.4		63	45-105	4	30	
Acenaphthylene	39	ug/kg dry	1	67.6	ND	58	45-105			
	39			67.4		57	45-105	1	30	
Acenaphthene	41	ug/kg dry	1	67.6	ND	60	45-110			
	40			67.4		59	45-110	1	30	
Fluorene	42	ug/kg dry	1	67.6	ND	62	50-110			
	41			67.4		61	50-110	1	30	
Phenanthrene	42	ug/kg dry	1	67.6	ND	62	50-110			
	41			67.4		61	50-110	1	30	
Anthracene	51	ug/kg dry	1	67.6	ND	76	55-105			
	52			67.4		78	55-105	2	30	
Fluoranthene	59	ug/kg dry	1	67.6	ND	87	55-115			
	59			67.4		87	55-115	0	30	
Pyrene	42	ug/kg dry	1	67.6	ND	62	45-125			
	44			67.4		66	45-125	6	30	
Benzo(a)anthracene	58	ug/kg dry	1	67.6	ND	86	50-110			
	60			67.4		90	50-110	5	30	
Chrysene	59	ug/kg dry	1	67.6	ND	87	55-110			
	60			67.4		90	55-110	3	30	
Benzo(b)fluoranthene	52	ug/kg dry	1	67.6	ND	74	45-115			
	53			67.4		75	45-115	2	30	
Benzo(k)fluoranthene	59	ug/kg dry	1	67.6	ND	82	45-125			
	58			67.4		81	45-125	1	30	
Benzo(a)pyrene	57	ug/kg dry	1	67.6	ND	78	50-110			
	60			67.4		82	50-110	5	30	
Indeno(1,2,3-cd)pyrene	60	ug/kg dry	1	67.6	ND	83	40-120			
	68			67.4		96	40-120	14	30	
Dibenzo(a,h)anthracene	62	ug/kg dry	1	67.6	ND	83	40-125			
	70			67.4		96	40-125	13	30	
Benzo(g,h,i)perylene	57	ug/kg dry	1	67.6	ND	76	40-125			
	64			67.4		87	40-125	12	30	
<i>Surrogates:</i>										
1-Fluoronaphthalene			1			59	35-110			
						57	35-110			



Pace Analytical Services, Inc.

Quality Control Results

Pace Analytical Services, Inc.
 940 South Harney
 Seattle, WA 98108
 Phone: (206)767-5060
 Fax: (206)767-5063

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0804
Project Number:	073-93120	Project Manager:	
QC Batch(es):	Q35679	Analysis Method:	8270-PNA
QC Batch Method:	3545A (SIM PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:			
Matrix Spike:	GOLSP0804-001MS	Parent Sample:	GOLSP0804-001
Matrix Spike Duplicate:	GOLSP0804-001MSD		

Analyte	Matrix Spike			Spike Conc.	Parent Result	% Rec	% Rec Limits	RPD	RPD Limit	Qualifiers
	Result	Units	DF							
<i>Surrogates:</i>										
Fluorene-d10			1			55	45-120			
						54	45-120			
Pyrene-d10			1			54	50-150			
						54	50-150			



Pace Analytical Services, Inc.

Notes and Definitions

SDG No: **GOLSP0804**

Report Specific Notes:

ND The analyte of interest was not detected, to the limit of detection indicated

Laboratory Reporting Conventions:

DF	Dilution factor
Detection Limit Threshold	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.
MDL	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.
IDL	Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.
Reporting Limit	The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.
QC Batch Group	Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
% Rec	Percent recovery.
Limits	The upper and lower control limits for spike recoveries.
RPD	Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.
RPD Limit	The maximum RPD allowed for a set of duplicate measurements (see RPD).
Spike conc.	The measured concentration, in sample basis units, of a spiked sample.
PQL	Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.
LCS	Laboratory Control Sample

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG							
Mtx	Sample ID (SDG-#)	VTSR	Collected On	Client ID	2540B Total Solids, soil (by Organics dept.)	8270 (MSPNA SIM) Soil	NWTPH Dx Soil
SO	GOLSP0804-001	10/22/2008 09:00 AM	10/15/2008 04:00 PM	GMW-01-120	IN	IN	IN
SO	GOLSP0804-002	10/22/2008 09:00 AM	10/15/2008 04:15 PM	GMW-01-125	IN	IN	IN
SO	GOLSP0804-003	10/22/2008 09:00 AM	10/15/2008 06:30 PM	GMW-01-170.5	IN		IN
SO	GOLSP0804-004	10/22/2008 09:00 AM	10/15/2008 06:35 PM	GMW-01-174.5	IN	IN	IN
SO	GOLSP0804-005	10/22/2008 09:00 AM	10/17/2008 01:30 PM	GMW-02-105	IN		IN
SO	GOLSP0804-006	10/22/2008 09:00 AM	10/17/2008 01:50 PM	GMW-02-125	IN	IN	IN
SO	GOLSP0804-007	10/22/2008 09:00 AM	10/17/2008 02:00 PM	GMW-02-128	IN	IN	IN
SO	GOLSP0804-008	10/22/2008 09:00 AM	10/17/2008 03:35 PM	GMW-02-174.5	IN		IN
SO	GOLSP0804-009	10/22/2008 09:00 AM	10/17/2008 03:45 PM	GMW-02-176	IN	IN	IN
Approved By:				On:			
Notes:							
Samples identified with a '*' client has requested QC for							
LEGEND: -:Started , +:Completed , IN:Logged In , P:Preparation , A:Analysis , X:Cancelled, PL:Pre-logged Matrices: Soil=SO							
FORM LTL-PM-8.0							

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Gasposol
LS#9113



Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: GOLDER Assoc.	Report To: <i>Douglas Maxwell</i>	Company Name:	Attention:	Invoice No.:	1255220
Address: 18300 Union Hill Rd. Redmond, WA	Copy To: <i>Paul Van Middlesworth</i>	Address:	REGULATORY AGENCY:	NPDES <input type="checkbox"/>	GROUND WATER <input type="checkbox"/>
Email To:	Purchase Order No.:	Address:	UST <input type="checkbox"/>	RCRA <input type="checkbox"/>	DRINKING WATER <input type="checkbox"/>
Phone: (425) 883-0717	Project Name: <i>Sem Materials</i>	Address:	Site Location:	STATE: <i>WA</i>	OTHER <input type="checkbox"/>
Requested Due Date/TAT: <i>Std.</i>	Project Number: <i>073-93120</i>	Address:	STATE: <i>WA</i>		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB									
1	GMW-01-120	DW	G	10/15/08	1600		1	Unpreserved	X	NMTPH-DEAT				
2	GMW-01-125	WT	G	1615			2			PAH 8270				
3	GMW-01-170.5	WW	G	1830			1							
4	GMW-01-174.5	P	G	1835			2							
5	GMW-02-105	SL	G	10/17/08	1330		1							
6	GMW-02-125	OL	G	1350			1							
7	GMW-02-128	WP	G	1400			1							
8	GMW-02-174.5	AR	G	1535			1							
9	GMW-02-176	TS	G	1545			2							
10		OT												
11														
12														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Paul Van Middlesworth</i>	<i>10/20/08</i>	<i>1620</i>	<i>Paul Van Middlesworth</i>	<i>10/20/08</i>	<i>902</i>	
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: <i>Paul Van Middlesworth</i> SIGNATURE OF SAMPLER: <i>Paul Van Middlesworth</i> DATE Signed (MM/DD/YYYY): <i>10/20/08</i>							

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

FALL-Q-020(rev.07, 15-May-2007)

**Supplemental Sample Receipt Log
Pace Analytical Services, Inc.**

SDG: GOLSP0804

Cooler: AAF792

Temperatures: 5.3, 5.7, 5.6

COC #: 1255220

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0804-001	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-002	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-003	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-004	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-005	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-006	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-007	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-008	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
GOLSP0804-009	0001	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A
	0002	4 oz jar, wide-mouth, clear glass, Procedure B	N/C	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

DATA VALIDATION
G0LSP0804

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170.05	SITE: SEM MATERIALS, IDAHO
LABORATORY: PACE Analytical, Seattle	SDG: GOLSP0804
SAMPLES	MATRIX: Soil
GMW-01-120 GMW-01-125 * GMW-01-170.5 GMW-01-174.5 GMW-02-105 GMW-02-125 GMW-02-128 GMW-02-174.5 GMW-02-176	
* - Qualification applied.	

DATA ASSESSMENT SUMMARY

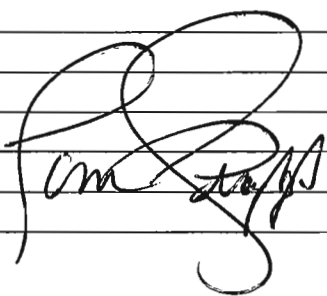
REVIEW ITEM	VOA	BNA 8270	Pest / PCB	NWTPH- Dx	Total Solids	OTHER EPH	OTHER
1. Data Completeness		○		○			
2. Holding Times		○		○			
3. Field Blanks		-		-			
4. Laboratory Blanks		○		○	-	-	
5. Surrogates (1)		X		○	-	-	
6. Lab Duplicate, Field Duplicate		-		-			
7. LCS, Blank Spike		○		○			
8. Matrix Spike /MS Duplicate		○		○			
9. Result Verify, Detection Limits		○		○			
10. Overall Summary		○		○			

Analysis

OTHER
 EPH
 ↓
 Not
 Requested

○ = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or UJ)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: (1) Surrogates out of limit qualify SVOA detects as estimated (UJ).

Validated by:  Date: April 19, 2009

Reviewed by: _____ Date: _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: All holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____

Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs)

All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not Applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours

Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs); Chart other Contaminants: Qualif. Results <5X RLs according to Chart below

Instrument blanks after all high level samples, All cmpnds must be <RL

All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Comments/Qualified Results: Acceptable

MDL	BLANK		SAMPLE		Q Applied
	Result	PQL	Result		
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....

Yes Surrogates analyzed

NO Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)

Recoveries above Method Control limits (J detects only)

Recoveries below Method Control limits but >20% (J/UJ)

Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results SVOA; exceeded for Flourene-d10: GMW-01-125.

Associated results qualified UJ for fluorene. _____

6. Duplicate, Field Duplicates (Check all that apply).....

Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL

Parent ID:

Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL

Duplicate ID:

Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results Not applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

LCS %R 80-120% [Provided: LCS, LCSD, ~~BS~~, BSD ?] *MS*

LCS %R 50-79% or >120%, results >IDL estimated (J)

LCS %R 50-79% and results <IDL estimated (UJ)

LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Recoveries met.

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

GMW-01-120

MS/MSD %R 50-79% and results <IDL estimated (UJ)

MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: _____

Patch Q35679: SVOA MS/MSD on Sample GMW-01-120 ; No qualified analytes;

" Q35676: NWTPH-Dx MS; on Sample GMW-01-125; No qualified analytes;

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported ~~in raw data~~; [Raw data provided / (Not Provided)] *TAS*
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____
No samples targeted for testing for extractable Petroleum hydrocarbons

10. Overall Assessment..... Acceptable: ~~Yes~~ NO

Comments/Qualified Results: _____



Analytical Resources, Incorporated
Analytical Chemists and Consultants

October 31, 2008

Shannon Schelinder
Pace Analytical
940 S. Harney Street
Seattle, WA 98108

RE: Client Project: Golder-SemMaterials
ARI Job No.: NT96

Dear Shannon:

Please find enclosed the original Chain of Custody (COC) records, sample receipt documentation, and final analytical results for the samples from the project referenced above. Analytical Resources Inc. (ARI) accepted seventeen soil samples on October 13, 2008. The cooler temperature measured by IR thermometer following ARI SOP was -2.8°C and the samples were iced. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for EPH as requested on the COCs.

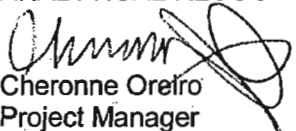
Several samples were diluted due to high concentrations of EPH Aliphatic and Aromatic compounds and to obtain instrument continuing calibration verifications (CCVs) within method acceptance control limits.

The surrogate percent recoveries of 1-Chlorooctadecane and Ortho-terphenyl were outside the control limits for several samples due to matrix interferences. All other matrix quality control parameters were met. No further corrective action was required.

An electronic copy of this report as well as all associated raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Cheronne Oreiro
Project Manager
206-695-6214
cheronneo@arilabs.com
www.arilabs.com

Enclosures

cc: eFile NT96



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2
 Section A
 Required Client Information:
 Company: Pace Analytical Inc.
 Address: 940 S. Hazard ST.
 Phone: 206-957-2449
 Email To: Shannon@lavickslabs.com
 Requested Due Date/TAT: 10 day

Section B
 Required Project Information:
 Report To: Shannon Schelinder
 Copy To:
 Purchase Order No.:
 Project Name: Golden - 86M Materials
 Project Number:
 Attention:
 Company Name:
 Address:
 Pace Quote Reference:
 Pace Project Manager:
 Pace Profile #:

Section C
 Invoice Information:
 Invoice Number: 1196349
 Regulatory Agency:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location STATE: WA

ITEM #	Section D Required Client Information	Section E Matrix Codes	Section F Matrix Code	Section G SAMPLE TYPE (G=GRAB C=COMP)	Section H COLLECTED		Section I SAMPLE TEMP AT COLLECTION	Section J # OF CONTAINERS	Section K Preservatives	Section L Analysis Test	Section M Requested Analysis: Filtered (Y/N)	Section N Residual Chlorine (Y/N)	Section O Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB							
1	GGP-21B-7.5	SL	G	10/6	15:15	10/13/08	5:30	1	Unpreserved	X			GOLSP001-3
2	GGP-21B-12				15:20			1		X			-4
3	GGP-22-2.5				14:15			1		X			-5
4	GGP-22-7				14:25			1		X			-6
5	GGP-23-2.5				12:15			1		X			-7
6	GGP-23-15				12:20			1		X			-8
7	GGP-21B-2				15:10			1		X			-11

Section P
 ADDITIONAL COMMENTS: Steve Offace
10/13/08 5:30
10/13/08 15:45
10/13/08 15:30

Section Q
 ACCEPTED BY: [Signature] DATE: 10/13/08 TIME: 15:30

Section R
 SIGNATURE OF SAMPLER: [Signature]
 PRINT Name of SAMPLER: Steve Offace
 DATE Signed (MM/DD/YYYY): 10/13/08

Section S
 ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

NTAC

Section A
 Required Client Information:
 Company: Pace Analytical Inc.
 Address: 940 S. Harvey St.
 Email To: shannon.s@lawlabs.com
 Phone: 206-957-2449
 Requested Due Date/TAT: 10 day

Section B
 Required Project Information:
 Report To: Shannon Schneider
 Copy To: _____
 Purchase Order No.: _____
 Project Name: Goldw - SemMaterials
 Project Number: _____

Section C
 Invoice Information:
 Attention: _____
 Company Name: _____
 Address: _____
 Pace Quote Reference: _____
 Pace Project Manager: _____
 Pace Profile #: _____

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____
 Site Location STATE: WA

Page: 2 of 2
 1196350

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB						
		DW Drinking Water WT Water WW Waste Water P Product SL Soil/Solid OL Oil WP Wipe AR Air TS Tissue OT Other			DATE	TIME	DATE	TIME	Y/N			
1	GGP-4-15		SLG		10/17	8:35			X			606SP 0602-4
2	GGP-9-2.5					13:40			X			-6
3	GGP-9-15					13:50			X			-8
4	GGP-10-2					11:15			X			-9
5	GGP-11-15					14:25			X			-12
6	GGP-14-10					12:30			X			-14
7	GGP-12B-7.5				10/18	8:45			X			-18
8	GGP-12B-7.5					9:15			X			-19
9	GGP-8-2.5					10:45			X			-21
10	GGP-6-15					12:10			X			-24

ADDITIONAL COMMENTS
Handwritten notes and signatures

ACCEPTED BY / AFFILIATION
 DATE: 10/13/08 TIME: 15:30
 DATE: 10/13/08 TIME: 15:30
 DATE: 10/13/08 TIME: 15:30

TEMP IN °C

RECEIVED ON

CUSTODY SEALED COOLER

SAMPLES INTACT

ORIGINAL
 SAMPLE NAME AND SIGNATURE: _____
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: _____
 DATE Signed (MM/DD/YYYY): _____

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Pace
COC No: 1196350 — 1196349
Assigned ARI Job No: NS96

Project Name: Golden-Sam Materials
Delivered by: AKMC
Tracking No: —

Preliminary Examination Phase:

- Were intact, properly signed and dated custody seals attached to the outside of cooler? YES NO
- Were custody papers included with the cooler? YES NO
- Were custody papers properly filled out (ink, signed, etc.) YES NO
- Record cooler temperature (recommended 2.0-6.0 °C for chemistry) -2.7 °C

Cooler Accepted by: SORO Date: 10/12/08 Time: 1530

Complete custody forms and attach all shipping documents

Log-In Phase:

- Was a temperature blank included in the cooler? YES NO
- What kind of packing material was used? BW
- Was sufficient ice used (if appropriate)? YES NO
- Were all bottles sealed in individual plastic bags? YES NO
- Did all bottle arrive in good condition (unbroken)? YES NO
- Were all bottle labels complete and legible? YES NO
- Did all bottle labels and tags agree with custody papers? YES NO
- Were all bottles used correct for the requested analyses? YES NO
- Do any of the analyses (bottles) require preservation? (attach preservation checklist) YES NO
- Were all VOC vials free of air bubbles? NA YES NO
- Was sufficient amount of sample sent in each bottle? YES NO

Samples Logged by: [Signature] Date: 10/12/08 Time: 1638

**** Notify Project Manager of discrepancies or concerns ****

Explain discrepancies or negative responses:

By:

Date:

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GOLSP0802-4

SAMPLE

Lab Sample ID: NT96A

LIMS ID: 08-27465

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/07/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 3.5%

Sample Amount: 10.0 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 16:16

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/23/08 16:16

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	< 2,000 U
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	109%
Aromatic	Ortho-terphenyl	90.0%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0802-6
SAMPLE

Lab Sample ID: NT96B

LIMS ID: 08-27466

Matrix: Soil

Data Release Authorized: *AB*

Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials

Date Sampled: 10/07/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 7.3%

Sample Amount: 9.95 g-dry-wt
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 16:37

Instrument/Analyst: FID4B/MS

Dilution Factor: 50.0

Aromatic

Date Analyzed: 10/23/08 16:37

Instrument/Analyst: FID4A/MS

Dilution Factor: 50.0

Range	RL	Result
C8-C10 Aliphatics	100,000	< 100,000 U
C10-C12 Aliphatics	100,000	< 100,000 U
C12-C16 Aliphatics	100,000	< 100,000 U
C16-C21 Aliphatics	100,000	< 100,000 U
C21-C34 Aliphatics	100,000	400,000
C8-C10 Aromatics	100,000	< 100,000 U
C10-C12 Aromatics	100,000	< 100,000 U
C12-C16 Aromatics	100,000	< 100,000 U
C16-C21 Aromatics	100,000	430,000
C21-C34 Aromatics	100,000	1,400,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	0.0%
Aromatic	Ortho-terphenyl	0.0%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: GOLSP0802-8
SAMPLE

Lab Sample ID: NT96C
 LIMS ID: 08-27467
 Matrix: Soil
 Data Release Authorized:
 Reported: 10/31/08

QC Report No: NT96-Pace Analytical
 Project: Golder-SemMaterials
 Date Sampled: 10/07/08
 Date Received: 10/13/08

Date Extracted: 10/20/08
 Percent Moisture: 2.5%

Sample Amount: 10.5 g-dry-wt
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 16:59
 Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/23/08 16:59
 Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	1,900	< 1,900 U
C10-C12 Aliphatics	1,900	< 1,900 U
C12-C16 Aliphatics	1,900	< 1,900 U
C16-C21 Aliphatics	1,900	< 1,900 U
C21-C34 Aliphatics	1,900	< 1,900 U
C8-C10 Aromatics	1,900	< 1,900 U
C10-C12 Aromatics	1,900	< 1,900 U
C12-C16 Aromatics	1,900	< 1,900 U
C16-C21 Aromatics	1,900	< 1,900 U
C21-C34 Aromatics	1,900	< 1,900 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	112%
Aromatic	Ortho-terphenyl	85.9%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GOLSP0802-9

SAMPLE

Lab Sample ID: NT96D

LIMS ID: 08-27468

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/07/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 3.2%

Sample Amount: 9.87 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 17:21

Instrument/Analyst: FID4B/MS

Dilution Factor: 20.0

Aromatic

Date Analyzed: 10/24/08 15:40

Instrument/Analyst: FID4A/MS

Dilution Factor: 5.00

Range	RL	Result
C8-C10 Aliphatics	41,000	< 40,000 U
C10-C12 Aliphatics	41,000	< 40,000 U
C12-C16 Aliphatics	41,000	< 40,000 U
C16-C21 Aliphatics	41,000	< 40,000 U
C21-C34 Aliphatics	41,000	120,000
C8-C10 Aromatics	10,000	< 10,000 U
C10-C12 Aromatics	10,000	< 10,000 U
C12-C16 Aromatics	10,000	< 10,000 U
C16-C21 Aromatics	10,000	110,000
C21-C34 Aromatics	10,000	400,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	0.0%
Aromatic	Ortho-terphenyl	69.5%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GOLSP0802-12
SAMPLE

Lab Sample ID: NT96E
LIMS ID: 08-27469
Matrix: Soil
Data Release Authorized:
Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials
Date Sampled: 10/07/08
Date Received: 10/13/08

Date Extracted: 10/20/08
Percent Moisture: 3.8%

Sample Amount: 10.2 g-dry-wt
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 18:36
Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 16:44
Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	2,100
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	132%
Aromatic	Ortho-terphenyl	108%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0802-14

SAMPLE

Lab Sample ID: NT96F

LIMS ID: 08-27470

Matrix: Soil

Data Release Authorized:

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/07/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 8.0%

Sample Amount: 9.37 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 18:58

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 17:06

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,100 U
C10-C12 Aliphatics	2,100	< 2,100 U
C12-C16 Aliphatics	2,100	< 2,100 U
C16-C21 Aliphatics	2,100	< 2,100 U
C21-C34 Aliphatics	2,100	6,400
C8-C10 Aromatics	2,100	< 2,100 U
C10-C12 Aromatics	2,100	< 2,100 U
C12-C16 Aromatics	2,100	< 2,100 U
C16-C21 Aromatics	2,100	< 2,100 U
C21-C34 Aromatics	2,100	11,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	114%
Aromatic	Ortho-terphenyl	106%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GOLSP0802-18

SAMPLE

Lab Sample ID: NT96G

LIMS ID: 08-27471

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/08/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 14.4%

Sample Amount: 8.76 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 19:20

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 18:36

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,300	< 2,300 U
C10-C12 Aliphatics	2,300	< 2,300 U
C12-C16 Aliphatics	2,300	< 2,300 U
C16-C21 Aliphatics	2,300	< 2,300 U
C21-C34 Aliphatics	2,300	4,600
C8-C10 Aromatics	2,300	< 2,300 U
C10-C12 Aromatics	2,300	< 2,300 U
C12-C16 Aromatics	2,300	< 2,300 U
C16-C21 Aromatics	2,300	< 2,300 U
C21-C34 Aromatics	2,300	< 2,300 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	116%
Aromatic	Ortho-terphenyl	107%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0802-19

SAMPLE

Lab Sample ID: NT96H

LIMS ID: 08-27472

Matrix: Soil

Data Release Authorized:

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/08/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 3.9%

Sample Amount: 9.77 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 19:41

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 18:58

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	2,200
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	98.4%
Aromatic	Ortho-terphenyl	111%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GOLSP0802-21
SAMPLE

Lab Sample ID: NT96I
LIMS ID: 08-27473
Matrix: Soil
Data Release Authorized:
Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials
Date Sampled: 10/08/08
Date Received: 10/13/08

Date Extracted: 10/20/08
Percent Moisture: 8.6%

Sample Amount: 9.58 g-dry-wt
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 22:33
Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 19:20
Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,100 U
C10-C12 Aliphatics	2,100	< 2,100 U
C12-C16 Aliphatics	2,100	< 2,100 U
C16-C21 Aliphatics	2,100	4,600
C21-C34 Aliphatics	2,100	420,000
C8-C10 Aromatics	2,100	< 2,100 U
C10-C12 Aromatics	2,100	< 2,100 U
C12-C16 Aromatics	2,100	4,400
C16-C21 Aromatics	2,100	18,000
C21-C34 Aromatics	2,100	94,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	86.8%
Aromatic	Ortho-terphenyl	73.9%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0802-24

SAMPLE

Lab Sample ID: NT96J

LIMS ID: 08-27474

Matrix: Soil

Data Release Authorized: *AS*

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/08/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 3.4%

Sample Amount: 10.0 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 20:03

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 19:41

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	4,500
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	2,100
C21-C34 Aromatics	2,000	13,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	112%
Aromatic	Ortho-terphenyl	106%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GOLSP0801-3

SAMPLE

Lab Sample ID: NT96K

LIMS ID: 08-27475

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 9.5%

Sample Amount: 9.48 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 17:42

Instrument/Analyst: FID4B/MS

Dilution Factor: 50.0

Aromatic

Date Analyzed: 10/23/08 17:42

Instrument/Analyst: FID4A/MS

Dilution Factor: 50.0

Range	RL	Result
C8-C10 Aliphatics	110,000	< 100,000 U
C10-C12 Aliphatics	110,000	< 100,000 U
C12-C16 Aliphatics	110,000	< 100,000 U
C16-C21 Aliphatics	110,000	< 100,000 U
C21-C34 Aliphatics	110,000	620,000
C8-C10 Aromatics	110,000	< 100,000 U
C10-C12 Aromatics	110,000	< 100,000 U
C12-C16 Aromatics	110,000	< 100,000 U
C16-C21 Aromatics	110,000	380,000
C21-C34 Aromatics	110,000	2,400,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	0.0%
Aromatic	Ortho-terphenyl	0.0%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH


Page 1 of 1

Sample ID: GOLSP0801-4
SAMPLE

Lab Sample ID: NT96L

LIMS ID: 08-27476

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 8.0%

Sample Amount: 9.29 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 18:04

Instrument/Analyst: FID4B/MS

Dilution Factor: 20.0

Aromatic

Date Analyzed: 10/24/08 22:33

Instrument/Analyst: FID4A/MS

Dilution Factor: 10.0

Range	RL	Result
C8-C10 Aliphatics	43,000	< 43,000 U
C10-C12 Aliphatics	43,000	< 43,000 U
C12-C16 Aliphatics	43,000	< 43,000 U
C16-C21 Aliphatics	43,000	< 43,000 U
C21-C34 Aliphatics	43,000	100,000
C8-C10 Aromatics	22,000	< 22,000 U
C10-C12 Aromatics	22,000	< 22,000 U
C12-C16 Aromatics	22,000	< 22,000 U
C16-C21 Aromatics	22,000	< 22,000 U
C21-C34 Aromatics	22,000	23,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	0.0%
Aromatic	Ortho-terphenyl	82.0%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0801-5

SAMPLE

Lab Sample ID: NT96M

LIMS ID: 08-27477

Matrix: Soil

Data Release Authorized:

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 4.4%

Sample Amount: 9.71 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 20:24

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 20:03

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,100 U
C10-C12 Aliphatics	2,100	< 2,100 U
C12-C16 Aliphatics	2,100	< 2,100 U
C16-C21 Aliphatics	2,100	< 2,100 U
C21-C34 Aliphatics	2,100	9,900
C8-C10 Aromatics	2,100	< 2,100 U
C10-C12 Aromatics	2,100	< 2,100 U
C12-C16 Aromatics	2,100	< 2,100 U
C16-C21 Aromatics	2,100	< 2,100 U
C21-C34 Aromatics	2,100	20,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	113%
Aromatic	Ortho-terphenyl	98.4%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GOLSP0801-6

SAMPLE

Lab Sample ID: NT96N

LIMS ID: 08-27478

Matrix: Soil

Data Release Authorized: 

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 7.5%

Sample Amount: 9.71 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 20:46

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 20:24

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,100 U
C10-C12 Aliphatics	2,100	< 2,100 U
C12-C16 Aliphatics	2,100	< 2,100 U
C16-C21 Aliphatics	2,100	< 2,100 U
C21-C34 Aliphatics	2,100	5,900
C8-C10 Aromatics	2,100	< 2,100 U
C10-C12 Aromatics	2,100	< 2,100 U
C12-C16 Aromatics	2,100	< 2,100 U
C16-C21 Aromatics	2,100	< 2,100 U
C21-C34 Aromatics	2,100	3,800

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	99.2%
Aromatic	Ortho-terphenyl	93.7%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GOLSP0801-7
SAMPLE

Lab Sample ID: NT960
LIMS ID: 08-27479
Matrix: Soil
Data Release Authorized: *AS*
Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials
Date Sampled: 10/06/08
Date Received: 10/13/08

Date Extracted: 10/20/08
Percent Moisture: 5.1%

Sample Amount: 9.64 g-dry-wt
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 18:26
Instrument/Analyst: FID4B/MS

Dilution Factor: 50.0

Aromatic

Date Analyzed: 10/24/08 22:54
Instrument/Analyst: FID4A/MS

Dilution Factor: 20.0

Range	RL	Result
C8-C10 Aliphatics	100,000	< 100,000 U
C10-C12 Aliphatics	100,000	< 100,000 U
C12-C16 Aliphatics	100,000	< 100,000 U
C16-C21 Aliphatics	100,000	< 100,000 U
C21-C34 Aliphatics	100,000	110,000
C8-C10 Aromatics	41,000	< 42,000 U
C10-C12 Aromatics	41,000	< 42,000 U
C12-C16 Aromatics	41,000	< 42,000 U
C16-C21 Aromatics	41,000	< 42,000 U
C21-C34 Aromatics	41,000	240,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	0.0%
Aromatic	Ortho-terphenyl	79.8%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0801-8

SAMPLE

Lab Sample ID: NT96P

LIMS ID: 08-27480

Matrix: Soil

Data Release Authorized:

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 2.6%

Sample Amount: 10.1 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 21:07

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 20:46

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	2,700
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	102%
Aromatic	Ortho-terphenyl	109%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: GOLSP0801-11

SAMPLE

Lab Sample ID: NT96Q

LIMS ID: 08-27481

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: 10/06/08

Date Received: 10/13/08

Date Extracted: 10/20/08

Percent Moisture: 3.5%

Sample Amount: 9.79 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/24/08 21:28

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/24/08 21:07

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	130,000
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	2,600
C21-C34 Aromatics	2,000	32,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	83.5%
Aromatic	Ortho-terphenyl	72.6%

ALEPH SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials

<u>Client ID</u>	<u>COD</u>	<u>TOT OUT</u>
MB-102008	107% 0	
LCS-102008	104% 0	
LCSD-102008	104% 0	
GOLSP0802-4	109% 0	
GOLSP0802-6	0.0%*1	
GOLSP0802-8	112%*1	
GOLSP0802-9	0.0%*1	
GOLSP0802-12	132%*1	
GOLSP0802-14	114%*1	
GOLSP0802-18	116%*1	
GOLSP0802-19	98.4% 0	
GOLSP0802-21	86.8% 0	
GOLSP0802-24	112% 0	
GOLSP0801-3	0.0%*1	
GOLSP0801-4	0.0%*1	
GOLSP0801-5	113%*1	
GOLSP0801-6	99.2% 0	
GOLSP0801-7	0.0%*1	
GOLSP0801-8	102% 0	
GOLSP0801-11	83.5% 0	

LCS/MB LIMITS QC LIMITS

(COD) = 1-Chlorooctadecane

(25-117)

(21-112)

Prep Method: SW3550B

Log Number Range: 08-27465 to 08-27481

AREPH SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-102008	89.4%	0
LCS-102008	81.1%	0
LCSD-102008	97.9%	0
GOLSP0802-4	90.0%	0
GOLSP0802-6	0.0%*	1
GOLSP0802-8	85.9%	0
GOLSP0802-9	69.5%	0
GOLSP0802-12	108%	0
GOLSP0802-14	106%	0
GOLSP0802-18	107%	0
GOLSP0802-19	111%	0
GOLSP0802-21	73.9%	0
GOLSP0802-24	106%	0
GOLSP0801-3	0.0%*	1
GOLSP0801-4	82.0%	0
GOLSP0801-5	98.4%	0
GOLSP0801-6	93.7%	0
GOLSP0801-7	79.8%	0
GOLSP0801-8	109%	0
GOLSP0801-11	72.6%	0

LCS/MB LIMITS QC LIMITS

(OTER) = Ortho-terphenyl

(41-116)

(28-121)

Prep Method: SW3550B
Log Number Range: 08-27465 to 08-27481

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: LCS-102008

LCS/LCSD

Lab Sample ID: LCS-102008

LIMS ID: 08-27465

Matrix: Soil

Data Release Authorized:

Reported: 10/31/08

QC Report No: NT96-Pace Analytical

Project: Golder-SemMaterials

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 10/20/08

Sample Amount LCS: 10.0 mL

LCSD: 10.0 mL

Final Extract Volume LCS: 1.0 mL

LCSD: 1.0 mL

Aliphatic

Date Analyzed LCS: 10/23/08 15:33

LCSD: 10/23/08 15:54

Instrument/Analyst LCS: FID4B/MS

LCSD: FID4B/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Aromatic

Date Analyzed LCS: 10/23/08 15:33

LCSD: 10/23/08 15:54

Instrument/Analyst LCS: FID4A/MS

LCSD: FID4A/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
C8-C10 Aliphatics	9400	15000	62.7%	9200	15000	61.3%	2.2%
C10-C12 Aliphatics	9600	15000	64.0%	9300	15000	62.0%	3.2%
C12-C16 Aliphatics	12000	15000	80.0%	11100	15000	74.0%	7.8%
C16-C21 Aliphatics	13000	15000	86.7%	12800	15000	85.3%	1.6%
C10-C12 Aromatics	10400	15000	69.3%	11400	15000	76.0%	9.2%
C12-C16 Aromatics	10800	15000	72.0%	13000	15000	86.7%	18.5%
C16-C21 Aromatics	22400	30000	74.7%	27100	30000	90.3%	19.0%
C21-C34 Aromatics	25600	30000	85.3%	29200	30000	97.3%	13.1%

EPH Surrogate Recovery

		LCS	LCSD
Aliphatic	1-Chlorooctadecane	104%	104%
Aromatic	Ortho-terphenyl	81.1%	97.9%

Results reported in $\mu\text{g}/\text{kg}$

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: MB-102008
METHOD: BLANK

Lab Sample ID: MB-102008
LIMS ID: 08-27465
Matrix: Soil
Data Release Authorized:
Reported: 10/31/08

QC Report No: NT96-Pace Analytical
Project: Golder-SemMaterials

Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/08
Percent Moisture: NA

Sample Amount: 10.0 g-as-rec
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 10/23/08 15:11
Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 10/23/08 15:11
Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	< 2,000 U
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	107%
Aromatic	Ortho-terphenyl	89.4%



Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 6, 2008

Shannon Schelinder
Pace Analytical
940 S. Harney Street
Seattle, WA 98108

RE: Client Project: Golder-SemMaterials
ARI Job No.: NV81

Dear Shannon:

Please find enclosed the original Chain of Custody (COC) record, sample receipt documentation, and final analytical results for the samples from the project referenced above. Analytical Resources Inc. (ARI) accepted four soil samples on October 22, 2008. The cooler temperature measured by IR thermometer following ARI SOP was -0.6°C and the samples were iced. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for EPH as requested on the COC.

Sample **GGP-24-2.5** was diluted due to high concentrations of EPH Aliphatic and Aromatic compounds. There were no surrogate percent recoveries detected due to sample dilution and all relevant data have been flagged with a "D" qualifier on the appropriate Form II's. No further corrective action was required.

The LCS percent recoveries of C12-C16 and C16-C21 Aliphatics were outside the control limits low for **LCS-102308**. The LCSD percent recoveries were within control limits. No further corrective action was required.

An electronic copy of this report as well as all associated raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
206-695-6214
cheronneo@arilabs.com
www.arilabs.com

Enclosures

cc: eFile NV81



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Pace Analytical Svc.	Report To:	Shannon Sichelinde	Attention:	
Address:	940 S. Herring St Seattle, WA 98108	Copy To:		Company Name:	
Email To:	Shannons@lavelslabs.com	Purchase Order No.:		Address:	
Phone:	206-957-2449	Project Name:	Goldw - Sem Materials	Pace Quote Reference:	
Fax:		Project Number:		Pace Project Manager:	
Requested Due Date/TAT:	10 days			Pace Profile #:	

Page: 1 of 1
1196390

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER

Site Location STATE: WA

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
				COMPOSITE START	COMPOSITE END/GRAB										
			MATRIX CODE (see valid codes to left)	DATE	TIME	DATE	TIME	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other	
1	GGP-24-21.5	Drinking Water	SLG	10/16	11:20		1		X						
2	GMMW-01-12.5	Waste Water		10/15	16:15		1		X						
3	GMMW-01-174.5	Waste Water		10/15	18:35		1		X						
4	GMMW-02-176	Waste Water		10/17	15:45		1		X						

ADDITIONAL COMMENTS	DATE	TIME	AFFILIATION	ACCEPTED BY	DATE	TIME	SAMPLE CONDITIONS		
							Received on	Custody Sealed Cooler	Samples Intact
	10/20/08	1555	Kimberly Egg/AE1	Kimberly Egg/AE1	10/20/08	1555			

TEMP IN °C

RECEIVED ON

CUSTODY SEALED COOLER

SAMPLES INTACT

DATE SIGNED (MM/DD/YY):

SIGNATURE OF SAMPLER:

PRINT NAME OF SAMPLER:

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Cooler Receipt Form

ARI Client: Pace
COC No: 119639A
Assigned ARI Job No: NV81

Project Name: Gold - Sem Materials
Delivered by: hand
Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry) -0.6 °C

Cooler Accepted by: KR Date: 10/22/08 Time: 1555

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? GEL ICE / BW
Was sufficient ice used (if appropriate)? YES NO
Were all bottles sealed in individual plastic bags? YES NO
Did all bottle arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist) YES NO
Were all VOC vials free of air bubbles? YES NO
Was sufficient amount of sample sent in each bottle? YES NO

Samples Logged by: [Signature] Date: 10/22/08 Time: 1700

**** Notify Project Manager of discrepancies or concerns ****

Explain discrepancies or negative responses:

By: _____ Date: _____

08-28705/08

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: GGP-24-2.5
SAMPLE

Lab Sample ID: NV81A
 LIMS ID: 08-28705
 Matrix: Soil
 Data Release Authorized:
 Reported: 11/05/08

QC Report No: NV81-Pace Analytical
 Project: Golder - SEM Materials
 Date Sampled: 10/06/08
 Date Received: 10/22/08

Date Extracted: 10/23/08
 Percent Moisture: 14.4%

Sample Amount: 8.94 g-dry-wt
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 11/03/08 16:07
 Instrument/Analyst: FID4B/MS

Dilution Factor: 50.0

Aromatic

Date Analyzed: 11/03/08 16:07
 Instrument/Analyst: FID4A/MS

Dilution Factor: 50.0

Range	RL	Result
C8-C10 Aliphatics	110,000	< 110,000 U
C10-C12 Aliphatics	110,000	< 110,000 U
C12-C16 Aliphatics	110,000	260,000
C16-C21 Aliphatics	110,000	320,000
C21-C34 Aliphatics	110,000	960,000
C8-C10 Aromatics	110,000	< 110,000 U
C10-C12 Aromatics	110,000	< 110,000 U
C12-C16 Aromatics	110,000	770,000
C16-C21 Aromatics	110,000	2,300,000
C21-C34 Aromatics	110,000	3,800,000

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	D
Aromatic	Ortho-terphenyl	D

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: **GMW-01-125**
SAMPLE

Lab Sample ID: NV81B
 LIMS ID: 08-28706
 Matrix: Soil
 Data Release Authorized:
 Reported: 11/05/08

QC Report No: NV81-Pace Analytical
 Project: Golder - SEM Materials
 Date Sampled: 10/15/08
 Date Received: 10/22/08

Date Extracted: 10/23/08
 Percent Moisture: 7.5%

Sample Amount: 9.74 g-dry-wt
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 11/03/08 14:20
 Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 11/03/08 14:20
 Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,000 U
C10-C12 Aliphatics	2,100	< 2,000 U
C12-C16 Aliphatics	2,100	< 2,000 U
C16-C21 Aliphatics	2,100	< 2,000 U
C21-C34 Aliphatics	2,100	< 2,000 U
C8-C10 Aromatics	2,100	< 2,000 U
C10-C12 Aromatics	2,100	< 2,000 U
C12-C16 Aromatics	2,100	< 2,000 U
C16-C21 Aromatics	2,100	< 2,000 U
C21-C34 Aromatics	2,100	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	96.1%
Aromatic	Ortho-terphenyl	114%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GMW-01-174.5

SAMPLE

Lab Sample ID: NV81C

LIMS ID: 08-28707

Matrix: Soil

Data Release Authorized: 

Reported: 11/05/08

QC Report No: NV81-Pace Analytical

Project: Golder - SEM Materials

Date Sampled: 10/15/08

Date Received: 10/22/08

Date Extracted: 10/23/08

Percent Moisture: 5.6%

Sample Amount: 10.1 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 11/03/08 14:41

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 11/03/08 14:41

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	< 2,000 U
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	82.2%
Aromatic	Ortho-terphenyl	90.5%

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1


Sample ID: GMW-02-176

SAMPLE

Lab Sample ID: NV81D

LIMS ID: 08-28708

Matrix: Soil

Data Release Authorized: 

Reported: 11/05/08

QC Report No: NV81-Pace Analytical

Project: Golder - SEM Materials

Date Sampled: 10/17/08

Date Received: 10/22/08

Date Extracted: 10/23/08

Percent Moisture: 5.8%

Sample Amount: 9.57 g-dry-wt

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 11/03/08 15:02

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 11/03/08 15:02

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,100	< 2,100 U
C10-C12 Aliphatics	2,100	< 2,100 U
C12-C16 Aliphatics	2,100	< 2,100 U
C16-C21 Aliphatics	2,100	< 2,100 U
C21-C34 Aliphatics	2,100	2,200
C8-C10 Aromatics	2,100	< 2,100 U
C10-C12 Aromatics	2,100	< 2,100 U
C12-C16 Aromatics	2,100	< 2,100 U
C16-C21 Aromatics	2,100	< 2,100 U
C21-C34 Aromatics	2,100	< 2,100 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	90.0%
Aromatic	Ortho-terphenyl	106%

AREPH SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: NV81-Pace Analytical
Project: Golder - SEM Materials

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-102308	92.2%	0
LCS-102308	72.5%	0
LCSD-102308	85.9%	0
GGP-24-2.5	D	0
GMW-01-125	114%	0
GMW-01-174.5	90.5%	0
GMW-02-176	106%	0

LCS/MB LIMITS QC LIMITS

(OTER) = Ortho-terphenyl

(41-116)

(28-121)

Prep Method: SW3550B
Log Number Range: 08-28705 to 08-28708

ALEPH SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: NV81-Pace Analytical
Project: Golder - SEM Materials

<u>Client ID</u>	<u>COD</u>	<u>TOT OUT</u>
MB-102308	88.3% 0	
LCS-102308	62.8% 0	
LCSD-102308	91.0% 0	
GGP-24-2.5	D 0	
GMW-01-125	96.1% 0	
GMW-01-174.5	82.2% 0	
GMW-02-176	90.0% 0	

	LCS/MB LIMITS	QC LIMITS
(COD) = 1-Chlorooctadecane	(25-117)	(21-112)

Prep Method: SW3550B
Log Number Range: 08-28705 to 08-28708

FORM-II ALEPH

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: LCS-102308

LCS/LCSD

Lab Sample ID: LCS-102308

LIMS ID: 08-28705

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 11/05/08

QC Report No: NV81-Pace Analytical
Project: Golder - SEM Materials

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 10/23/08

Sample Amount LCS: 10.0 mL

LCSD: 10.0 mL

Final Extract Volume LCS: 1.0 mL

LCSD: 1.0 mL

Aliphatic

Date Analyzed LCS: 11/03/08 13:37

LCSD: 11/03/08 13:58

Instrument/Analyst LCS: FID4B/MS

LCSD: FID4B/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Aromatic

Date Analyzed LCS: 11/03/08 13:37

LCSD: 11/03/08 13:58

Instrument/Analyst LCS: FID4A/MS

LCSD: FID4A/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
C8-C10 Aliphatics	8800	15000	58.7%	6900	15000	46.0%	24.2%
C10-C12 Aliphatics	11000	15000	73.3%	7100	15000	47.3%	43.1%
C12-C16 Aliphatics	7000	15000	46.7%	9700	15000	64.7%	32.3%
C16-C21 Aliphatics	7400	15000	49.3%	11000	15000	73.3%	39.1%
C10-C12 Aromatics	6400	15000	42.7%	6100	15000	40.7%	4.8%
C12-C16 Aromatics	8300	15000	55.3%	9900	15000	66.0%	17.6%
C16-C21 Aromatics	18200	30000	60.7%	21900	30000	73.0%	18.5%
C21-C34 Aromatics	20900	30000	69.7%	25700	30000	85.7%	20.6%

EPH Surrogate Recovery

		LCS	LCSD
Aliphatic	1-Chlorooctadecane	62.8%	91.0%
Aromatic	Ortho-terphenyl	72.5%	85.9%

Results reported in $\mu\text{g}/\text{kg}$

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: MB-102308

METHOD BLANK

Lab Sample ID: MB-102308

LIMS ID: 08-28705

Matrix: Soil

Data Release Authorized: *AS*

Reported: 11/05/08

QC Report No: NV81-Pace Analytical

Project: Golder - SEM Materials

Date Sampled: NA

Date Received: NA

Date Extracted: 10/23/08

Percent Moisture: NA

Sample Amount: 10.0 g-as-rec

Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 11/03/08 13:16

Instrument/Analyst: FID4B/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 11/03/08 13:16

Instrument/Analyst: FID4A/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	2,000	< 2,000 U
C10-C12 Aliphatics	2,000	< 2,000 U
C12-C16 Aliphatics	2,000	< 2,000 U
C16-C21 Aliphatics	2,000	< 2,000 U
C21-C34 Aliphatics	2,000	< 2,000 U
C8-C10 Aromatics	2,000	< 2,000 U
C10-C12 Aromatics	2,000	< 2,000 U
C12-C16 Aromatics	2,000	< 2,000 U
C16-C21 Aromatics	2,000	< 2,000 U
C21-C34 Aromatics	2,000	< 2,000 U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	88.3%
Aromatic	Ortho-terphenyl	92.2%

**DATA VALIDATION
NT-96 AND NV-81**

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170.05			SITE: SEM MATERIALS, IDAHO
LABORATORY: Analytical Resources Inc.,			SDG: NT-96 and NV-81
SAMPLES			MATRIX: Water
GGP-4-15	GGP-21B-12	GGP-24-2.5	
GGP-9-2.5	GGP-21B-2	GMW-01-125	
GGP-9-15	GGP-21B-7.5	GMW-01-174	
GGP-10-2	GGP-22-2.5	GMW-02-176	
GGP-11-15	GGP-22-7		
GGP-14-10	GGP-23-15		
GGP-12B-2.5	GGP-23-2.5		
GGP-12B-7.5			
GGP-8-2.5			
GGP-6-15			

DATA ASSESSMENT SUMMARY

REVIEW ITEM	VOA	BNA 8270	Pest / PCB	NWTPH- Dx		EPH	OTHER
1. Data Completeness						O	
2. Holding Times						O	
3. Field Blanks						-	
4. Laboratory Blanks						O	
5. Surrogates (1)						X	
6. Lab Duplicate, Field Duplicate						-	
7. LCS, Blank Spike (2)						X	
8. Matrix Spike /MS Duplicate						O	
9. Result Verify, Detection Limits						O	
10. Overall Summary						O	

O = Data had no problems

⊖ = Problems, but do not affect data

X = Data qualified due to minor problems [typically estimated data (J or U)].

M = Data qualified due to major problems [typically more than 50% qualified (J/U)].

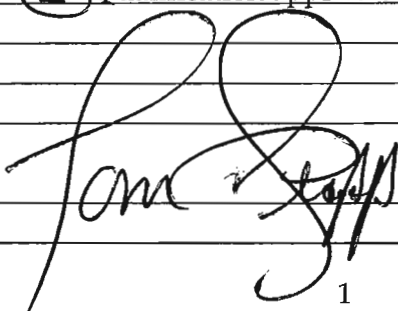
Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results:

(1) Qualifications Applied to all NV-81 results due to out of limit LCS recoveries. **(2)** Qualification applied due to surrogates out of limit for select samples in SDG NT-96.

Validated by:

Reviewed by:



Date:

Date:

April 19, 2009

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

Acceptable
 Absent
 Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: All holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not Applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS); Chart other Contaminants: Qualif. Results <5X RLS according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L


Examples:

Comments/Qualified Results: _____

No detects in blanks.

MDL	BLANK		SAMPLE		Q Applied
	Result	PQL	Result		
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply)..... 

Yes Surrogates analyzed

NO Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)

Recoveries above Method Control limits (J detects only)

Recoveries below Method Control limits but >20% (J/UJ)

Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results: Aliphatic fraction only for Sample #s GOLSP0802-6, 8, 9, 12, 14, 18, and GOLSP0801-3, 4, 5, 7; out of limit surrogate recovery; Associated results qualified J/UJ(estimated). Aromatic fraction for samples GOLSP0802-6, and GOLSP0801-3 out of limit recovery; Associated results qualif, J/UJ.

6. Duplicate, Field Duplicates (Check all that apply).....

Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL

Parent ID:

Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL

Duplicate ID:

Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results

Not Applicable

Acceptable: Yes

NO

7. Lab Control Samples, Blank Spikes (Check all that apply)..... 

LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]

LCS %R 50-79% or >120%, results >IDL estimated (J)

LCS %R 50-79% and results <IDL estimated (UJ)

LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: LCS/LCSD for 11-03-08 out of limit for multiple C ranges; Associated results for each range Aliphatics, and C10-C12 range Aromatics qualified J (All samples for SDG NV-81).

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

MS/MSD %R 50-79% and results <IDL estimated (UJ)

MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Batch# 102008 No EPH MS tested; See SDG# GOLSP0901 for associated QC;

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported ~~in raw data~~; [Raw data provided / Not Provided] *TWS*
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____

10. Overall Assessment..... Acceptable: **Yes** **NO**

Comments/Qualified Results: _____

APPENDIX D

Remedial Investigation Groundwater Quality Sampling Field Forms

January 2009


**Golder Associates
Well Sampling Form**

Project:	Well Identification: <i>UP sediment cross cap well</i>
Site: <i>SOM MATERIALS</i>	Sampling Method: <i>Bladder pump (UDCMW-4)</i>
Job Number:	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00			
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_h/2)^2 - (d_w OD/2)^2](TD-(S \text{ or } H))(P) =$ (If S > H, use S. If S < H, use H)	0.00			
Depth to (below top of casing): Water Level H = <i>174.97</i> ✓	Total Well Volume (gallons) =	0.00			
Base of Seal S = _____ Base of Well TD = 178.8 <i>189.97</i>	$V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$				
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$	0.0			

Date	Time		Water Purged (gal)	Cumulative Water Purged (gal)	Well Vol	Water Characteristics				Comments
	Begin	Finish				pH	Conductivity (uS/cm)	Turbidity (NTU)	Temperature (° Celsius)	
<i>1-14-09</i>	<i>1450</i>	<i>1500</i>	<i>2.5</i>	<i>2</i>						<i>D.O.</i>
	<i>1500</i>		<i>2.5</i>			<i>7.70</i>	<i>144.4</i>	<i>4.03</i>	<i>9.7</i>	<i>clear, no odor, no sheen 6.4</i>
	<i>15:10</i>		<i>2.5</i>			<i>8.22</i>	<i>142.5</i>	<i>3.48</i>	<i>9.2</i>	<i>clear 5.3</i>
	<i>15:20</i>		<i>2.5</i>			<i>8.23</i>	<i>143.8</i>	<i>3.48</i>	<i>9.7</i>	<i>5.7</i>
	<i>15:30</i>		<i>2.5</i>			<i>8.26</i>	<i>144.0</i>	<i>3.48</i>	<i>8.7</i>	<i>5.91</i>
	<i>15:40</i>		<i>2.5</i>			<i>8.26</i>	<i>141.2</i>	<i>1.76</i>	<i>8.9.4</i>	<i>5.97</i>
	<i>15:45</i>	<i>Collect Sample</i>				<i>UDCMW-4</i>				
	<i>15:55</i> <i>1600</i>		<i>5</i>			<i>8.26</i>	<i>142.9</i>	<i>1.46</i>	<i>9.3</i>	<i>5.32</i>

Sampling Date: <i>1/14/09</i>
Sample Number: <i>UDCMW-4</i>
Analyses to be Performed: <i>NWTPH-D_x, PAH, EPH</i>
No. and Type of Sample Containers/Preserve:
Chain of Custody Seal Number:
Analytical Laboratory:
Date Shipped:
Carrier: Federal Express



**Golder Associates
Well Sampling Form**

Project:	Well Identification: GMW-06	1/13/09
Site: Scm Materials	Sampling Method: Bladder Pump	
Job Number: 073-93170-02	Purge Method:	

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi((d_h/2)^2 - (d_w OD/2)^2)(TD-(S \text{ or } H))(P) =$ 0.00 (If S > H, use S. If S < H, use H)
Depth to (below top of casing): Water Level H = 171.13' Base of Seal S = _____ Base of Well TD = 181.6'		Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ 0.00
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments	
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)		
1/13/09	9:30	9:45	Liters									
	9:45	9:50	2	2		8.17	172.7	870		10.3		Very Turbid
		10:00	3	5		8.18	154.1	182		10.1		No odor, no sheen
		10:10	4	9		8.19	154.4	88.3		10.0		sl. turbid
		10:20	4	13		8.14	154.8	270		11.0		sl. turbid
		10:30	3	16		8.16	152.8	21.3		10.9		clear
		10:40	4	20		8.12	153.9	13.2		10.9		clear
		10:50	4	24		8.17	152.1	8.88		11.3		
		11:00	4	28		8.15	152.9	2.92		10.8		
		11:00	Collect Sample GMW-06									
		11:20				8.13	153.5	3.56		10.1		

Sampling Date: 1/13/09	1110
Sample Number: GMW-06	
Analyses to be Performed: NWTPH-Dx, PAA, EPA	
No. and Type of Sample Containers/Preserve:	2 x 1-L Amber, Unpres.
Chain of Custody Seal Number:	2 x 1-L Amber + HCl
Analytical Laboratory:	2 x 500mL Amber, Unpres.
Date Shipped:	
Carrier:	



**Golder Associates
Well Sampling Form**

Project:	Well Identification: <u>GMW-05</u>	1/13/09
Site: <u>Sam Materials</u>	Sampling Method: <u>Bladder Pump</u>	
Job Number: <u>073-93170-02</u>	Purge Method:	

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = (nr ² 2h)/(7.48 gal/ft ³):
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter d _n = _____		Casing Volume (ft ³) = V _c = π(d _w ID/2) ² (TD-H) = 0.00
Well Casing		
Inside Diam d _w ID = _____		Filter Pack Pore Volume (ft ³) = V _f =
Outside Diam d _w OD = _____		π[(d _n /2) ² - (d _w OD/2) ²](TD - (S or H))(P) = 0.00
		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) =
Water Level H = <u>178.25</u> ✓		V _t = (V _c + V _f) * 7.48 gal/ft ³ = 0.00
Base of Seal S = _____		
Base of Well TD = <u>187.8</u>		
Est. Filter		Minimum Purge Volume (gallons) =
Pack Porosity P = _____		V _p = V _t x 3 = 0.0

Date	Time		Water Purged (gal)	Cumulative Water Purged (gal)	Well Vol	Water Characteristics					Comments
	Begin	Finish				pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (° C)	
1/13/09	1300	1310	3	2							
	1310		3	6		7.33	165.4	16.9		10.1	Slightly turbid, no color, no smell
	1320		3	9		7.88	151.0	19.9		10.0	sl. turbid
	1330		3	12		8.06	149.7	15.9		10.1	clear, no color
	1340		3	15		8.06	151.0	8.86		9.8	clear
	1350		3			8.04	151.4	5.16		9.9	clear, no color
	1400		3			8.05	149.5	4.92 3.99		10.0	clear
	1405	Collect Sample				GMW-05					
	1415		5			8.08	150.8	4.09		9.7	clear

Sampling Date: <u>1/13/09</u>	<u>1405</u>
Sample Number: <u>GMW-05</u>	
Analyses to be Performed: <u>NWPPH-D_x, PAA, EPA</u>	
No. and Type of Sample Containers/Preserve: <u>2x 1-L, Unpres.</u>	
Chain of Custody Seal Number: <u>2x 1-L + BCL</u>	
Analytical Laboratory:	
Date Shipped:	
Carrier: <u>2x 500 ml, Unpres.</u>	



**Golder Associates
Well Sampling Form**

ma A
Wells

Project:	Well Identification: GMW-04
Site: SemMATERIALS	Sampling Method: Bladder Pump
Job Number: 073-93170-02	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi (d_h/2)^2 (TD-H) =$ 0.00
Well Casing Inside Diam $d_wID =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_h/2)^2 - (d_wOD/2)^2] (TD-(S \text{ or } H)) (P) =$ 0.00
Outside Diam $d_wOD =$ _____		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) = $V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$ 0.00
Water Level H = 177.16'		
Base of Seal S = _____		
Base of Well TD = 184.8'		
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t * 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged (gal)	Well Vol	Water Characteristics					Comments
	Begin	Finish				pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
1/13/09	1430		2	2				12.1			clear, no odor, no skin
	1440		3	3		8.00	167.1	4.86		9.8	
	1450		3	6		8.00	168.3	3.49		10.2	
	1500		3	9		8.01	168.4	2.99		9.1	
	1510					8.03	170.2	2.53		9.2	
	1515		Collect	Sample	GMW-04 + MS/MSD						
	1540					8.02	17	1.69		9.3	

Sampling Date: 1/13/09	1515
Sample Number: GMW-04	MS/MSD Sample
Analyses to be Performed:	NWPPH-Dx, PATT, EPLH
No. and Type of Sample Containers/Preserve:	6 x 1-L Amber, Unpres.
Chain of Custody Seal Number:	6 x 1-L + HCl
Analytical Laboratory:	6 x 500ml, Unpres.
Date Shipped:	
Carrier:	



Wells

**Golder Associates
Well Sampling Form**

Project:	Well Identification: <i>GMW-03</i>	<i>1/14/09</i>
Site: <i>SemMaterials</i>	Sampling Method: <i>Bladder Pump</i>	
Job Number:	Purge Method:	

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_{w, ID} =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi((d_h/2)^2 - (d_w/2)^2)(TD - (S \text{ or } H))(P) =$ 0.00
Outside Diam $d_{w, OD} =$ _____		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ 0.00
Water Level H = <i>175.76</i>		
Base of Seal S = _____		
Base of Well TD = <i>183.35</i>		
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

176.21

Date	Time		Water Purged (gal)	Cumulative Water Purged (gal)	Well Vol	Water Characteristics					Comments
	Begin	Finish				pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
<i>1/14/09</i>	<i>1010</i>	<i>1020</i>	<i>2.5</i>	<i>2</i>							<i>clear, no odor, no seen</i>
	<i>1020</i>		<i>3.5</i>	<i>6</i>		<i>7.85</i>	<i>169.3</i>	<i>2.44</i>	<i>6.32</i>	<i>10.1</i>	
	<i>1030</i>		<i>4</i>	<i>10</i>		<i>8.05</i>	<i>163.6</i>	<i>2.66</i>	<i>7.23</i>	<i>10.5</i>	<i>clear</i>
	<i>1040</i>		<i>4</i>	<i>14</i>		<i>8.04</i>	<i>162.9</i>	<i>1.96</i>	<i>7.44</i>	<i>10.0</i>	<i>clear</i>
	<i>1050</i>		<i>2.5</i>			<i>8.06</i>	<i>163.8</i>	<i>1.78</i>	<i>7.32</i>	<i>9.8</i>	<i>clear</i>
	<i>1055</i>		<i>Collect</i>	<i>Sample</i>	<i>GMW-03</i>						
	<i>1105</i>		<i>8</i>			<i>8.07</i>	<i>164.8</i>	<i>1.29</i>	<i>7.38</i>	<i>9.3</i>	<i>clear</i>

Sampling Date: <i>1/14/09</i> <i>1055</i>
Sample Number: <i>GMW-03</i>
Analyses to be Performed: <i>NWTPH-D_x, PAH, EPA</i>
No. and Type of Sample Containers/Preserve:
Chain of Custody Seal Number:
Analytical Laboratory:
Date Shipped:
Carrier:



**Golder Associates
Well Sampling Form**

Project: <i>Sum Materials</i>	Well Identification: <i>GMW-02</i>	<i>1/14/09</i>
Site: <i>Sum Materials</i>	Sampling Method: <i>Bladder Pump</i>	
Job Number: <i>073-93170-02</i>	Purge Method:	

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_{wID} =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_h/2)^2 - (d_{wOD}/2)^2](TD-(S \text{ or } H))(P) =$ 0.00
Outside Diam $d_{wOD} =$ _____		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) =
Water Level H = <u>177.0'</u> ✓		$V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ <i>0.913</i> 0.897 0.00
Base of Seal S = _____		
Base of Well TD = <u>182.6'</u>		
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged (gal)	Well Vol	Water Characteristics					Comments
	Begin	Finish				pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
1-14-09	13:30	13:40	2.5	2.5	2.5	7.97	255	1.04	6.80	9.0	
1-14-09	13:40	13:50	2.5	5.0	5.0	7.94	253	0.97	7.27	10.0	
1-14-09	13:50	14:00	2.5	7.5	7.5	7.95	252	1.00	7.75	9.8	
1-14-09	14:00	14:05	2.5	10	10	7.94	252	1.00	7.94	9.0	
1-14-09	14:05	14:40	2.5	12.5	12.5	7.94	254	1.00	7.54	8.8	<i>collect sample GMW-02, duplicate sample MW-22</i>
1-14-09	13:30		2.5	2.5		7.97	255	1.04	6.80	9.0	
	13:40		2.5	5.0		7.94	253	0.97	7.27	10.0	
	13:50		2.5	7.5		7.95	252	1.00	7.75	9.8	
	14:00		2.5	10		7.94	252	1.00	7.94	9.0	
	14:05		2.5	12.5		7.94	254	1.00	7.54	8.8	

Sampling Date: <i>1/14/09</i>
Sample Number: <i>GMW-02 (#1405), GMW-22 (1407) - Duplicate</i>
Analyses to be Performed:
No. and Type of Sample Containers/Preserve:
Chain of Custody Seal Number:
Analytical Laboratory:
Date Shipped:
Carrier:




**Golder Associates
Well Sampling Form**

Project:	Well Identification: <i>GMW-01</i>
Site: <i>Sem Materials</i>	Sampling Method: <i>Bladder Pump</i>
Job Number:	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) (7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi (d_w ID/2)^2 (TD-H) =$	0.00
Well Casing Inside Diam $d_w ID =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_h/2)^2 - (d_w OD/2)^2] (TD-(S \text{ or } H))(P) =$	0.00
Outside Diam $d_w OD =$ _____	(If S > H, use S. If S < H, use H)	
Depth to (below top of casing):	Total Well Volume (gallons) =	
Water Level H = <i>174.95</i>	$V_t = (V_c + V_f) 7.48 \text{ gal/ft}^3 =$	0.00
Base of Seal S = _____	Minimum Purge Volume (gallons) =	
Base of Well TD = <i>188.80</i>	$V_p = V_t \times 3 =$	0.0
Est. Filter Pack Porosity P = _____		

Date	Time		Water Purged (gal)	Culmative Water Purged (gal)	Well Vol	Water Characteristics					Comments
	Begin	Finish				pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
<i>1/14/09</i>	<i>1120</i>	<i>1140</i>	<i>2.5</i>								
	<i>1140</i>		<i>2.5</i>			<i>7.40</i>	<i>140.2</i>	<i>8.10</i>	<i>5.32</i>	<i>9.6</i>	<i>clear, no odor</i>
	<i>1150</i>		<i>2.5</i>			<i>8.04</i>	<i>141.1</i>	<i>6.70</i>	<i>5.22</i>	<i>9.7</i>	<i>no sheen</i>
	<i>1200</i>		<i>2.5</i>			<i>8.06</i>	<i>140.8</i>	<i>6.65</i>	<i>5.12</i>	<i>9.7</i>	
	<i>1210</i>		<i>2.5</i>			<i>8.08</i>	<i>141.0</i>	<i>4.42</i>	<i>5.20</i>	<i>9.7</i>	
	<i>1215</i>	<i>Collect</i>		<i>Sample</i>	<i>GMW-01</i>						
	<i>1230</i>		<i>5.0</i>			<i>8.07</i>	<i>141.1</i>	<i>4.32</i>	<i>5.25</i>	<i>9.7</i>	

Sampling Date: <i>1/14/09</i>
Sample Number: <i>GMW-01</i>
Analyses to be Performed: <i>NWTPH-Dx, PAH, EPH</i>
No. and Type of Sample Containers/Preserve:
Chain of Custody Seal Number:
Analytical Laboratory:
Date Shipped:
Carrier:



April & May 2009

**Golder Associates
Well Sampling Form**

Project: <u>SemMaterials</u>	Well Identification: <u>GMW-1</u>
Site: <u>"</u>	Sampling Method: <u>RED MP-10 - MICROPURGE</u>
Job Number: <u>673-9317402</u>	Purge Method: <u>RED MP-10 Low Flow</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = (nr ² h)(7.48 gal/ft ³):			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ <u>2"</u>	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00			
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_w OD/2)^2](TD - (S \text{ or } H))(P) =$ (If S > H, use S. If S < H, use H)	0.00		
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$	0.00			
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t * 3 =$	0.0			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
<u>4-30-09</u>	<u>0950</u>					<u>7.30</u>	<u>93.1</u>	<u>2.57</u>	<u>10.6</u>	<u>10.2</u>	<u>6428</u>
						<u>7.38</u>	<u>87.4</u>		<u>10.3</u>	<u>10.7</u>	<u>6947</u>
						<u>7.57</u>	<u>85.2</u>		<u>8.6</u>	<u>11.0</u>	<u>1002</u>
						<u>7.13</u>	<u>85.1</u>	<u>4.33</u>	<u>7.37</u>	<u>11.4</u>	<u>1009</u>
						<u>7.66</u>	<u>85.3</u>		<u>7.36</u>	<u>11.5</u>	<u>1020</u>
						<u>7.66</u>	<u>85.3</u>		<u>7.50</u>	<u>11.5</u>	<u>1023</u>

Sampling Date: <u>April 30, 2009</u>
Sample Number: <u>GMW-01 4-30-09</u>
Analyses to be Performed: <u>NWTPH-DX, PAH</u>
No. and Type of Sample Containers/Preserve: <u>4 LITER, 2 HCl preserved, 2 UNPRESERVED</u>
Chain of Custody Seal Number: _____
Analytical Laboratory: <u>Pace Analytical</u>
Date Shipped: <u>5/1/09</u>
Carrier: <u>FED EX</u>



**Golder Associates
Well Sampling Form**

Project: <u>San Materials</u>	Well Identification: <u>GMW-2</u>
Site: <u>11</u>	Sampling Method: <u>QED Low Flow</u>
Job Number: <u>573-93170-02</u>	Purge Method: <u>QED MP-10 Low Flow</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ <u>2"</u>	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$				0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f =$ $\pi[(d_h/2)^2 - (d_w OD/2)^2](TD - (S \text{ or } H))(P) =$ (if S > H, use S. If S < H, use H)				0.00
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$				0.00
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$				0.0

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
4-30-09	1108					7.44	207	3.64	6.55	11.7	
						7.59	106.3		5.87	12.3	1138
						7.61	105.4	1.46	5.30	12.6	1144
						7.63	104.5		5.68	12.4	1151
						7.68	105.4	0.79	6.75	12.3	
						7.7	105.2		6.29	12.8	1207
						7.72	105.8		6.35	12.4	1216
						7.72	105.9		7.44	12.5	1221
	Start of Sampling		1222								

Sampling Date: <u>4-30-09</u>
Sample Number: <u>GMW-02 4-30-09</u>
Analyses to be Performed: <u>NWTDH-DX, PAH</u>
No. and Type of Sample Containers/Preserve: <u>4 - 1 LITER, 2 HCL PRESERVED, 2 UNPRESERVED</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>Paige Analytical</u>
Date Shipped: <u>5/1/09</u>
Carrier: <u>FEDEX</u>




**Golder Associates
Well Sampling Form**

Project: <u>Sem Materials</u>	Well Identification: <u>GMW-3</u>
Site: <u>"</u>	Sampling Method: <u>QED MP-10</u>
Job Number: <u>073-93170.02</u>	Purge Method: <u>QED MP-10 Macro Pump</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ <u>2"</u>	Casing Volume (ft ³) = $V_c = \pi(d_w/2)^2(TD-H) =$ 0.00				
Well Casing Inside Diam $d_wID =$ _____ Outside Diam $d_wOD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_wOD/2)^2](TD-(S \text{ or } H))(P) =$ 0.00 (If S > H, use S. If S < H, use H)				
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ 0.00				
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0				

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
4-30	1258					7.50	46.3		7.00	13.2	1307
						7.66	88.5	0.44	7.31	13.1	1320
						7.82	87.5		6.41	13.1	1332
						7.84	87.9		7.7	13.0	1342
						7.87	87.8		6.26	13.6	1352
						7.89	88.0		6.02	12.8	1404
						7.89	88.1		6.85	12.7	1413
1415	Start filling bottles										
1440	Finish										

Sampling Date: <u>4-30-09</u>
Sample Number: <u>GMW-03 4-30-09</u>
Analyses to be Performed: <u>NUTPH - DX PAH</u>
No. and Type of Sample Containers/Preserve: <u>4 1-LITER, 2 HCL PRESERVED, 2 UNPRESERVED</u>
Chain of Custody Seal Number: _____
Analytical Laboratory: <u>PACE ANALYTICAL</u>
Date Shipped: <u>5/1/09</u>
Carrier: <u>FEDEX</u>



**Golder Associates
Well Sampling Form**

Project: <u>San Mateo</u>	Well Identification: <u>GMW-4</u>
Site: <u>1</u>	Sampling Method: <u>RED MP-10 MICROPURGE</u>
Job Number: <u>07393170.02</u>	Purge Method: <u>RED MP-10</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$: 2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ <u>2"</u>	Casing Volume (ft ³) = $V_c = \pi (d_w ID / 2)^2 (TD - H) =$ 0.00 Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_h / 2)^2 - (d_w OD / 2)^2] (TD - (S \text{ or } H)) (P) =$ 0.00 (If S > H, use S. If S < H, use H) Total Well Volume (gallons) = $V_t = (V_c + V_f) \cdot 7.48 \text{ gal/ft}^3 =$ 0.00 Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0	
Well Casing		
Inside Diam $d_w ID =$ _____		
Outside Diam $d_w OD =$ _____		
Depth to (below top of casing):		
Water Level H = _____		
Base of Seal S = _____		
Base of Well TD = _____		
Est. Filter Pack Porosity P = _____		

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
<u>4/30</u>						<u>7.61</u>	<u>1000</u>		<u>9.86</u>	<u>13.2</u>	<u>1507</u>
						<u>7.62</u>	<u>941.6</u>		<u>7.85</u>	<u>13.2</u>	<u>1517</u>
						<u>7.76</u>	<u>917</u>	<u>13.0</u>	<u>7.24</u>	<u>12.7</u>	<u>1529</u>
						<u>7.52</u>	<u>917</u>	<u>4.24</u>	<u>7.95</u>	<u>11.9</u>	<u>1546</u>
						<u>7.80</u>	<u>924</u>		<u>7.11</u>	<u>12.4</u>	<u>1556</u>
						<u>7.80</u>	<u>929</u>		<u>7.57</u>	<u>13.0</u>	<u>1603</u>
<u>1/6/05</u>	<u>start sampling</u>										
<u>1/6/10</u>											

Sampling Date: <u>APRIL 30, 2005</u>
Sample Number: <u>GMW-04 (04/30/05)</u>
Analyses to be Performed: <u>NWTPH-Dx, PAH</u>
No. and Type of Sample Containers/Preserve: <u>4 1-LITER, 2 HCl PRESERVED, 2 UNPRESERVED</u>
Chain of Custody Seal Number: _____
Analytical Laboratory: <u>PACE ANALYTICAL</u>
Date Shipped: <u>5/11/05</u>
Carrier: <u>FED EX</u>




**Golder Associates
Well Sampling Form**

Project: <u>San Mateo</u>	Well Identification: <u>6MW-05</u>
Site: <u>"</u>	Sampling Method: <u>QED MP-10 MICROPURGE</u>
Job Number: <u>07393770.02</u>	Purge Method: <u>QED MP-10</u> <u>V</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ <u>2"</u>	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00			
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_w OD/2)^2](TD-(S \text{ or } H))(P) =$ (If S > H, use S. If S < H, use H)	0.00			
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$	0.00			
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$	0.0			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
<u>4/30/09</u>	<u>1702</u>					<u>7.33</u>	<u>95.2</u>		<u>7.42</u>	<u>12.6</u>	<u>1717</u>
						<u>7.51</u>	<u>99.3</u>		<u>6.85</u>	<u>12.3</u>	<u>1729</u>
						<u>7.61</u>	<u>100.0</u>	<u>1.72</u>	<u>6.81</u>	<u>12.0</u>	<u>1735</u>
						<u>7.71</u>	<u>99.7</u>		<u>6.57</u>	<u>11.7</u>	<u>1755</u>
						<u>7.71</u>	<u>99.5</u>		<u>6.18</u>	<u>11.6</u>	<u>1810</u>

Sampling Date: 4-30-09
Sample Number: 6MW-05 (04-30-09)
Analyses to be Performed: NUTPH-DX, PAH
No. and Type of Sample Containers/Preserve: 4 1-LITER, 2 HCL PRESERVED, 2 UNPRESERVED
Chain of Custody Seal Number: _____
Analytical Laboratory: PACE ANALYTICAL
Date Shipped: 5/1/09
Carrier: FEDEX


Golder Associates

**Golder Associates
Well Sampling Form**

Project: <u>Sem Materials</u>	Well Identification: <u>GMW-06</u>
Site: <u>"</u>	Sampling Method: <u>QED MP-10 Micropurge</u>
Job Number: <u>073-93070-02</u>	Purge Method: <u>QED MP-10</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = (πr ² h)/(7.48 gal/ft ³):			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter d _h = <u>2"</u>		Casing Volume (ft ³) = V _c = π(d _w ID/2) ² (TD-H) = <u>0.00</u>			
Well Casing Inside Diam d _w ID = _____		Filter Pack Pore Volume (ft ³) = V _f = π[(d _h /2) ² - (d _w OD/2) ²](TD-(S or H))(P) = <u>0.00</u>			
Well Casing Outside Diam d _w OD = _____		(If S > H, use S. If S < H, use H)			
Depth to (below top of casing): Water Level H = _____		Total Well Volume (gallons) = <u>0.00</u>			
Base of Seal S = _____		V _t = (V _c + V _f) * 7.48 gal/ft ³ =			
Base of Well TD = _____					
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = <u>0.0</u>			
		V _p = V _t x 3 =			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
<u>05/01/09</u>						<u>7.03</u>	<u>77.2</u>	<u>6.70</u>	<u>6.85</u>	<u>14.1</u>	<u>10:40 AM</u>
	<u>10:26</u>					<u>7.58</u>	<u>93.4</u>		<u>7.95</u>	<u>13.3</u>	<u>10:51</u>
						<u>7.70</u>	<u>93.3</u>		<u>8.07</u>	<u>13.7</u>	<u>11:04</u>
						<u>7.71</u>	<u>93.3</u>	<u>2.83</u>	<u>8.01</u>	<u>13.8</u>	<u>11:17</u>
						<u>7.73</u>	<u>93.3</u>	<u>2.25</u>	<u>7.70</u>	<u>13.2</u>	<u>11:27</u>
<u>11:39</u>	<u>Start</u>	<u>Fill 4</u>									<u>BOTTLES</u>
<u>11:43</u>	<u>End</u>										

Sampling Date: <u>05-01-09</u>
Sample Number: <u>GMW-06 (05/01/09)</u>
Analyses to be Performed: <u>NH₄TPH-Dx, DAT</u>
No. and Type of Sample Containers/Preserve: <u>4 1-LITER, 2 HCL PRESERVED, 2 UNPRESERVED</u>
Chain of Custody Seal Number: _____
Analytical Laboratory: <u>PALE ANALYTICAL</u>
Date Shipped: <u>5/11/09</u>
Carrier: <u>FedEx</u>



**Golder Associates
Well Sampling Form**

Project: <u>Semi Materials</u>	Well Identification: <u>UDC MW-4</u>
Site: <u>W</u>	Sampling Method: <u>QED MP-10 MICROPURGE</u>
Job Number: <u>073-93170-02</u>	Purge Method: <u>QED MP-10</u>

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = (πr ² h)(7.48 gal/ft ³):			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter d _h = <u>2"</u>	Casing Volume (ft ³) = V _c = π(d _w ID/2) ² (TD-H) =	0.00			
Well Casing Inside Diam d _w ID = _____ Outside Diam d _w OD = _____	Filter Pack Pore Volume (ft ³) = V _f = π[(d _w ID/2) ² - (d _w OD/2) ²](TD - (S or H))(P) = (If S > H, use S. If S < H, use H)	0.00			
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = V _t = (V _c + V _f) * 7.48 gal/ft ³ =	0.00			
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = V _p = V _t * 3 =	0.0			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
5-1-09	0830					7.78	85.3		7.90	10.6	0851
						7.89	84.1		7.20	10.9	0915
						8.05	84.5	0.18		10.5	0931
						8.05	85.5	0.20	7.20	10.8	0941
	0944	START									SAMPLING

Sampling Date: <u>05-01-09</u>
Sample Number: <u>UDC MW-4 (05-01-09)</u>
Analyses to be Performed: <u>NWTPHL-Dx, PAH</u>
No. and Type of Sample Containers/Preserve: <u>4 total, 2 unpreserved, 2 HCL preserved</u>
Chain of Custody Seal Number: _____
Analytical Laboratory: <u>Pace Analytical</u>
Date Shipped: <u>5/1/09</u>
Carrier: <u>FEDEX</u>



July 2009

**Golder Associates
Well Sampling Form**

Project: <u>SEMI-DIAPHRAGMATIC</u>	Well Identification: <u>GMW-01</u>
Site: <u>SEMI-DIAPHRAGMATIC</u>	Sampling Method:
Job Number: <u>875-3-10-02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) (7.48 \text{ gal/ft}^3)$: 2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi (d_w ID/2)^2 (TD-H) =$	0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ <u>2"</u>	Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_w/2)^2 - (d_w OD/2)^2] (TD - (S \text{ or } H)) (P) =$ (If S > H, use S. If S < H, use H)	0.00
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = <u>199.74</u>	Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$	0.00
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$	0.0

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
<u>7/25/09</u>	<u>1252</u>										
	<u>1315</u>					<u>7.92</u>	<u>172.5</u>	<u>1.06</u>	<u>5.70</u>	<u>23.1</u>	
	<u>1330</u>					<u>7.01</u>	<u>46.1</u>	<u>2.53</u>	<u>6.65</u>	<u>16.4</u>	
	<u>1343</u>					<u>7.05</u>	<u>40.0</u>	<u>2.35</u>	<u>7.73</u>	<u>15.7</u>	
	<u>1410</u>					<u>8.01</u>	<u>41.7</u>	<u>1.25</u>	<u>5.50</u>	<u>16.5</u>	
	<u>1435</u>					<u>8.15</u>	<u>202</u>		<u>6.14</u>	<u>17.6</u>	
	<u>1456</u>					<u>8.17</u>	<u>207</u>		<u>6.08</u>	<u>17.8</u>	
	<u>1518</u>	<u>1536</u>				<u>8.19</u>	<u>195.1</u>	<u>1.00</u>	<u>5.74</u>	<u>18.7</u>	START SAMPLING
	<u>1536</u>	<u>1601</u>									END

PAGE 1A

1A/6

Sampling Date: <u>7/25/09</u>
Sample Number: <u>GMW-01</u>
Analyses to be Performed: <u>PAH, NITROPH-D</u>
No. and Type of Sample Containers/Preserve: <u>3-1 LITER AMBER BOTTLES (4 w/HCL, 4 w/O PRESERVATIVE)</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAH ANALYTICAL/TEST AMERICA</u>
Date Shipped: <u>7/30/2009</u>
Carrier: <u>FED EX</u>



* CHECK PUMP → WELL TOO HIGH
PUMP PRESSURE 8.207

(MP 10/12 19.0
12 P)

* SAMPLE LABELS FOR TEST AMERICA

**Golder Associates
Well Sampling Form**

Project: <u>SEM MATERIALS</u>	Well Identification: <u>GMW-02</u>
Site: <u>SEM MATERIALS</u>	Sampling Method:
Job Number: <u>075-98170.02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) (7.48 \text{ gal/ft}^3)$: 2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi(d_w/2)^2(TD-H) =$	0.00
Well Casing Inside Diam $d_wID =$ _____ Outside Diam $d_wOD =$ <u>2"</u>	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_h/2)^2 - (d_wOD/2)^2](TD-(S+H))(P) =$ (If S > H, use S. If S < H, use H)	0.00
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = <u>193.48</u>	Total Well Volume (gallons) = $V_t = (V_c + V_f) \cdot 7.48 \text{ gal/ft}^3 =$	0.00
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$	0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp. (°C)	
7/29/09	1621										
	1645					7.14	43.6		7.6	17.9	
	1651					7.30	47.4	23.1	6.8	17.7	
	1710					7.74	44.7	15.9	6.9	17.6	
	1727					7.89	44.5	16.0	6.96	17.9	
	1743					7.90	45.1	6.29	5.12	18.2	
	1803					7.88	45.3	4.12	5.96	18.4	
	1820	1913				7.90	45.5	3.81	5.55	18.5	START SAMPLING
	1913	2000									END

PAGE →
T.A. →

Sampling Date: <u>7/29/09</u>
Sample Number: <u>GMW-02</u>
Analyses to be Performed: <u>PAH, NUTRA-D,</u>
No. and Type of Sample Containers/Preserve: <u>8-1 LITER AMBER BOTTLES (4-W/HCL, 4-Ø PRESERVATIVE)</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAE ANALYTICAL, TEST AMERICA</u>
Date Shipped: <u>7/30/2009</u>
Carrier: <u>PEDEX</u>



* PUMP RAISED 3.2 FT
* SAMPLE LABELS FOR TEST AMERICA -

VBR OK
101645800

Golder Associates Well Sampling Form

Project: <u>CEM MATERIALS</u>	Well Identification: <u>CMW-03</u>
Site: <u>CEM MATERIALS</u>	Sampling Method:
Job Number: <u>013-03-10-02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_w ID =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_w OD/2)^2](TD-(S+H))(P) =$ 0.00
Well Casing Outside Diam $d_w OD =$ <u>2"</u>		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) =
Water Level H = _____		$V_t = (V_c + V_f) \cdot 7.48 \text{ gal/ft}^3 =$ 0.00
Base of Seal S = _____		
Base of Well TD = <u>132.29</u>		Minimum Purge Volume (gallons) =
Est. Filter Pack Porosity P = _____		$V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments	
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)		
7/30	0910											
	0914					10.75	45.2	33.3	7.02	14.0		
	0920					10.77	48.1	73.0	6.62	13.2		
	0934					9.55	39.0	14.0	5.74	13.4	5 gal	
	0934					9.38	39.4	3.5	6.17	13.6		
	0932					9.20	40.2	3.5	6.92	13.6		
	0956					7.97	39.9	1.3	6.22	13.8	5 gal	
	1015					8.11	40.5	1.0	5.22	14.3	5 gal	
	1015	Start sampling										3 gal
	1030	next set										
	1108	1108										
	1108	1121										END

000
0.0.2
T.A
0.A.2

Sampling Date: <u>7/30/00</u>
Sample Number:
Analyses to be Performed: <u>PAH ANALYSIS</u>
No. and Type of Sample Containers/Preserve: <u>16 - 1 LITER BOTTLES : 8 WHOLE, 8 w/6 PRESERVATIVE</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAH ANALYSIS, TEST AMERICA</u>
Date Shipped: <u>7/30/2000</u>
Carrier: <u>FED EX</u>



~~0956~~ - PURGED 5 GAL 0951 - PURGED 5 gal 1015 3 gal 13221 total
 * SAMPLE LABELS FOR TEST AMERICA - 01083016 (ESP)
 * WIPY READ 4.10

**Golder Associates
Well Sampling Form**

Project: <u>SEA MATERIALS</u>	Well Identification: <u>GMW-84</u>
Site: <u>SEA MATERIALS</u>	Sampling Method:
Job Number: <u>075-93170-02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = (πr ² h)(7.48 gal/ft ³):
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter d _h = _____	Casing Volume (ft ³) = V _c = π(d _w ID/2) ² (TD-H) =	0.00
Well Casing Inside Diam d _w ID = _____	Filter Pack Pore Volume (ft ³) = V _f =	
Outside Diam d _w OD = <u>21</u>	π[(d _w /2) ² - (d _w OD/2) ²](TD-(S or H))(P) =	0.00
	(If S > H, use S. If S < H, use H)	
Depth to (below top of casing):	Total Well Volume (gallons) =	
Water Level H = _____	V _t = (V _c + V _f) * 7.48 gal/ft ³ =	0.00
Base of Seal S = _____		
Base of Well TD = <u>95.00</u>		
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) =	
	V _p = V _t x 3 =	0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
7/30/09	1212										
	1225					8.12	41.9	19.9	6.78	14.6	
	1238					8.19	44.6	19.9	6.87	14.8	
	1251					8.07	42.3	28.4	6.66	14.5	
	1315					7.91	41.3	18.8	6.39	14.4	
	1326					7.87	40.9	10.5	6.91	14.2	
	1352					7.85	41.5	7.1	6.01	14.7	
	1401					7.79	41.2	5.8	4.92	14.7	
	1418	1437				7.79	41.0	4.0	7.07	14.8	START SAMPLING
	1437	1452									END

PAGE 1A

Sampling Date: <u>7/30/09</u>
Sample Number: <u>GMW-84</u>
Analyses to be Performed: <u>PAH, NITRATE-DV</u>
No. and Type of Sample Containers/Preserve: <u>2-1 LITER AMBIC = 4 w/HCL, 4 w/S PRESERVATIVE</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAGE ANALYTICAL TEST AMERICA</u>
Date Shipped: <u>7/31/2009</u>
Carrier: <u>FED EX</u>



* PUMP RAISED 5.3 FT
 * SAMPLE LABELS FOR TEST AMERICA - #108316 (ESB)
 * 1013 - 00225 gal 1118 - PURGED (2.0) = 10 GAL TOTAL

**Golder Associates
Well Sampling Form**

Project: <u>GEM MATERIALS</u>	Well Identification: <u>GMW-05</u>
Site: <u>GEM MATERIALS</u>	Sampling Method:
Job Number: <u>073-00170-02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w/ID/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_wID =$ _____		Filter Pack Pore Volume (ft ³) = $V_f =$
Outside Diam $d_wOD =$ <u>2"</u>		$\pi[(d_w/2)^2 - (d_wOD/2)^2](TD - (S \text{ or } H))(P) =$ 0.00
		(If S > H, use S. If S < H, use H)
Depth to (below top of casing):		Total Well Volume (gallons) =
Water Level H = _____		$V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ 0.00
Base of Seal S = _____		
Base of Well TD = <u>95.00</u>		
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) =
		$V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Cumulative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
7/30/00	1535										
	1557					7.40	59.8	21.5	6.23	17.5	
	1607					7.48	60.5	14.3	5.80	17.3	
	1627					7.62	61.9	14.3	7.55	17.6	
	1641					7.61	60.1	12.2	7.22	17.0	
	1700					7.62	57.0	19.8	7.44	16.5	
	1724					7.98	53.1	11.0	6.58	15.7	
	1736					7.96	52.6	9.5	6.78	15.7	
	1743					7.85	50.2	6.5	6.97	15.0	
	1811	1829				7.86	51.3	5.0	6.76	15.0	START SAMPLES
	1829	1850									END SAMPLES

T.A
PAGE

Sampling Date: <u>7/30/00</u>
Sample Number: <u>GMW-05</u>
Analyses to be Performed: <u>PAH, NUTPH-D₄</u>
No. and Type of Sample Containers/Preserve: <u>8- 1 LITER AMBER; 4 w/HCL, 4 w/O PRESERVATIVE</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PACO ANALYTICAL - TEST AMERICA</u>
Date Shipped: <u>7/31/2000</u>
Carrier: <u>FED-EX</u>



* DRIER RAN 7.2 FT
 * SAMPLE LABELS FOR TEST AMERICA - 0108210 (ESB)
 * PURGED 3 TIMES 1707, PURGER 95.00 - 11816 95.00 TOTAL

**Golder Associates
Well Sampling Form**

Project: SEM MATERIALS	Well Identification: GMLD-06
Site: SEM MATERIALS	Sampling Method:
Job Number: 078-000170-02	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00
Well Casing Inside Diam $d_w ID =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_w OD/2)^2](TD-(S \text{ or } H))(P) =$	0.00
Outside Diam $d_w OD =$ <u>2"</u>	(If S > H, use S. If S < H, use H)	
Depth to (below top of casing):	Total Well Volume (gallons) =	0.00
Water Level H = _____	$V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$	
Base of Seal S = _____		
Base of Well TD = <u>192.65</u>	Minimum Purge Volume (gallons) =	0.0
Est. Filter Pack Porosity P = _____	$V_p = V_t * 3 =$	

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
7/31/05	0910										
	0921					8.63	44.5	7.6	6.84	16.3	
	0930					8.53	44.5	7.5	6.87	14.5	
	0932					7.99	44.5	3.2	6.36	14.3	
	1005					7.92	44.6	2.0	6.13	14.7	
	1021					7.86	44.4	2.2	5.75	14.5	
	1035					7.87	44.7	1.6	6.56	14.7	
	1048					7.87	45.1	1.1	6.32	14.6	
	1106					8.02	45.5	1.2	6.36	14.8	
	1122					8.07	44.0	0.9	6.35	15.2	
	1142					8.13	43.5	0.6	6.38	15.1	
	1154					8.09	43.7	0.5	6.38	15.0	BELOW STRIP
	1210	1225									END

TA
PAGE

Sampling Date: 7/31/05
Sample Number: GMLD-06
Analyses to be Performed: SEM MATERIALS
No. and Type of Sample Containers/Preserve: 8-1 LITER CONTAINERS - 4 w/ HCL, 4 w/ 2% SODIUM
Chain of Custody Seal Number:
Analytical Laboratory: PACE ANALYTICAL, INC. ANALY 100
Date Shipped: 7/31/2005
Carrier: FED EX



* TEST SAMPLES 1063, 1064
 * PURGE 2.0 GAL @ 1063
 * 1063 - PURGE 1.5 GAL, 1064 - PURGE 1.5 GAL

**Golder Associates
Well Sampling Form**

Project: SEM MATERIALS	Well Identification: UDC-MW34
Site: [blacked out]	Sampling Method:
Job Number: 073-03170-02	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00
Well Casing Inside Diam $d_w ID =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_h/2)^2 - (d_w OD/2)^2](TD-(S+H))(P) =$	0.00
Outside Diam $d_w OD =$ _____	(If S > H, use S. If S < H, use H)	
Depth to (below top of casing):	Total Well Volume (gallons) =	
Water Level H = _____	$V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$	0.00
Base of Seal S = _____		
Base of Well TD = _____	Minimum Purge Volume (gallons) =	
Est. Filter Pack Porosity P = _____	$V_p = V_t \times 3 =$	0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics (CON'D) METV					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
8/4/03	1027:00										
	1034					8.04	78.2	0.9	3.64	15.0	
	1053					7.95	76.3	0.8	5.37	13.7	
	1107					7.89	76.6	0.6	5.30	14.0	
10/6	1114					7.86	77.7	0.5	5.22	14.3	
	1036					7.85	77.1	0.5	5.78	14.2	
	1049					7.83	78.3	0.6	5.16	15.1	
	1103					7.85	79.5	0.6	5.05	15.9	
11/20	1114					7.89	80.9	0.8	4.83	17.6	
	1135					7.92	82.6	0.8	4.87	18.8	
	1156					8.06	84.6	0.9	5.05	20.0	
PACE →	1220					7.82	82.1	1.0	5.14	18.2	BEHND SAMPLING
T.A. →	1414	1439									

Sampling Date: 8/4/03
Sample Number: UDC-MW34
Analyses to be Performed: PAH, TOC, etc. [blacked out]
No. and Type of Sample Containers/Preserve: 8 - 1-LITER AMBER BOTTLES: 4 - ILC PRESERVED, 4 - PRESERVATIVE
Chain of Custody Seal Number:
Analytical Laboratory: PACE ENVIRONMENTAL TEST LABORATORY
Date Shipped:
Carrier: FED EX



WRUBED 5 gal @ 1103

**Golder Associates
Well Sampling Form**

Project: <u>SEM MATERIALS</u>	Well Identification: <u>GED-DROSS MAP-MUD-4</u>
Site: <u>SEM MATERIALS</u>	Sampling Method:
Job Number: <u>DT3-33172-22</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_wID =$ _____ Outside Diam $d_wOD =$ <u>2"</u>		Filter Pack Pore Volume (ft ³) = $V_f = \pi((d_w/2)^2 - (d_wOD/2)^2)(TD - (S \text{ or } H))(P) =$ 0.00 (if S > H, use S. If S < H, use H)
Depth to (below top of casing): Water Level $H =$ <u>107.40</u> Base of Seal $S =$ _____ Base of Well $TD =$ <u>211.10</u>		Total Well Volume (gallons) = $V_t = (V_c + V_f) \times 7.48 \text{ gal/ft}^3 =$ 0.00
Est. Filter Pack Porosity $P =$ _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
7/20/02	1024										
	1028					6.70	382.5	0.66	8.65	12.8	
	1032					6.72	359	0.79	8.80	14.0	
	1040					7.52	354	0.73	6.46	14.5	
	1104					7.81	76.0	0.32	6.79	14.8	
	1115					7.69	78.5	0.74	6.12	15.1	
	1120					7.63	361		8.86	14.4	
	1136	1204				7.63	359		8.50	14.2	Start Sampling
	1209	1228									FLUD

PAGE T.A.

Sampling Date: <u>7/20/02</u>
Sample Number:
Analyses to be Performed: <u>PAH, NUTRIENT</u>
No. and Type of Sample Containers/Preserve: <u>8- 1 LITER AMBER BOTTLES (4 w/ HCL, 4 w/ NO PRESERVATIVE)</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PACI ANALYTICAL, TEST AMERICA</u>
Date Shipped: <u>7/30/2002</u>
Carrier: <u>FED EX</u>



* DID NOT RAISE PUMP
* SAMPLE LABELS FOR TEST AMERICA -

**Golder Associates
Well Sampling Form**

Project: <u>SEM WATERWORK</u>	Well Identification: <u>GMW-01</u>
Site: <u>SLM WATERWORKS</u>	Sampling Method:
Job Number: <u>073-7370-02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi (d_w ID / 2)^2 (TD - H) =$	0.00			
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_w / 2)^2 - (d_w OD / 2)^2] (TD - (S \text{ or } H)) (P) =$ (If S > H, use S. If S < H, use H)	0.00			
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$	0.00			
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t * 3 =$	0.0			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
<u>8/24/08</u>	<u>1222</u>										
	<u>1247</u>					<u>7.54</u>	<u>213</u>	<u>7.2</u>	<u>5.65</u>	<u>15.5</u>	
	<u>1311</u>					<u>7.51</u>	<u>213</u>	<u>4.6</u>	<u>6.05</u>	<u>15.4</u>	
	<u>1333</u>					<u>7.51</u>	<u>211</u>	<u>3.6</u>	<u>5.00</u>	<u>16.0</u>	
	<u>1351</u>					<u>7.53</u>	<u>211</u>	<u>2.1</u>	<u>4.63</u>	<u>15.9</u>	
	<u>1423</u>					<u>7.50</u>	<u>209</u>	<u>1.4</u>	<u>4.51</u>	<u>16.9</u>	
	<u>1432</u>					<u>7.57</u>	<u>44.2</u>	<u>1.2</u>	<u>4.32</u>	<u>17.2</u>	
	<u>1446</u>					<u>7.53</u>	<u>44.8</u>	<u>1.6</u>	<u>3.89</u>	<u>17.9</u>	
<u>PAGE-1</u>	<u>1455</u>					<u>7.53</u>	<u>45.5</u>	<u>1.1</u>	<u>3.90</u>	<u>18.2</u>	<u>BEGIN SAMPLING</u>
<u>PAGE-2</u>	<u>1535</u>										
<u>TA-1</u>	<u>1659</u>										
<u>TA-2</u>	<u>1659</u>	<u>1700</u>									

Sampling Date: <u>8/24/08</u>
Sample Number: <u>GMW-01</u>
Analyses to be Performed: <u>PAH; LOW LEVEL, NIOTPH-D₂</u>
No. and Type of Sample Containers/Preserve: <u>16- 1-LITER AMBER BOTTLES; 8- HCL PRESERVED, 8- NO PRESERVATIVE</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAGE ANALYTICAL, TEST AMERICA</u>
Date Shipped:
Carrier: <u>FED EX</u>



* PUMP ON AT 1320
 * PUMP OFF AT 1337, RECOVER 3.25 gal @ 1:45
 * DUPLICATES TAKEN (GMW-01-02)

**Golder Associates
Well Sampling Form**

Project: SEM MATERIALS	Well Identification: GMW-02
Site: SEM MATERIALS	Sampling Method: .
Job Number: 073-03170-02	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:			
		2" = 0.163	4" = 0.653	6" = 1.47	8" = 2.61
Hole Diameter $d_h =$ _____	Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$	0.00			
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____	Filter Pack Pore Volume (ft ³) = $V_f = \pi((d_w/2)^2 - (d_w OD/2)^2)(TD - (S \text{ or } H))(P) =$ (If S > H, use S. If S < H, use H)	0.00			
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____	Total Well Volume (gallons) = $V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$	0.00			
Est. Filter Pack Porosity P = _____	Minimum Purge Volume (gallons) = $V_p = V_t * 3 =$	0.0			

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics				PH-METER Temp. (°C)	Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L		
8/6/05	0535										
	0559					7.05	47.9	7.8	3.13	14.2	
	0716					8.05	50.5	4.4	3.79	14.9	
	0835					7.94	50.2	4.4	4.27	14.5	
	1016					7.87	50.2	0.9	4.51	14.2	
	1038					8.31	52.2	1.3	4.33	15.3	
	1045					8.04	52.1	0.9	4.30	15.4	
	1050					7.99	57.9	0.7	4.27	15.1	
	1113					7.98	53.3	0.7	4.19	15.1	
	1125					7.93	55.7	1.6	3.95	15.4	
PA	1140					7.94	51.1	1.0	3.94	15.3	BELTIN SAMPLING
EA	1200	1221									END

Sampling Date: 8/6/05
Sample Number: GMW-02
Analyses to be Performed: PAH, COIN LEVEL, NH4P, D_x
No. and Type of Sample Containers/Preserve: 5 - 1 LITER AMBER BOTTLES - 4-w/ HCL, 4-w/ P PRESERVATIVE
Chain of Custody Seal Number:
Analytical Laboratory: PRICE ANALYTICAL, TEST AMERICA
Date Shipped:
Carrier: FedEx



* 0.0000 to 0.01 - BELTIN
* PUMP LIFT = 3.1 FT

Golder Associates Well Sampling Form

Project: SEM MATERIALS	Well Identification: GRW-03
Site: SEM MATERIALS	Sampling Method: DEDICATED BLASTER PUMP w/NO SCREEN
Job Number: 073-92170-02	Purge Method: DEDICATED BLASTER PUMP w/NO SCREEN

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$:
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi (d_w ID / 2)^2 (TD - H) =$ 0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_h / 2)^2 - (d_w OD / 2)^2] (TD - (S \text{ or } H)) (P) =$ 0.00 (If S > H, use S. If S < H, use H)
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____		Total Well Volume (gallons) = $V_t = (V_c + V_f) * 7.48 \text{ gal/ft}^3 =$ 0.00
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t * 3 =$ 0.0

Date	Time		Water Purged (gal)	Culative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
8/16/00	1240										
	1251					7.99	475	109	4.68	16.5	
	1312					7.78	206	45.9	4.64	14.7	
	1330					7.80	206	34.8	4.55	14.8	
	1401					7.80	201	20.1	4.50	15.2	
	1429					8.10	210	79.6	4.33	15.1	
	1448					8.11	206	4.09	3.88	15.5	
	1504					8.08	204	2.73	3.53	15.0	
PAUL	1525					8.05	210	2.5	4.51	15.1	BEGIN SAMPLING
TA	1540	1555									

Sampling Date: 8/16/00
Sample Number: GRW-03
Analyses to be Performed: PAH LOW LEVEL, NUTPH D ₅
No. and Type of Sample Containers/Preserve: 8- 1 LITER AMBER BOTTLES: 4- w/HCL, 4- w/o PRESERVATIVE
Chain of Custody Seal Number:
Analytical Laboratory: PAUL ANALYTICAL, TEST AMERICAN
Date Shipped:
Carrier: FPD FX



PAUL ANALYTICAL 8/16/00
 PURGED - GRW-03: 1350 PURGED 21 gal: 1404 PURGED 25 gal PURGED 2 gal

**Golder Associates
Well Sampling Form**

Project: <u>SEMI MATERIALS</u>	Well Identification: <u>GMW-04</u>
Site: <u>SEMI MATERIALS</u>	Sampling Method:
Job Number: <u>073-93170.02</u>	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h) / (7.48 \text{ gal/ft}^3)$
		2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi (d_w ID / 2)^2 (TD - H) =$ 0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi [(d_w / 2)^2 - (d_w OD / 2)^2] (TD - (S \text{ or } H)) (P) =$ 0.00 (If S > H, use S. If S < H, use H)
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____		Total Well Volume (gallons) = $V_t = (V_c + V_f) \cdot 7.48 \text{ gal/ft}^3 =$ 0.00
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (°C)	
8/15/03									1.8		
	10:43					7.31	263	32.3	1.83	16.4	
	10:15					7.55	252	29.0	1.62	16.0	
	10:35					7.86	239	25.4	1.53	16.3	
	10:55					7.75	235	35.2	1.52	17.0	
	11:15					7.78	233	38.6	1.47	18.0	
	11:31					7.63	235	23.7	1.82	16.1	
	11:59					7.67	233	13.9	1.78	20.2	
PAGE	12:31					7.60	232	22.1	1.65	21.2	BEGIN SAMPLING
TR.	12:44	12:57									

Sampling Date: <u>8/15/03</u>
Sample Number: <u>GMW-04</u>
Analyses to be Performed: <u>PAGE LOW LEVEL</u>
No. and Type of Sample Containers/Preserve: <u>4 - 1-LITER AMBER BOTTLES - 0 PRESERVATIVE</u>
Chain of Custody Seal Number:
Analytical Laboratory: <u>PAGE ANALYTICAL, TEST AMERICA</u>
Date Shipped:
Carrier: <u>FED EX</u>



PUMP RATED 5.3 FT
PUMPED 5 gal - 1142, 1 gal - 1201

**Golder Associates
Well Sampling Form**

Project: SEMI MATERIALS	Well Identification: GMW-05
Site: SEMI MATERIALS	Sampling Method:
Job Number: 013-03170-02	Purge Method:

Well Specifications	Purge Volume Calculations	Casing Volume Factors (gal/ft) = $(\pi r^2 h)(7.48 \text{ gal/ft}^3)$: 2" = 0.163 4" = 0.653 6" = 1.47 8" = 2.61
Hole Diameter $d_h =$ _____		Casing Volume (ft ³) = $V_c = \pi(d_w ID/2)^2(TD-H) =$ 0.00
Well Casing Inside Diam $d_w ID =$ _____ Outside Diam $d_w OD =$ _____		Filter Pack Pore Volume (ft ³) = $V_f = \pi[(d_w/2)^2 - (d_w OD/2)^2](TD-(S \text{ or } H))(P) =$ (If S > H, use S. If S < H, use H) 0.00
Depth to (below top of casing): Water Level H = _____ Base of Seal S = _____ Base of Well TD = _____		Total Well Volume (gallons) = $V_t = (V_c + V_f) \cdot 7.48 \text{ gal/ft}^3 =$ 0.00
Est. Filter Pack Porosity P = _____		Minimum Purge Volume (gallons) = $V_p = V_t \times 3 =$ 0.0

Date	Time		Water Purged (gal)	Culmative Water Purged		Water Characteristics					Comments
	Begin	Finish		(gal)	Well Vol	pH	Cond. (uS/cm)	Turbidity (NTU)	D.O. mg/L	Temp. (° C)	
8/10/09	1320										
	1332					6.65	365	77.1	1.83	14.1	
	1359					7.10	345	46.4	1.91	13.8	
	1419					7.20	335	23.4	1.88	14.2	
	1441					7.04	334	14.7	1.89	14.3	
	1454					7.21	335	7.5	1.92	14.2	
	1514					7.29	328	3.9	1.89	14.1	
	1524					7.29	335	2.0	1.85	14.0	
	1535	Pause									
T.A.	1544	1551									

Sampling Date: 8/10/09
Sample Number: GMW-05
Analyses to be Performed: GAD - 100 LEVEL
No. and Type of Sample Containers/Preserve: 4 - 1-LITER AMBER BOTTLES, 0 PRESERVATIVE
Chain of Custody Seal Number:
Analytical Laboratory: PACE ANALYTICAL, TEST AMERICA
Date Shipped:
Carrier: FED EX



TRUBS RAGED: 6.7 FT
10000 041-1474

August 2010

GROUNDWATER SAMPLING RECORD

 WELL NUMBER: VDCMW-4

 Page: 1 of 1

 Project Name: Sem Materials

Project Number: _____

 Date: 8/12/10

 Starting Water Level (ft TOC): 176.04

 Developed by: DFR AET

Casing Stickup (ft): _____

 Measuring Point of Well: TOC

Total Depth (ft TOC): _____

 Screened Interval (ft. TOC) ?

Casing Diameter (inches): _____

Filter Pack Interval (ft. TOC) _____

Casing Volume _____ (ft Water) x _____ (Lpf)(gpf) = _____ (L)(gal)

 well tag AEC-400

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

 Sample Intake Depth (ft TOC): ~179

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
845	/	0.280	NM	/	/	/	/	/	/	
850	1.4	0.280	NM	12.55	708	7.75	7.71	52.5	clear	
855	2.8	0.280	NM	12.50	720	8.31	7.69	48.2	clear	
900	4.2	0.280	NM	12.51	728	8.46	7.70	39.7	clear	
905	5.6	0.280	NM	12.52	734	8.59	7.71	35.5	clear	
910	7.0	0.280	NM	12.59	732	8.64	7.73	30.1	clear	
915	8.4	0.280	NM	12.56	732	8.60	7.73	28.5	clear	
920	9.8	0.280	NM	12.50	731	8.54	7.75	26.5	1.20	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
920	500ml	amber	2	none	none	clear	none	VDCMW-4-081210 extra bottles for field dup
925	500ml	amber	2	none	none	clear	none	VDCMW-4D-081210

METHODS

Sampling Equipment and IDs: Ysi #147 CH/DH Methods
truck tent over well and truck
 Purging Equipment: dedicated well wizard Decon Equipment: glucorex + D1
 Disposal of Discharged Water: dumped onsite

Observations/Comments: nitrogen drive pressure 85 psi, 2 cycles per min
WL not monitored b/c pump protrudes from WL surface

GROUNDWATER SAMPLING RECORD

WELL NUMBER: GMW-01

Page: 1 of 1

Project Name: Sew Materials

Project Number: _____

Date: 8/11/10

Starting Water Level (ft TOC): 175.95

Developed by: DEC AET

Casing Slickup (ft): _____

Measuring Point of Well: TOC

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) 175.9 - 195.9

Casing Diameter (inches): 2

Filter Pack Interval (ft. TOC) _____

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

Sample Intake Depth (ft TOC): 179

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1645	/	0.240	/							
1650	1.2	0.240	NM	14.42	217	8.36	8.54	-34.8	clear	
1655	2.4	0.240	NM	13.37	200	7.50	8.42	-28.9	clear	
1700	3.6	0.240	NM	13.27	202	7.19	8.42	-28.5	clear	
1705	4.8	0.240	NM	13.25	199	6.89	8.49	-34.1	clear	
1710	6.0	0.240	NM	13.33	197	6.73	8.53	-37.7	clear	
1715	7.2	0.240	NM	13.41	197	6.60	8.53	-37.5	clear	
1720	8.4	0.240	NM	13.42	197	6.64	8.53	-37.2	clear	← field blank
1735	9.6	0.240	NM	13.78	198	6.69	8.45	-35.0	2.56	collected @ 1730
										FB-081110

Total Gallons Purged: _____

Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____

Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1740	500mL	amber	6	none	none	clear	none	4 extra bottles for MS/MSD

METHODS

Sampling Equipment and IDs: YSI #147

Purging Equipment: GED well wizard

Decon Equipment: alcoox + DI

Disposal of Discharged Water: drummed onsite

Observations/Comments: MS/MSD + "Field Blank" collected at this monitoring well

CM/DH methods,

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-02</u>
Project Name: <u>Sem Materials</u>	Page: <u>1</u> of <u>1</u>
Date: <u>8/11/2010</u>	Project Number: _____
Developed by: <u>DFR</u>	Starting Water Level (ft TOC): <u>178.02</u>
Measuring Point of Well: <u>TOC</u>	Casing Stickup (ft): _____
Screened Interval (ft. TOC) <u>189.3 - 169.3</u>	Total Depth (ft TOC): _____
Filter Pack Interval (ft. TOC) _____	Casing Diameter (inches): _____
Casing Volume _____ (ft Water) x _____ (Lpiv)(gpf) = _____ (L)(gal)	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf	Sample Intake Depth (ft TOC): <u>181</u>
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf	

PURGING MEASUREMENTS										
Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1535	/	0.240	NM	/	/	/	/	/	clear	
1540	1.2	0.240	NM	14.32	310	8.73	8.13	-9.8	clear	
1545	2.4	0.240	NM	13.57	288	7.71	8.14	-11.7	clear	
1550	3.6	0.240	NM	13.37	271	7.31	8.20	-14.7	clear	
1555	4.8	0.240	NM	13.33	264	7.01	8.27	-20.0	clear	
1600	6.0	0.240	NM	13.23	263	7.02	8.31	-25.0	clear	
1605	7.2	0.240	NM	13.18	263	7.04	8.32	-27.4	6.25	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TDC): _____

SAMPLE INVENTORY									
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks	
						Color	Turbidity & Sediment		
1610	500mL	amber	2	none	none	clear	none		

METHODS

Sampling Equipment and IDs: Ysi #147 CH/DH methods

Purging Equipment: dedicated well wizard w/ nitrogen well and truck enclosed in "truck tent"

Decon Equipment: aloney + D1

Disposal of Discharged Water: drummed onsite

Observations/Comments: Nitrogen drive pressure 85 psi, 2 cycles per minute

CH/DH Methods

GROUNDWATER SAMPLING RECORD

WELL NUMBER: GMW-05

Page: 1 of 1

Project Name: Sem/Materials

Project Number: _____

Date: 8/11/10

Starting Water Level (ft TOC): 176.75

Developed by: DFR/AET

Casing Stickup (ft): _____

Measuring Point of Well: TOC

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) 170.5 - 190.5

Casing Diameter (inches): _____

Filter Pack Interval (ft. TOC) _____

Casing Volume _____ (ft Water) x _____ (Lpf)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

Sample Intake Depth (ft TOC): 180'

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1425	/	0.240	/	/	/	/	/	/	/	
1430	0.2	0.240	NM	15.68	252	7.77	7.91	-7.3	clear	
1435	2.4	0.240	NM	14.99	252	7.70	7.86	-2.0	clear	
1440	3.6	0.240	NM	14.30	248	6.87	7.97	-8.9	clear	
1445	4.8	0.240	NM	14.09	247	6.50	8.10	-14.2	clear	
1450	6.0	0.240	NM	13.99	250	6.47	8.17	-17.1	clear	
1455	7.2	0.240	NM	13.87	255	6.52	8.20	-19.3	clear	
1500	8.4	0.240	NM	13.90	258	6.46	8.21	-20.6	5.87	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1500	500ml	amber	2	none	none	clear	none	GMW-03-081110

METHODS

Sampling Equipment and IDs: YSI #147 CH/DH methods
truck and well enclosed in "truck tent"
Purging Equipment: QED well wizard Decon Equipment: alcoxon + D1
Disposal of Discharged Water: drummed onsite

Observations/Comments: Nitrogen drive pressure @ 35 psi, with 2 cycles per minute
Water level not measured because pump was above WL surface

GROUNDWATER SAMPLING RECORD

 WELL NUMBER: GMW-04

 Page: 1 of 1

 Project Name: Sem Materials
 Date: 8/11/10
 Developed by: DFR
 Measuring Point of Well: TOC
 Screened Interval (ft. TOC) 171.8 - 171.8
 Filter Pack Interval (ft. TOC) _____

 Project Number: _____
 Starting Water Level (ft TOC): 178.02
 Casing Stickup (ft): _____
 Total Depth (ft TOC): _____
 Casing Diameter (inches): _____

 Casing Volume _____ (ft Water) x _____ (LpfV)(gpf) = _____ (L)(gal)
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

 Sample Intake Depth (ft TOC): 181
PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1305	/	0.220	/	/	/	/	/	/	/	sl cloudy
1310	1.1	0.220	NM	15.44	228	8.38	7.97	11.6	clear	clear
1315	2.2	0.220	NM	14.48	258	8.64	7.94	9.7	clear	
1320	3.3	0.220	NM	14.03	289	7.84	8.00	2.9	clear	
1325	4.4	0.220	NM	13.94	299	7.38	8.04	-1.9	clear	
1330	5.5	0.220	NM	14.02	297	7.14	8.19	-17.4	clear	
1335	6.6	0.220	NM	13.91	296	7.00	8.20	-19.7	clear	
1340	7.7	0.220	NM	13.95	293	7.00	8.20	-20.1	0.62	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1340	500ml	Amber	2	none	none	clear	none	GMW-04-081110

METHODS

 Sampling Equipment and IDs: YSI #147 CH/DH methods
well and truck enclosed in "trak tent"
 Purging Equipment: dedicated QED well wizard Decon Equipment: alcolex PI
 Disposal of Discharged Water: drummed onsite
 Observations/Comments: QED drive pressure 85 psi, 2 cycles per minute
WL could not be monitored b/c top of pump was just above WL

GROUNDWATER SAMPLING RECORD WELL NUMBER: GMW-05 Page: 1 of 1

Project Name: Sem Materials Project Number: _____

Date: 8/11/2010

Developed by: DEP/AET

Measuring Point of Well: PC

Screened Interval (ft. TOC) 174.8 - 194.8

Filter Pack Interval (ft. TOC) _____

Starting Water Level (ft TOC): 179.08

Casing Stickup (ft): _____

Total Depth (ft TOC): _____

Casing Diameter (inches): _____

Casing Volume _____ (ft Water) x _____ (Lprv)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): 183
176

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
11:05	/	0.180	/	/	/	/	/	/	/	
11:10	0.9	0.180	179.08	16.76	312	7.66	7.59	11.5	clear	
11:15	1.8	0.180	179.08	16.39	317	7.86	7.30	20.3	clear	
11:20	2.7	0.180	179.08	14.52	294	7.94	7.39	15.8	clear	
11:25	3.6	0.180	179.08	13.98	263	7.28	7.65	3.7	clear	
11:30	4.5	0.180	179.08	13.83	248	7.20	7.78	-1.7	clear	
11:35	5.4	0.180	179.08	13.73	239	7.02	7.94	-8.9	clear	
11:40	6.3	0.180	179.08	13.68	235	7.03	7.98	-9.6	clear	
11:45	7.2	0.180	179.08	13.69	235	7.01	7.99	-12.6	clear	7.2

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1145	500 ml	Amber	2	none	none	clear	none	GMW-05

METHODS

Sampling Equipment and IDs: YSI #147 CH/DH methods

Purging Equipment: dedicated GED w/ nitrogen drive gas Decon Equipment: alconox + DE

Disposal of Discharged Water: drummed onsite

Observations/Comments: GED 85 Psi drive pressure, 2 cycles per minute

well and truck enclosed in "truck tent"

GROUNDWATER SAMPLING RECORD

WELL NUMBER: GMW-06

Page: 1 of 1

Project Name: Sem Materials

Project Number: _____

Date: 8/11/2010

Starting Water Level (ft TOC): 172.00

Developed by: DFR

Casing Stickup (ft): _____

Measuring Point of Well: QED Plate

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) 179.9 - 189.3

Casing Diameter (inches): 2

Filter Pack Interval (ft. TOC) _____

Casing Volume 23.9 (ft Water) x 0.16 (Lpfv)(gpf) = 3.8 (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

Sample Intake Depth (ft TOC): 175

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
930	/	0.180	/	/	/	/	/	/	/	
935	0.4	0.180	172.01	17.18	283	6.18	6.52	47.6	clear	
940	1.8	0.180	172.01	16.90	279	6.48	6.43	44.3	clear	
945	2.7	0.180	172.01	15.84	275	6.35	6.58	35.7	clear	
950	3.6	0.180	172.01	14.94	274	6.42	6.86	24.7	clear	
955	4.5	0.180	172.01	14.33	274	6.42	7.21	12.9	clear	
1000	5.4	0.180	172.01	14.19	268	6.32	7.50	0.8	clear	
1005	6.3	0.180	172.01	14.27	266	6.23	7.62	-4.0	clear	
1010	7.2	0.180	172.01	14.92	264	5.93	7.68	-8.2	clear	
1015	8.1	0.180	172.01	14.65	266	6.14	7.70	-12.2	0.2	

Total Gallons Purged: 8.1

Total Casing Volumes Removed: 0.56

Ending Water Level (ft TOC): 172.01

Ending Total Depth (ft TOC): /

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1020	500 mL	amber	2	none	none	clear	none	GMW-06-081110

METHODS

Sampling Equipment and IDs: YSI #147

CH/DH methods

Purging Equipment: dedicated QED well wizard

Well and truck enclosed in "truck tent"

Decon Equipment: alcoox + DI

Disposal of Discharged Water: drummed onsite

Observations/Comments: pump intake @ 175 ft bTOC, QED @ 85 psi drive pressure, 2 CPM nitrogen gas used to power pump

November 2010

GROUNDWATER SAMPLING RECORD WELL NUMBER: 6MW-01 Page: 1 of 1

Project Name: SEM Materials
Date: 11/9/10
Developed by: _____
Measuring Point of Well: TOC
Screened Interval (ft. TOC) _____
Filter Pack Interval (ft. TOC) _____

Project Number: 090190
Starting Water Level (ft TOC): 176.27
Casing Stickup (ft): _____
Total Depth (ft TOC): _____
Casing Diameter (inches): 2

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf
Sample Intake Depth (ft TOC): 179.3

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1335	0	0.240	176.27							started pump
1340				12.26	200	8.74	8.41	225.2	clear	
1345				11.94	209	9.22	8.52	225.7	clear	
1350				11.88	213	7.59	8.77	226.1	clear	
1355				11.80	217	7.25	8.89	223.2	clear	
1400				11.82	222	7.06	8.91	221.5	clear	
1405				11.82	226	7.15	8.95	220.2	1.66	
										Field blank (2 amber)
										FB-110910 collected at 1440

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1410	500mL	amber	6	none	none	clear	none	6MW-01-110910 (extra bottles for MS/MSD)

METHODS

Sampling Equipment and IDs: YSI #120 CH/DH method
Purging Equipment: AED w/ nitrogen gas truck and well in truck tent
Decon Equipment: alinox, DI
Disposal of Discharged Water: drum onsite
Observations/Comments: AED set drive pressure 85 psi, 2rpm

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-02</u> Page: <u>1</u> of <u>1</u>
Project Name: <u>SEM Materials</u>	Project Number: <u>09090</u>
Date: <u>11/09/10</u>	Starting Water Level (ft TOC): <u>178.34</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): <u>2</u>
Developed by: _____	
Measuring Point of Well: <u>TDL</u>	
Screened Interval (ft. TOC) _____	
Filter Pack Interval (ft. TOC) _____	Sample Intake Depth (ft TOC): <u>151.5</u>
Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf	

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
0810	0	0.2410	178.34							started pump
0815				11.33	258	8.38	8.39	275.6	clear	
0820				11.74	279	8.21	8.68	256.4	clear	
0825				11.39	294	8.35	9.05	251.0	clear	
0830				11.37	297	8.50	9.23	249.2	clear	
0835				11.51	298	8.34	9.44	248.3	clear	
0840				11.61	299	8.42	9.57	245.8	clear	
0845				11.48	298	8.42	9.60	244.6	clear	
0850				11.44	297	8.50	9.64	244.7	3.61	

Total Gallons Purged: _____	Total Casing Volumes Removed: _____
Ending Water Level (ft TOC): _____	Ending Total Depth (ft TOC): _____

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
0855	500ml	amber	2	none	none	clear	none	GMW-02-110910

METHODS

Sampling Equipment and IDs: YSI #120 CH/DH methods
well and truck enclosed in truck tent

Purging Equipment: RED pump + nitrogen gas Decon Equipment: alcox, DI

Disposal of Discharged Water: drum onsite

Observations/Comments: RED at 85 psi drive, 2 cycles per minute

GROUNDWATER SAMPLING RECORD

 WELL NUMBER: GMW-03

 Page: 1 of 1

 Project Name: SEM Materials

 Project Number: 090190

 Date: 11/9/10

 Starting Water Level (ft TOC): 177.07

Developed by: _____

Casing Stickup (ft): _____

 Measuring Point of Well: TOL

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) _____

 Casing Diameter (inches): 2

Filter Pack Interval (ft. TOC) _____

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

 Sample Intake Depth (ft TOC): 180

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1220	0		177.07							started pump
1225				13.73	265	8.88	7.90	219.9	clear	
1230				13.33	266	7.93	8.15	218.9	clear	
1235				13.02	267	7.48	8.32	216.0	clear	
1240				12.91	268	7.30	8.40	213.6	clear	
1245				12.93	268	7.28	8.39	211.4	clear	
1250				12.85	268	7.22	8.31	209.7	16.2	

Total Gallons Purged: _____

Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____

Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1255	500ml	amber	2	none	none	clear	none	GMW-03-110910

METHODS

 Sampling Equipment and IDs: YSI 120 CH/DH method
truck and well enclosed in truck tent

 Purging Equipment: QED pump w/ nitrogen gas Decon Equipment: aliconix, distilled DI

 Disposal of Discharged Water: drum on site

 Observations/Comments: QED at 85 psi drive pressure, 2 cpm
retrieved pump from bottom of well

GROUNDWATER SAMPLING RECORD

 WELL NUMBER: GMW-04

 Page: 1 of 1

 Project Name: SEM materials

 Project Number: 090190

 Date: 11/09/10

 Starting Water Level (ft TOC): 178.35

Developed by: _____

Casing Stickup (ft): _____

 Measuring Point of Well: 10C

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) _____

 Casing Diameter (inches): 2"

Filter Pack Interval (ft. TOC) _____

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

 Sample Intake Depth (ft TOC): 181.5

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
0955	0	0.220	178.35							started pump
1000				12.58	277	9.04	9.40	243.9	clear	
1005				12.25	322	8.07	9.47	244.1	slightly cloudy	
1010				11.96	354	7.66	9.54	243.1	sl. cloudy	
1015				11.96	367	7.86	9.55	242.0	sl. cloudy	
1020				11.98	366	7.56	9.55	240.7	clear	
1025				12.01	355	7.59	9.55	239.9	clear	
1030				11.98	344	7.55	9.57	238.5	clear	
1035				11.99	336	7.32	9.54	238.6	clear	
1040				11.99	333	7.54	9.52	238.8	clear	
1045				12.11	329	7.46	9.48	239.3	32.9	ran extra to
1050									30.5	get lower
1055									28.1	turbidity

Total Gallons Purged: _____

Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____

Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1100	500 ml	amber	2	none	none	clear	none	GMW-04-110910

METHODS

CH/DH methods

 Sampling Equipment and IDs: YSI 120

well and truck enclosed in "truck tent"

 Purging Equipment: dedicated GED w/nitrogen

 Decon Equipment: alconox, DI

 Disposal of Discharged Water: drum onsite

 Observations/Comments: GED at 85 psi drive pressure, 2CPM
had to retrieve pump from bottom of well, asphalt odor outside tent

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-05</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SEM materials</u>	Project Number: <u>090190</u>	
Date: <u>11/8/10</u>	Starting Water Level (ft TOC): <u>179.45</u>	
Developed by: _____	Casing Stickup (ft): _____	
Measuring Point of Well: <u>TOC</u>	Total Depth (ft TOC): _____	
Screened Interval (ft. TOC) _____	Casing Diameter (inches): <u>2"</u>	
Filter Pack Interval (ft. TOC) _____		
Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)		
Casing volumes: 2" = 0.16 gpf	4" = 0.65 gpf	6" = 1.47 gpf
2" = 0.62 Lpf	4" = 2.46 Lpf	6" = 5.56 Lpf
Sample Intake Depth (ft TOC): <u>182.5</u>		

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (uS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1410	0	0.220	179.45							started pump
1415				12.66	245	8.27	8.68	259.4	clear	
1420				12.43	243	7.87	8.45	260.7	clear	
1425				11.83	265	7.33	8.77	262.1	clear	
1430				11.72	272	7.26	8.87	261.1	clear	
1435				11.71	294	7.40	8.91	260.0	clear	
1440				11.64	276	7.39	8.96	260.1	2.74	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1445	500ml	amber	2	none	none	clear	none	GMW-05 110810

METHODS

Sampling Equipment and IDs: YSI 120 CH/DH methods

Purging Equipment: dedicated QED w/nitrogen gas well and truck enclosed in "truck tent"

Decon Equipment: allonox, dl

Disposal of Discharged Water: drum onsite

Observations/Comments: QED 89 psi drive pressure, 2 cycles per minute

asphalt odor outside tent GED-MW-06: 165.50' BTOC

GROUNDWATER SAMPLING RECORD

WELL NUMBER: GMW-06

Page: 1 of 1

Project Name: SEM Materials

Project Number: _____

Date: 11/8/10

Starting Water Level (ft TOC): 172.33

Developed by: _____

Casing Slickup (ft): _____

Measuring Point of Well: TOC

Total Depth (ft TOC): _____

Screened Interval (ft. TOC) 175.9 - 195.9

Casing Diameter (inches): 2

Filter Pack Interval (ft. TOC) _____

Casing Volume 23.57 (ft Water) x 0.16 (Lpf)(gpf) = _____ (L)(gal)

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

Sample Intake Depth (ft TOC): 175.3

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1305	0	0.240	172.33							started pump
1310				14.26	277	5.43	7.81	290.7	clear	
1315				13.40	288	6.27	8.09	284.1	clear	
1320				12.70	294	7.30	8.46	273.0	clear	
1325				12.61	292	7.38	8.50	270.2	clear	
1330				12.52	285	7.39	8.55	266.6	2.31	
1335										

Total Gallons Purged: _____

Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____

Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1335	500mL	amber	2	none	none	clear	none	GMW-06-110810

METHODS

Sampling Equipment and IDs: SI #120

CH/DH method

well and truck enclosed in truck tent

Purging Equipment: dedicated QED well wizard

Decon Equipment: alconox, distilled water

Disposal of Discharged Water: drum onsite

Observations/Comments: pump intake 175.3 ft btl, QED @ 85 psi drive pressure, 2 cpm, nitrogen gas used to power pump

GROUNDWATER SAMPLING RECORD		WELL NUMBER: <u>WDCMW-4</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SEM Materials</u>		Project Number: <u>09090</u>	
Date: <u>11/9/10</u>		<div style="border: 1px solid black; padding: 5px;"> Starting Water Level (ft TOC): <u>176.31</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): <u>2</u> </div>	
Developed by: _____			
Measuring Point of Well: <u>TDL</u>			
Screened Interval (ft. TOC) _____			
Filter Pack Interval (ft. TOC) _____			
Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)			
Casing volumes: 2" = 0.16 gpf 4" = 0.85 gpf 6" = 1.47 gpf		Sample Intake Depth (ft TOC): <u>179.3</u>	
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf			

PURGING MEASUREMENTS

Time	Cumul. Vol. (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductance (μS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1500	0	0.250	176.31							started pump
1505				11.56	234	7.24	8.48	234.7	clear	
1510				11.19	232	6.58	8.74	234.6	clear	
1515				11.06	230	6.75	8.90	235.3	clear	
1520				11.02	230	6.79	8.92	236.1	clear	
1525				10.99	235	6.87	8.91	236.7	clear	
1530				10.99	233	6.89	8.91	237.5	0.45	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1535	500ml	amber	2	none	none	clear	none	WDCMW-4-110910
1540	500ml	amber	2	none	none	clear	none	WDCMW-4D-110910

METHODS

Sampling Equipment and IDs: YSI 120 CH/DH method

Purging Equipment: RED w/ nitrogen gas Decon Equipment: alconox, DI

Disposal of Discharged Water: drum on site

Observations/Comments: _____

February 2011

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-01</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>Semimaterials</u>		
Project Number: _____		
Date: <u>2/15/11</u>	Starting Water Level (ft TOC): <u>171.17</u>	
Developed by: <u>MARIA ET</u>	Casing Stickup (ft): _____	
Measuring Point of Well: <u>TOC</u>	Total Depth (ft TOC): _____	
Screened Interval (ft. BGS): _____	Casing Diameter (inches): <u>2"</u>	
Filter Pack Interval (ft. BGS): _____		
Casing Volume _____ ft Water x _____ Lpf = _____		
Casing volumes: 2" = 0.16 gpf	4" = 0.65 gpf	6" = 1.47 gpf
2" = 0.62 Lpf	4" = 2.46 Lpf	6" = 5.56 Lpf
Sample Intake Depth (ft TOC): _____		

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1145									Started Pump
1150		0.280	10.37	273	8.15	7.35	176.7	clear	
1155			10.69	215	6.81	7.53	172.8	clear	
1200			10.53	204	6.50	7.75	169.4	clear	
1205			10.47	200	6.50	7.94	166.1	clear	
1210			10.42	202	6.66	8.00	165.3	2.24	sample

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1215	500ml	A.G.	6	NONE	NONE	clear	NONE	GMW-01-021511 +MS MSD

METHODS

Sampling Equipment and IDs: YSI #138; CH/DH sampling truck & well meter; installed in tent

Purging Equipment: OED Well Wizard Decon Equipment: _____

Disposal of Discharged Water: Drum

Observations/Comments: OED @ 85 psi, 2 cpm, N gas used to power pump?

- Field Blank done (FB-021511) @ 1200

GROUNDWATER SAMPLING RECORD WELL NUMBER: GMW-02 Page: 1 of 1

Project Name: Semmaterials Project Number: _____
 Date: 2/15/11 Starting Water Level (ft TOC): 173.20
 Developed by: MAR/AET Casing Stickup (ft): _____
 Measuring Point of Well: TOC Total Depth (ft TOC): _____
 Screened Interval (ft. BGS) _____ Casing Diameter (inches): 2"
 Filter Pack Interval (ft. BGS) _____
 Casing Volume _____ ft Water x _____ Lpf = _____
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 8" = 1.47 gpf Sample Intake Depth (ft TOC): 176.20
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1044	0								started pump
1049		0.280	10.36	332	8.79	7.45	181.4	clear	
1054			10.79	465	8.34	7.53	183.1	clear	
1059			10.70	568	8.42	7.55	183.1	clear	
1104			10.70	596	8.52	7.56	182.7	clear	
1109			10.69	606	8.56	7.56	181.4	1.31	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
 Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1120	500ml	A.G.	2	none	None	clear	none	GMW-02-021511

METHODS

Sampling Equipment and IDs: YSI #13B; WH/DH method for sampling, truck + well enclosed
 Purging Equipment: RED Well Wizard Decon Equipment: _____
 Disposal of Discharged Water: DRUM
 Observations/Comments: RED @ 85 psi drive pressure, 2 cpm, N gas used to power pump



GROUNDWATER SAMPLING RECORD

WELL NUMBER: GMW-03

Page: 1 of 1

Project Name: SEMIMATERIALS
 Date: 2/15/11
 Developed by: MAR/AET
 Measuring Point of Well: TOC
 Screened Interval (ft. BGS): _____
 Filter Pack Interval (ft. BGS): _____

Project Number: _____
 Starting Water Level (ft TOC): 171.93
 Casing Stickup (ft): _____
 Total Depth (ft TOC): _____
 Casing Diameter (inches): 2"

Casing Volume _____ ft Water x _____ Lpf = _____
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf Sample Intake Depth (ft TOC): 175
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
0928									started pump
0933		0.400	10.61	296	8.99	7.36	188.5	clear	
0938			10.33	316	8.40	7.42	189.4	clear	
0943			9.92	373	8.19	7.49	189.1	clear	
0948			9.57	401	8.08	7.51	188.6	clear	
0953			9.08	443	8.16	7.52	187.6	clear	
0958			8.95	493	8.23	7.53	186.7	clear	
1003			7.20	525	8.29	7.53	186.3	clear	
1008			9.35	542	8.27	7.53	185.4	3.99	sampled

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
 Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1020	500ml	A.G.	2	None	None			GMW-03-021511

METHODS

Sampling Equipment and IDs: YSI #138 OH/DH method for sampling; truck & well enclosed in tent
 Purging Equipment: QED well wizard Decon Equipment: _____
 Disposal of Discharged Water: DRUM
 Observations/Comments: QED @ 85 psi drive pressure; 2 ppm N gas used to power pump

GROUNDWATER SAMPLING RECORD		WELL NUMBER: <u>GMW-04</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SEM materials</u>		Project Number: _____	
Date: <u>2/14/11</u>		Starting Water Level (ft TOC): <u>173.11</u>	
Developed by: <u>AET, MAZ</u>		Casing Stickup (ft): _____	
Measuring Point of Well: <u>TDC</u>		Total Depth (ft TOC): _____	
Screened Interval (ft. BGS) _____		Casing Diameter (Inches): <u>2"</u>	
Filter Pack Interval (ft. BGS) _____			
Casing Volume _____ ft Water x _____ Lpf = _____			
Casing volumes: 2" = 0.16 gpf		4" = 0.85 gpf	6" = 1.47 gpf
2" = 0.62 Lpf		4" = 2.46 Lpf	6" = 5.56 Lpf
			Sample Intake Depth (ft TOC): <u>176.11</u>

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1521									started pump
1526		0.380	11.03	341	8.72	7.36	189.9	clear	
1531			10.69	336	7.69	7.42	190.8	clear	
1536			10.45	381	7.44	7.47	190.9	clear	
1541			10.34	430	7.41	7.49	191.2	clear	
1546			10.32	465	7.44	7.50	191.3	clear	
1551			10.25	487	7.53	7.51	191.3	clear	
1556			10.26	493	7.44	7.52	190.6	18.4	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY									
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks	
						Color	Turbidity & Sediment		
1600	500 mL	A.G.	2	NONE	NONE	clear	none	GMW-04-021411	

METHODS

Sampling Equipment and IDs: YS 1738 CH/DH methods, well & truck enclosed in tent

Purging Equipment: QED well wizard Decon Equipment: _____

Disposal of Discharged Water: drum

Observations/Comments: QED @ 85 psi drive pressure, 2 rpm, N gas used to power pump



GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-05</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SPMmaterials</u>	Project Number: <u>090190</u>	
Date: <u>2/14/11</u>	Starting Water Level (ft TOC): <u>174.22</u>	
Developed by: <u>MAR/AET</u>	Casing Stickup (ft): _____	
Measuring Point of Well: <u>TOC</u>	Total Depth (ft TOC): _____	
Screened Interval (ft. BGS): _____	Casing Diameter (inches): <u>2"</u>	
Filter Pack Interval (ft. BGS): _____	Casing Volume _____ ft Water x _____ Lpf = _____	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf	Sample Intake Depth (ft TOC): <u>177.22</u>	
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf		

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1415	0	0.360							started pump
1420			11.22	337	7.81	7.02	196.0	clear	
1425			10.92	582	8.93	7.28	192.7	clear	
1430			10.80	644	7.69	7.31	192.6	clear	
1435			10.52	649	7.37	7.33	191.7	clear	
1440			10.19	648	7.37	7.33	190.9	30.4	
1445									

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1450	500ml	amber	2	none	none	clear	none	GMW-05-021411

METHODS

Sampling Equipment and IDs: YSI #13B CH/DRI methods, well and truck enclosed in tent

Purging Equipment: QED well wizard Decon Equipment: _____

Disposal of Discharged Water: drum

Observations/Comments: QED at 85 psi drive pressure, 2 cpm, N gas used to power pump

GROUNDWATER SAMPLING RECORD WELL NUMBER: GMW 020 Page: 1 of 1

Project Name: SEM Materials Project Number: _____
 Date: 2/14/11
 Developed by: AET, MAR
 Measuring Point of Well: TOC
 Screened Interval (ft. BGS) 175.9 - 195.9
 Filter Pack Interval (ft. BGS) _____
 Casing Volume 23.57 ft Water x 0.10 Lpf = _____
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf Sample Intake Depth (ft TOC): 170.09
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Starting Water Level (ft TOC): 107.09
 Casing Stickup (ft): _____
 Total Depth (ft TOC): _____
 Casing Diameter (inches): 2"

PURGING MEASUREMENTS

Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1257	0	0.360							started pump
1302			12.59	274	6.62	6.54	195.3	cloudy	
1307			11.88	245	7.54	7.17	187.9	clear	
1312			11.61	236	7.64	7.55	185.0	clear	
1317			11.38	234	7.62	7.60	185.6	clear	
1322			11.25	232	7.61	7.62	186.0	91.3	
1327									

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
 Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1330	500mL	AGI	2	none	none	clear	none	GMW-do-021411

METHODS

Sampling Equipment and IDs: YSI # 138 dedicated tubing well-truck enclosed in tent CH/DH method
 Purging Equipment: dedicated QED well wizard Decon Equipment: alcohol, distilled water
 Disposal of Discharged Water: Drum
 Observations/Comments: QED at 85 psi drive pressure, 2cpm, N gas used to power pump

GROUNDWATER SAMPLING RECORD				WELL NUMBER: <u>UDCMW-4</u>				Page: <u>1</u> of <u>1</u>	
Project Name: <u>SEM materials</u>				Project Number: _____					
Date: <u>2/15/11</u>				Starting Water Level (ft TOC): <u>171.20</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): <u>2"</u>					
Developed by: <u>RET MAR</u>									
Measuring Point of Well: <u>T6C</u>									
Screened Interval (ft. BGS): _____									
Filter Pack Interval (ft. BGS): _____									
Casing Volume _____ ft Water x _____ Lpf = _____									
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf				Sample Intake Depth (ft TOC): <u>174.2</u>					
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf									
PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1244	0	0.280							started pump
1249		0.280	9.76	207	7.40	7.34	172.8	clear	
1254			10.22	209	6.21	7.58	169.4	clear	
1259			10.19	264	6.39	7.59	171.5	clear	
1304			10.18	604	7.30	7.48	175.7	clear	
1309			10.14	741	7.63	7.47	176.5	clear	
1314			10.14	769	7.67	7.47	176.5	clear	
1319			10.11	774	7.61	7.47	176.4	2.03	
Total Gallons Purged: _____			Total Casing Volumes Removed: _____						
Ending Water Level (ft TOC): _____			Ending Total Depth (ft TOC): _____						
SAMPLE INVENTORY									
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks	
						Color	Turbidity & Sediment		
1330	500mL	amber	2	none	none	clear	none	UDCMW-4-021511	
1340	500mL	amber	2	none	none	clear	none	UDCMW-4D-021511 (duplicate)	
METHODS									
Sampling Equipment and IDs: <u>YSI 138 dedicated tubing</u>						<u>CHI/DH methods, truck and well enclosed in tent</u>			
Purging Equipment: <u>RED well wizard</u>				Decon Equipment: _____					
Disposal of Discharged Water: <u>drum</u>									
Observations/Comments: _____									

May 2011

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-06</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SEMmaterials</u>	Project Number: <u>090190</u>	
Date: <u>5/10/11</u>	<div style="border: 1px solid black; padding: 5px;"> Starting Water Level (ft TOC): <u>165.60</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): _____ </div>	
Developed by: <u>MAR/AET</u>		
Measuring Point of Well: _____		
Screened Interval (ft. BGS) _____		
Filter Pack Interval (ft. BGS) _____		
Casing Volume _____ ft Water x _____ Lpf = _____	Sample Intake Depth (ft TOC): <u>168.5</u>	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf		
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf		

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1334								cloudy	Started Pump
1339		.300	13.96	268	5.71	6.71	118.7	sl. cloudy	
1344			12.89	502	6.27	7.05	110.6	sl. cloudy	
1349			12.98	530	6.00	7.28	94.4	↓	
1354			13.34	517	5.94	7.43	84.8	↓	
1359			13.48	501	6.21	7.49	80.2	117	sampled

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1405	500ml	A-G	2	NO	None	clear	None	GMW-06-051011

METHODS

Sampling Equipment and IDs: YSI #120, dedicated tubing, CH/DH method well + truck enclosed in tent

Purging Equipment: dedicated QED wellwizard Decon Equipment: alcomox & distilled H₂O

Disposal of Discharged Water: Drum

Observations/Comments: QED @ 85 psi drive pressure, 2 cpm, N Gas to power pump

GROUNDWATER SAMPLING RECORD

 WELL NUMBER: GMW-05

 Page: 1 of 1

 Project Name: Semmaterials

 Project Number: 090190

 Date: 5/10/11

 Starting Water Level (ft TOC): 172.77

 Developed by: MAR/AET

Casing Stickup (ft): _____

 Measuring Point of Well: TOC

Total Depth (ft TOC): _____

Screened Interval (ft. BGS) _____

 Casing Diameter (inches): 2"

Filter Pack Interval (ft. BGS) _____

Casing Volume _____ ft Water x _____ Lpf = _____

Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf

 Sample Intake Depth (ft TOC): 176'

2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1440		0.350							started pump
1445		↓	13.04	499	7.80	7.83	71.3	clear	
1450		↓	12.51	612	8.20	7.86	66.6	clear	
1455		↓	12.39	1046	8.50	7.85	62.7	clear	
1500		↓	12.31	1052	8.59	7.84	59.7	15.4	sample

Total Gallons Purged: _____

Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____

Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1505	500mL	amber	2	no	no			GMW-05-051011

METHODS

 Sampling Equipment and IDs: YSI 120, dedicated pump tubing

 Purging Equipment: RED sample pro Decon Equipment: alinox, Distilled water

 Disposal of Discharged Water: drum

 Observations/Comments: CH/DH in truck tent

Project Name: SEM Materials Project Number: _____
 Date: 5/10/11
 Developed by: ART/MAR
 Measuring Point of Well: 702
 Screened Interval (ft. BGS): _____
 Filter Pack Interval (ft. BGS): _____

Starting Water Level (ft TOC): 171.65
 Casing Slickup (ft): _____
 Total Depth (ft TOC): _____
 Casing Diameter (inches): 2

Casing Volume _____ ft Water x _____ Lpf = _____
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf Sample Intake Depth (ft TOC): 175
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS

Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1532	0	0.300							Started
1537			13.51	452	7.64	8.19	75.5	clear	
1542			13.90	455	7.09	8.18	65.4	clear	
1547			14.44	459	6.85	8.15	61.9	clear	
1552			14.78	463	6.93	8.10	61.9	10.5	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
 Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1555	500ml	AMBER	2	no	no			GMW-04-051011

METHODS
 Sampling Equipment and IDs: YSI 120, dedicated pump and tubing
 Purging Equipment: QED sample pro Decon Equipment: alronox, distilled water
 Disposal of Discharged Water: drum
 Observations/Comments: CH/DH in truck tent

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-03</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>SEMMA materials</u>	Project Number: <u>090190</u>	
Date: <u>5/10/11</u>	Starting Water Level (ft TOC): <u>170.38</u>	
Developed by: <u>MAR/AET</u>	Casing Stickup (ft): _____	
Measuring Point of Well: <u>TOC</u>	Total Depth (ft TOC): _____	
Screened Interval (ft. BGS): _____	Casing Diameter (inches): _____	
Filter Pack Interval (ft. BGS): _____	Casing Volume _____ ft Water x _____ Lpf = _____	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf	Sample Intake Depth (ft TOC): <u>173.5</u>	
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf		

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
11638									Started Pump
11643		0.300	14.86	492	7.66	7.94	61.1	clear	
11648			15.59	498	7.09	7.97	54.4	clear	
11653			15.98	505	6.80	7.96	54.6	clear	
11658		↓	16.44	513	6.81	7.94	54.9	4.88	sample

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1700	500ml	A.G.	2	NO	None	clear	None	GMW-03-051011

METHODS

Sampling Equipment and IDs: YSI #120, dedicated pump + tubing, & well enclosed in tent CH/DH method: truck

Purging Equipment: QED sample pro Decon Equipment: alcohol + distilled H₂O

Disposal of Discharged Water: Drum

Observations/Comments: QED @ 85 PSI line pressure, 2 cpm,
NO gas to power pump



GROUNDWATER SAMPLING RECORD WELL NUMBER: G1MW-02 Page: 1 of 1

Project Name: sem materials Project Number: 090190
 Date: 9/10/11 Starting Water Level (ft TOC): 171.63
 Developed by: MAR/AET Casing Slickup (ft): _____
 Measuring Point of Well: TOC Total Depth (ft TOC): _____
 Screened Interval (ft. BGS) _____ Casing Diameter (inches): _____
 Filter Pack Interval (ft. BGS) _____

Casing Volume _____ ft Water x _____ Lpf = _____
 Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf Sample Intake Depth (ft TOC): 174.5
 2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1734		0.350							started pump
1739			13.52	543	8.08	7.81	77.9	clear	
1744			13.89	690	7.62	7.92	67.4	clear	
1749			13.99	765	7.95	7.94	64.3	clear	
1754			14.00	825	8.23	7.94	63.6	clear	
1759			13.88	858	8.42	7.96	62.2	clear	
1804			14.24	861	8.63	7.97	62.1	4.79	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____
 Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1805	500ml	A.G.	2	NO	NONE	clear	none	G1MW-02 051011

METHODS
 Sampling Equipment and IDs: YSI #120, dedicated pump & tubing
 Purging Equipment: RED sample pro Decon Equipment: Alconox + distilled H₂O
 Disposal of Discharged Water: DRUM
 Observations/Comments: _____

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>GMW-01</u>	Page: <u>1</u> of <u>1</u>
Project Name: <u>Semmatenais</u>	Project Number: <u>090190</u>	
Date: <u>5/10/11</u>	Starting Water Level (ft TOC): <u>169.57</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): <u>2</u>	
Developed by: <u>MATYART</u>		
Measuring Point of Well: _____		
Screened Interval (ft. BGS): _____		
Filter Pack Interval (ft. BGS): _____		
Casing Volume _____ ft Water x _____ Lpf = _____	Sample Intake Depth (ft TOC): _____	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf		
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf		

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1836		0.300							Started Pump
1841			13.04	221	7.26	7.60	81.7	clear	
1846			13.28	185	6.22	7.70	72.9	clear	
1851			13.31	180	6.04	7.73	71.2	clear	
1856			13.34	179	5.97	7.76	70.1	5.58	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
1900	500mL	Amber	6	no	no			GMW-01-051011 +MS/MSD

METHODS

Sampling Equipment and IDs: YSI 120 dedicated tubing + pump

Purging Equipment: QED sample pro Decon Equipment: altonex, distilled water

Disposal of Discharged Water: drum

Observations/Comments: CH/PH in truck tent, nitrogen gas

FB-051011 @ 1830

GROUNDWATER SAMPLING RECORD	WELL NUMBER: <u>UDCMW-4</u> Page: <u>1</u> of <u>1</u>
Project Name: <u>SEM Materials</u>	Project Number: _____
Date: <u>5/10/11</u>	Starting Water Level (ft TOC): <u>169.59</u> Casing Stickup (ft): _____ Total Depth (ft TOC): _____ Casing Diameter (inches): <u>2</u>
Developed by: <u>AET, MAR</u>	
Measuring Point of Well: _____	
Screened Interval (ft. BGS): _____	
Filter Pack Interval (ft. BGS): _____	
Casing Volume _____ ft Water x _____ Lpf = _____	
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf	Sample Intake Depth (ft TOC): <u>172.5</u>
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf	

PURGING MEASUREMENTS									
Time	Cumul. Vol. (gallons) (liters)	Purge Rate (Lpm)	Temp. (C or F)	Specific Conductance (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Eh (ORP)	Turbidity (NTU)	Comments
1940	0	0.250							Started pump
1945			13.33	190	3.56	7.91	79.7	clear	
1950			12.10	212	2.20	7.93	80.8	clear	
1955			11.73	229	0.61	8.22	64.3	clear	
2000			11.57	326	1.03	8.21	60.9	clear	
2005			11.55	358	1.19	8.20	59.4	clear	
2010			11.52	397	1.25	8.20	59.0	clear	
2015			11.48	440	1.40	8.21	58.4	clear	
2020			11.46	467	1.39	8.23	58.0	5.47	

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY								
Time	Volume	Bottle Type	Quantity	Filtration	Preservation	Appearance		Remarks
						Color	Turbidity & Sediment	
2025	500	amber	2	no	no	clear	none	UDCMW-4-051011
2030	500	amber	2	no	no	clear	none	UDCMW-4D-051011 (duplicate)

METHODS

Sampling Equipment and IDs: YSI 120, dedicated tubing + pump

Purging Equipment: QED sample pro Decon Equipment: alconox, distilled water

Disposal of Discharged Water: drum

Observations/Comments: CH/DH in truck tent, nitrogen gas

SEM Materials

5/11/11

AET, MAR

well	Depth to water
MW-6:	158.68
DCMW3:	170.22
DCMW5:	172.94

APPENDIX E

Remedial Investigation Groundwater Quality Sample Analytical Results

January 2009



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Fax: (206)767-5063

Client: Golder Associates
18300 NE Union Hill Rd, #200
Redmond, WA 98052-3333

Project Name:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Date Received:	1/16/2009 8:00:00AM
		Date Reported:	02/02/2009

Enclosed are the analytical results for the sample(s) received by the laboratory on January 16, 2009. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after April 30, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

A handwritten signature in black ink, appearing to read "Shannon Schelinder". The signature is fluid and cursive, with the first name being more prominent than the last.

Shannon Schelinder



Pace Analytical Services, Inc.

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Sample Summary

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time	Type
GMW-06	GOLSP0901-001	01/13/2009 11:10	Water
GMW-05	GOLSP0901-002	01/13/2009 14:05	Water
GMW-04	GOLSP0901-003	01/13/2009 15:15	Water
GMW-03	GOLSP0901-004	01/14/2009 10:55	Water
UDCMW-4	GOLSP0901-005	01/14/2009 15:45	Water



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Test Request Summary

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Pace Project No.:	073-93170-02	Project Manager:	

Samples	Methods								
	Subcon 1	NWTPH-2	8270-P 3						
Client Sample ID									
GMW-06	X	X	X						
GMW-05	X	X	X						
GMW-04	X	X	X						
GMW-03	X	X	X						
UDCMW-4	X	X	X						

Determinations:

- 1 = Subcontract EPH, WADOE 97-602
- 2 = NWTPH DX + Silica Gel (Water)
- 3 = 8270 SIM Super-Low Water SPE(PAHs)



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-06	Matrix:	Water
Collected On:	1/13/09 11:10	Lab Sample ID:	GOLSP0901-001
Received On:	1/16/09 8:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	81	% Rec	1		30-110	Q37671	01/16/2009	01/26/2009	
Fluorene-d10	73	% Rec	1		45-130	Q37671	01/16/2009	01/26/2009	
Pyrene-d10	77	% Rec	1		50-140	Q37671	01/16/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1		37 100	Q37663	01/16/2009	01/24/2009	
Oil Range Organics	ND	ug/L	1		62 510	Q37663	01/16/2009	01/24/2009	
<i>Surrogates:</i>									
o-Terphenyl	104	% Rec	1		50-150	Q37663	01/16/2009	01/24/2009	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-05	Matrix:	Water
Collected On:	1/13/09 14:05	Lab Sample ID:	GOLSP0901-002
Received On:	1/16/09 8:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	72	% Rec	1		30-110	Q37671	01/16/2009	01/26/2009	
Fluorene-d10	65	% Rec	1		45-130	Q37671	01/16/2009	01/26/2009	
Pyrene-d10	68	% Rec	1		50-140	Q37671	01/16/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1		37	100	Q37663	01/16/2009	01/24/2009
Oil Range Organics	ND	ug/L	1		62	510	Q37663	01/16/2009	01/24/2009
<i>Surrogates:</i>									
o-Terphenyl	60	% Rec	1		50-150	Q37663	01/16/2009	01/24/2009	



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Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-04	Matrix:	Water
Collected On:	1/13/09 15:15	Lab Sample ID:	GOLSP0901-003
Received On:	1/16/09 8:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	69	% Rec	1		30-110	Q37671	01/16/2009	01/26/2009	
Fluorene-d10	62	% Rec	1		45-130	Q37671	01/16/2009	01/26/2009	
Pyrene-d10	70	% Rec	1		50-140	Q37671	01/16/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1	37	100	Q37663	01/16/2009	01/24/2009	
Oil Range Organics	ND	ug/L	1	62	510	Q37663	01/16/2009	01/24/2009	
<i>Surrogates:</i>									
o-Terphenyl	102	% Rec	1		50-150	Q37663	01/16/2009	01/24/2009	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-03	Matrix:	Water
Collected On:	1/14/09 10:55	Lab Sample ID:	GOLSP0901-004
Received On:	1/16/09 8:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0096	Q37671	01/16/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	79	% Rec	1		30-110	Q37671	01/16/2009	01/26/2009	
Fluorene-d10	70	% Rec	1		45-130	Q37671	01/16/2009	01/26/2009	
Pyrene-d10	69	% Rec	1		50-140	Q37671	01/16/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1		37 100	Q37663	01/16/2009	01/24/2009	
Oil Range Organics	ND	ug/L	1		62 510	Q37663	01/16/2009	01/24/2009	
<i>Surrogates:</i>									
o-Terphenyl	96	% Rec	1		50-150	Q37663	01/16/2009	01/24/2009	



Pace Analytical Services, Inc.

Analytical Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	UDCMW-4	Matrix:	Water
Collected On:	1/14/09 15:45	Lab Sample ID:	GOLSP0901-005
Received On:	1/16/09 8:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Chrysene	0.014	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	0.0095	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
Benzo(g,h,i)perylene	0.0095	ug/L	1		0.0095	Q37671	01/16/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	59	% Rec	1		30-110	Q37671	01/16/2009	01/26/2009	
Fluorene-d10	53	% Rec	1		45-130	Q37671	01/16/2009	01/26/2009	
Pyrene-d10	55	% Rec	1		50-140	Q37671	01/16/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1		37 100	Q37663	01/16/2009	01/24/2009	
Oil Range Organics	ND	ug/L	1		62 510	Q37663	01/16/2009	01/24/2009	
<i>Surrogates:</i>									
o-Terphenyl	100	% Rec	1		50-150	Q37663	01/16/2009	01/24/2009	



Pace Analytical Services, Inc.

Pace Analytical Services, Inc.
 940 South Harney
 Seattle, WA 98108
 Phone: (206)767-5060
 Fax: (206)767-5063

Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	

QC Batch(es):	Q37663	Analysis Method:	NWTPH-D
QC Batch Method:	3510C (NWTPH)	Analysis Description:	NWTPH Diesel
Preparation Started:	01/16/2009		

Blank: B011609GSVWLG

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	ug/L	1	37	50	
Oil Range Organics	ND	ug/L	1	61	250	
<i>Surrogates:</i>					% Rec	
o-Terphenyl			1		104	50-150

LCS: S011609GSVWLG
LCS Duplicate: S011609GSVWLG2

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	RPD	RPD Limit	Qualifiers
Diesel Range Organics	3400	ug/L	1	5050	68	51-147			
	3700			5050	72	51-147	6	50	
<i>Surrogates:</i>									
o-Terphenyl			1		95	50-150			
					96	50-150			

Matrix Spike: GOLSP0901-003MS **Parent Sample:** GOLSP0901-003

Analyte	Matrix Spike Result	Units	DF	Spike Conc.	Parent Result	% Rec	% Rec Limits	Qualifiers
Diesel Range Organics	3800	ug/L	1	5100	ND	74	50-150	
<i>Surrogates:</i>								
o-Terphenyl			1			101	50-150	

Sample Duplicate: GOLSP0901-003D **Parent Sample:** GOLSP0901-003

Analyte	Duplicate Result	Units	DF	Parent Result	RPD	RPD Limit	Qualifiers
Diesel Range Organics	ND	ug/L	1	ND	0	50	
Oil Range Organics	ND	ug/L	1	ND	0	50	
<i>Surrogates:</i>					% Rec		
o-Terphenyl			1		103	50-150	



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Quality Control Results

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Seattle, WA 98108

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	

QC Batch(es):	Q37671	Analysis Method:	8270-PNA
QC Batch Method:	3535(PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	01/16/2009		

Blank: B011609MPNWLO

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Naphthalene	ND	ug/L	1		0.005	
Acenaphthylene	ND	ug/L	1		0.005	
Acenaphthene	ND	ug/L	1		0.005	
Fluorene	ND	ug/L	1		0.005	
Phenanthrene	ND	ug/L	1		0.005	
Anthracene	ND	ug/L	1		0.005	
Fluoranthene	ND	ug/L	1		0.005	
Pyrene	ND	ug/L	1		0.005	
Benzo(a)anthracene	ND	ug/L	1		0.005	
Chrysene	ND	ug/L	1		0.005	
Benzo(b)fluoranthene	ND	ug/L	1		0.005	
Benzo(k)fluoranthene	ND	ug/L	1		0.005	
Benzo(a)pyrene	ND	ug/L	1		0.005	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.005	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.005	
Benzo(g,h,i)perylene	ND	ug/L	1		0.005	
<i>Surrogates:</i>					% Rec	
1-Fluoronaphthalene			1		78	30-110
Fluorene-d10			1		67	45-130
Pyrene-d10			1		72	50-140

LCS: S011609MPNWLO

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	% Rec Limits	Qualifiers
Naphthalene	0.95	ug/L	1	1.25	76	20-160	
Acenaphthylene	0.92	ug/L	1	1.25	73	20-160	
Acenaphthene	0.87	ug/L	1	1.25	69	20-160	
Fluorene	0.90	ug/L	1	1.25	72	20-160	
Phenanthrene	0.93	ug/L	1	1.25	74	20-160	
Anthracene	0.97	ug/L	1	1.25	77	20-160	
Fluoranthene	0.99	ug/L	1	1.25	79	20-160	
Pyrene	0.97	ug/L	1	1.25	77	20-160	
Benzo(a)anthracene	0.93	ug/L	1	1.25	74	20-160	
Chrysene	0.95	ug/L	1	1.25	76	20-160	
Benzo(b)fluoranthene	0.96	ug/L	1	1.25	76	20-160	
Benzo(k)fluoranthene	0.94	ug/L	1	1.25	75	20-160	
Benzo(a)pyrene	0.91	ug/L	1	1.25	73	20-160	
Indeno(1,2,3-cd)pyrene	0.89	ug/L	1	1.25	71	20-160	
Dibenzo(a,h)anthracene	0.97	ug/L	1	1.25	78	20-160	
Benzo(g,h,i)perylene	0.96	ug/L	1	1.25	76	20-160	
<i>Surrogates:</i>							
1-Fluoronaphthalene			1		69	30-110	
Fluorene-d10			1		63	45-130	
Pyrene-d10			1		69	50-140	



Pace Analytical Services, Inc.

Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0901
Project Number:	073-93170-02	Project Manager:	
QC Batch(es):	Q37671	Analysis Method:	8270-PNA
QC Batch Method:	3535(PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:			
Matrix Spike:	GOLSP0901-003MS	Parent Sample:	GOLSP0901-003
Matrix Spike Duplicate:	GOLSP0901-003MSD		

Analyte	Matrix Spike			Spike Conc.	Parent Result	% Rec	% Rec		RPD	RPD Limit	Qualifiers
	Result	Units	DF				Limits	RPD			
Naphthalene	0.95	ug/L	1	1.20	ND	79	20-160				
	0.98			1.20		81	20-160	3	50		
Acenaphthylenc	0.97	ug/L	1	1.20	ND	81	20-160				
	0.95			1.20		79	20-160	3	50		
Accenaphthene	0.94	ug/L	1	1.20	ND	78	20-160				
	0.85			1.20		70	20-160	10	50		
Fluorene	0.92	ug/L	1	1.20	ND	77	20-160				
	0.87			1.20		72	20-160	7	50		
Phenanthrenc	0.88	ug/L	1	1.20	ND	73	20-160				
	0.92			1.20		76	20-160	5	50		
Anthracene	0.93	ug/L	1	1.20	ND	77	20-160				
	0.96			1.20		79	20-160	3	50		
Fluoranthene	0.95	ug/L	1	1.20	ND	79	20-160				
	1.0			1.20		84	20-160	6	50		
Pyrene	0.93	ug/L	1	1.20	ND	77	20-160				
	0.93			1.20		77	20-160	0	50		
Benzo(a)anthracene	0.94	ug/L	1	1.20	ND	78	20-160				
	0.95			1.20		79	20-160	1	50		
Chrysenc	0.96	ug/L	1	1.20	ND	80	20-160				
	0.93			1.20		78	20-160	3	50		
Benzo(b)fluoranthene	0.95	ug/L	1	1.20	ND	79	20-160				
	1.0			1.20		85	20-160	7	50		
Benzo(k)fluoranthene	0.90	ug/L	1	1.20	ND	75	20-160				
	0.91			1.20		76	20-160	1	50		
Benzo(a)pyrene	0.92	ug/L	1	1.20	ND	76	20-160				
	0.93			1.20		77	20-160	1	50		
Indeno(1,2,3-cd)pyrene	1.0	ug/L	1	1.20	ND	84	20-160				
	1.3			1.20		104	20-160	21	50		
Dibenzo(a,h)anthracene	1.1	ug/L	1	1.20	ND	91	20-160				
	0.93			1.20		78	20-160	16	50		
Benzo(g,h,i)perylene	1.1	ug/L	1	1.20	ND	90	20-160				
	0.91			1.20		76	20-160	18	50		
<i>Surrogates:</i>											
1-Fluoronaphthalene			1			70	30-110				
						69	30-110				
Fluorene-d10			1			67	45-130				
						61	45-130				
Pyrene-d10			1			70	50-140				
						68	50-140				



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Pace Analytical Services, Inc.

Notes and Definitions

SDG No: **GOLSP0901**

Report Specific Notes:

ND The analyte of interest was not detected, to the limit of detection indicated

Laboratory Reporting Conventions:

DF	Dilution factor
Detection Limit Threshold	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.
MDL	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.
IDL	Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.
Reporting Limit	The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.
QC Batch Group	Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
% Rec	Percent recovery.
Limits	The upper and lower control limits for spike recoveries.
RPD	Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.
RPD Limit	The maximum RPD allowed for a set of duplicate measurements (see RPD).
Spike conc.	The measured concentration, in sample basis units, of a spiked sample.
PQL	Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.
LCS	Laboratory Control Sample



Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 28, 2009

Shannon Schelinder
Pace Analytical
940 S. Harney Street
Seattle, WA 98108

RE: Client Project: Golder Sem Materials
ARI Job No.: OI54

Dear Shannon:

Please find enclosed the original Chain of Custody (COC) record, sample receipt documentation, and final analytical results for the samples from the project referenced above. Analytical Resources Inc. (ARI) accepted five water samples on January 16, 2009. The cooler temperature measured by IR thermometer following ARI SOP was 3.2°C and the samples were iced. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for EPH as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report as well as all associated raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
206-695-6214
cheronneo@arilabs.com
www.arilabs.com

Enclosures

cc: eFile OI54

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

OIS4



Section A
Required Client Information:
 Company: Pace Analytical, Inc.
 Address: 940 S. Harney St., Seattle 98108
 Email To: Shannon.Schneider@pacelabs.com
 Phone: 206-957-2449
 Requested Due Date/TAT:

Section B
Required Project Information:
 Report To: Shannon Schneider
 Copy To:
 Purchase Order No.:
 Project Name: Golden SEM materials
 Project Number:

Section C
Invoice Information:
 Attention:
 Company Name:
 Address:
 Pace Quote Reference:
 Pace Project Manager:
 Pace Profile #:

REGULATORY AGENCY:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER
 Site Location: WA STATE: WA

Page: / of / 1221836

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis/Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB							
	Matrix Codes Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	DW WT WW P SL OL WP AR TS	(see valid codes to left)	DATE	TIME	DATE	TIME	Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Y/N			
1	GMW-06			1/13	11:10		2		X			GOLSP0901-001
2	GMW-05			1/13	14:05		2		X			-002
3	GMW-04			1/13	15:15		6		X			-003 *
4	GMW-03			1/14	10:55		2		X			-004
5	WDCMW-4			1/14	15:45		2		X			-005

ADDITIONAL COMMENTS:
 X MS MSD on Sample
 GMW-04

RECEIVED BY / AFFILIATION: [Signature]
 DATE: 1/16/09 TIME: 1410

ACCEPTED BY / AFFILIATION: [Signature]
 DATE: 1/16/09 TIME: 1410

TEMP IN °C:

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE:
 PRINT Name of SAMPLER:
 SIGNATURE of SAMPLER:
 DATE Signed (MM/DD/YYYY):

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: **GMW-06**
SAMPLE

Lab Sample ID: OI54A
 LIMS ID: 09-1898
 Matrix: Water
 Data Release Authorized:
 Reported: 01/28/09

QC Report No: OI54-Pace Analytical
 Project: GOLDER SEM MATERIALS

Date Sampled: 01/13/09
 Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 18:19
 Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 04:06
 Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	77.1%
Aromatic	o-Terphenyl	71.0%



ORGANICS ANALYSIS DATA SHEET
 Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: GMW-05
 SAMPLE

Lab Sample ID: OI54B
 LIMS ID: 09-1899
 Matrix: Water
 Data Release Authorized:
 Reported: 01/28/09

QC Report No: OI54-Pace Analytical
 Project: GOLDER SEM MATERIALS
 Date Sampled: 01/13/09
 Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 18:42
 Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 04:28
 Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	69.1%
Aromatic	o-Terphenyl	67.2%



ORGANICS ANALYSIS DATA SHEET
 Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: GMW-04
 SAMPLE

Lab Sample ID: OI54C
 LIMS ID: 09-1900
 Matrix: Water
 Data Release Authorized: *AS*
 Reported: 01/28/09

QC Report No: OI54-Pace Analytical
 Project: GOLDER SEM MATERIALS
 Date Sampled: 01/13/09
 Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 19:05
 Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 04:51
 Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	67.8%
Aromatic	o-Terphenyl	70.9%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-03
SAMPLE

Lab Sample ID: OI54D
LIMS ID: 09-1901
Matrix: Water
Data Release Authorized: *AB*
Reported: 01/28/09

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/14/09
Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 20:12
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 05:59
Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	68.0%
Aromatic	o-Terphenyl	80.6%



ORGANICS ANALYSIS DATA SHEET
 Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: UDCMW-4
 SAMPLE

Lab Sample ID: OI54E
 LIMS ID: 09-1902
 Matrix: Water
 Data Release Authorized:
 Reported: 01/28/09

QC Report No: OI54-Pace Analytical
 Project: GOLDER SEM MATERIALS
 Date Sampled: 01/14/09
 Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 20:35
 Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 06:21
 Instrument/Analyst: FID4A/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	74.6%
Aromatic	o-Terphenyl	75.3%

ALIPHATIC EPH WATER SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS

<u>Client ID</u>	<u>COD</u>	<u>TOT OUT</u>
GMW-06	77.1%	0
GMW-05	69.1%	0
MB-011909	75.0%	0
LCS-011909	72.5%	0
LCSD-011909	71.2%	0
GMW-04	67.8%	0
GMW-04 MS	70.8%	0
GMW-04 MSD	75.5%	0
GMW-03	68.0%	0
UDCMW-4	74.6%	0

LCS/MB LIMITS QC LIMITS

(COD) = 1-Chlorooctadecane

(36-112)

(31-112)

Prep Method: SW3510C
Log Number Range: 09-1898 to 09-1902

AROMATIC EPH WATER SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
GMW-06	71.0%	0
GMW-05	67.2%	0
MB-011909	83.4%	0
LCS-011909	88.6%	0
LCSD-011909	88.7%	0
GMW-04	70.9%	0
GMW-04 MS	88.7%	0
GMW-04 MSD	88.5%	0
GMW-03	80.6%	0
UDCMW-4	75.3%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl


(51-108)

(44-112)

Prep Method: SW3510C
Log Number Range: 09-1898 to 09-1902

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-04
MS/MSD

Lab Sample ID: OI54C
LIMS ID: 09-1900
Matrix: Water
Data Release Authorized: 
Reported: 01/28/09

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS

Date Sampled: 01/13/09
Date Received: 01/16/09

Date Extracted MS/MSD: 01/19/09

Sample Amount MS: 500 mL
MSD: 500 mL
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL

Aliphatic

Date Analyzed MS: 01/27/09 19:27
MSD: 01/27/09 19:50
Instrument/Analyst MS: FID8/JGR
MSD: FID8/JGR

Dilution Factor MS: 1.00
MSD: 1.00

Aromatic

Date Analyzed MS: 01/28/09 05:13
MSD: 01/28/09 05:36
Instrument/Analyst MS: FID8/JGR
MSD: FID8/JGR

Dilution Factor MS: 1.00
MSD: 1.00

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
C8-C10 Aliphatics	< 40.0 U	154	300	51.3%	168	300	56.0%	8.7%
C10-C12 Aliphatics	< 40.0 U	178	300	59.3%	190	300	63.3%	6.5%
C12-C16 Aliphatics	< 40.0 U	230	300	76.7%	240	300	80.0%	4.3%
C16-C21 Aliphatics	< 40.0 U	216	300	72.0%	234	300	78.0%	8.0%
C10-C12 Aromatics	< 40.0 U	214	300	71.3%	216	300	72.0%	0.9%
C12-C16 Aromatics	< 40.0 U	272	300	90.7%	276	300	92.0%	1.5%
C16-C21 Aromatics	< 40.0 U	612	600	102%	610	600	102%	0.3%
C21-C34 Aromatics	< 40.0 U	700	600	117%	690	600	115%	1.4%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-04
MATRIX SPIKE

Lab Sample ID: OI54C
LIMS ID: 09-1900
Matrix: Water
Data Release Authorized:
Reported: 01/28/09

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/13/09
Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 19:27
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 05:13
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	---
C10-C12 Aliphatics	40	---
C12-C16 Aliphatics	40	---
C16-C21 Aliphatics	40	---
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	---
C12-C16 Aromatics	40	---
C16-C21 Aromatics	40	---
C21-C34 Aromatics	40	---


Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	70.8%
Aromatic	o-Terphenyl	88.7%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-04
MATRIX SPIKE DUP

Lab Sample ID: OI54C
LIMS ID: 09-1900
Matrix: Water
Data Release Authorized: 
Reported: 01/28/09

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/13/09
Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 19:50
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 05:36
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	---
C10-C12 Aliphatics	40	---
C12-C16 Aliphatics	40	---
C16-C21 Aliphatics	40	---
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	---
C12-C16 Aromatics	40	---
C16-C21 Aromatics	40	---
C21-C34 Aromatics	40	---

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	75.5%
Aromatic	o-Terphenyl	88.5%



ORGANICS ANALYSIS DATA SHEET
 Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: LCS-011909
 LCS/LCSD

Lab Sample ID: LCS-011909
 LIMS ID: 09-1900
 Matrix: Water
 Data Release Authorized: *[Signature]*
 Reported: 01/28/09

QC Report No: OI54-Pace Analytical
 Project: GOLDER SEM MATERIALS

Date Sampled: NA
 Date Received: NA

Date Extracted LCS/LCSD: 01/19/09

Sample Amount LCS: 500 mL
 LCSD: 500 mL
 Final Extract Volume LCS: 1.0 mL
 LCSD: 1.0 mL

Aliphatic

Date Analyzed LCS: 01/27/09 17:34
 LCSD: 01/27/08 17:57
 Instrument/Analyst LCS: FID8/JGR
 LCSD: FID8/JGR

Dilution Factor LCS: 1.00
 LCSD: 1.00

Aromatic

Date Analyzed LCS: 01/28/09 03:20
 LCSD: 01/28/09 03:43
 Instrument/Analyst LCS: FID8/JGR
 LCSD: FID8/JGR

Dilution Factor LCS: 1.00
 LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
C8-C10 Aliphatics	140	300	46.7%	142	300	47.3%	1.4%
C10-C12 Aliphatics	160	300	53.3%	168	300	56.0%	4.9%
C12-C16 Aliphatics	230	300	76.7%	230	300	76.7%	0.0%
C16-C21 Aliphatics	230	300	76.7%	220	300	73.3%	4.4%
C10-C12 Aromatics	186	300	62.0%	208	300	69.3%	11.2%
C12-C16 Aromatics	270	300	90.0%	282	300	94.0%	4.3%
C16-C21 Aromatics	610	600	102%	610	600	102%	0.0%
C21-C34 Aromatics	718	600	120%	710	600	118%	1.1%

EPH Surrogate Recovery

		LCS	LCSD
Aliphatic	1-Chlorooctadecane	72.5%	71.2%
Aromatic	o-Terphenyl	88.6%	88.7%

Results reported in µg/L
 RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: MB-011909
METHOD BLANK

Lab Sample ID: MB-011909
LIMS ID: 09-1900
Matrix: Water
Data Release Authorized: *MS*
Reported: 01/28/09

QC Report No: OI54-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/13/09
Date Received: 01/16/09

Date Extracted: 01/19/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 17:12
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 02:58
Instrument/Analyst: FID8/JGR

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	75.0%
Aromatic	o-Terphenyl	83.4%

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG							
Mtx	Sample ID (SDG-#)	VTSR	Collected On	Client ID	8270 SIM Super-Low Water SPE (PAHs)	NWTPH DX + Silica Gel (Water)	Subcontract EPH, WADOE 97-602
WD	GOLSP0901-001	01/16/2009 08:00 AM	01/13/2009 11:10 AM	GMW-06	IN	IN	IN
WD	GOLSP0901-002	01/16/2009 08:00 AM	01/13/2009 02:05 PM	GMW-05	IN	IN	IN
WD	*GOLSP0901-003	01/16/2009 08:00 AM	01/13/2009 03:15 PM	GMW-04	IN	IN	IN
WD	GOLSP0901-004	01/16/2009 08:00 AM	01/14/2009 10:55 AM	GMW-03	IN	IN	IN
WD	GOLSP0901-005	01/16/2009 08:00 AM	01/14/2009 03:45 PM	UDCMW-4	IN	IN	IN
Approved By:				On:			
Notes:							
Samples identified with a '*' client has requested QC for							
LEGEND: -:Started , +:Completed , IN:Logged In , P:Preparation , A:Analysis , X:Cancelled, PL:Pre-logged							
Matrices: Water=WD							
FORM LTL-PM-8.0							

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

LS# 10166
 Pace Analytical® SDG: 60LSP0901
 www.paceanalytical.com

Page: 1 of 1

1255219

REGULATORY AGENCY: NPDES GROUND WATER DRINKING WATER RCRA OTHER Ecology

Site Location: STATE: WA

Section C Invoice Information:
 Attention: Doug Morrell
 Company Name: Golder Assoc.
 Address: Redmond, WA 98052
 PACE Quote Reference: 073-93170-02
 PACE Project Manager: Sam Motebels RIFs
 Project Profile #:

Section B Required Project Information:
 Report To: Doug Morrell
 Copy To: Paul Van Middelkoop
 Address: 15800 NE Union Way, Redmond, WA 98052
 Phone: 509-225-3000
 Project Name: Sam Motebels RIFs
 Project Number:

Section D Required Client Information:
 Matrix Codes: DW Drinking Water, WT Water, WW Waste-Water Product, P Soil/Solid, SL Oil, OL Wipe, WP Air, AR Tissue, TS Other, OT
 SAMPLE ID (A-Z, 0-9 / - / -)
 Sample IDs MUST BE UNIQUE

ITEM #	Matrix Codes	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	Requested Analysis Filtered (Y/N)		Residual Chlorine (Y/N)	PACE Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB					DATE	TIME		
1				1/13/09 1110			64	Unpreserved	X				
2				1/13/09 1405			64	H ₂ SO ₄	X				
3				1/13/09 1515			1812	HCl	X				
4				1/14/09 1055			64	HNO ₃	X				
5				1/14/09 1545			64	NaOH	X				
6								Na ₂ S ₂ O ₃					
7								Methanol					
8								Other					
9													
10													
11													
12													

ADDITIONAL COMMENTS: Paul Van Middelkoop 1/14/09 1100
 Paul Van Middelkoop 1/14/09 1100
 Paul Van Middelkoop 1/14/09 1100

RELINQUISHED BY / AFFILIATION: [Signature] DATE: 1/16/09 TIME: 8:00

ACCEPTED BY / AFFILIATION: [Signature] DATE: 1/16/09 TIME: 8:00

Temp In °C: []

Received on Ice (Y/N): []

Custody Sealed / Cooler (Y/N): []

Samples Intact (Y/N): []

SAMPLER NAME AND SIGNATURE: Paul Van Middelkoop
 PRINT Name of SAMPLER: Paul Van Middelkoop
 SIGNATURE of SAMPLER: [Signature] DATE Signed: 1/14/09
 ID: []

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0901 Taken By: client
Cooler: AAN031 Transferred: fedex
COC #: 1255219
Project: SemMaterials Spokane Facility RI (Golder Associates)

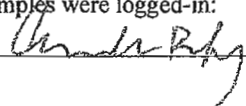
Date samples were received at the laboratory: 1/16/2009
Date cooler was opened: 1/16/2009 8:00AM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 863591106874
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: 1/15/2009 Custody Seals Description: one in front
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: ARZ

B. LOG-IN PHASE:

Date samples were logged-in: 1/16/2009 9:38AM

Logged-in by Amanda Ruby (sign) 

9. Describe type of packing in cooler:
bottles wrapped in bubble wrap, in bags, on ice
10. Were all bottles sealed in separate plastic bags? YES
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 2.1

DISCREPANCIES:

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0901 Taken By: client
Cooler: AAD798 Transferred: fedex
COC #: 1255219
Project: SemMaterials Spokane Facility RI (Golder Associates)

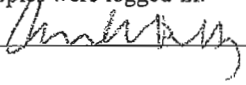
Date samples were received at the laboratory: 1/16/2009
Date cooler was opened: 1/16/2009 8:00AM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 863591106874
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: 1/15/2009 Custody Seals Description: one in front
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: AR

B. LOG-IN PHASE:

Date samples were logged-in: 1/16/2009 9:57AM

Logged-in by Amanda Ruby (sign) 

9. Describe type of packing in cooler:
bottles in bubble wrap, in plastic bags on ice
10. Were all bottles sealed in separate plastic bags? YES
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 1.4

DISCREPANCIES:

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0901 Taken By: client
Cooler: AAD582 Transferred: fedex
COC #: 1255219
Project: SemMaterials Spokane Facility RI (Golder Associates)

Date samples were received at the laboratory: 1/16/2009
Date cooler was opened: 1/16/2009 8:00AM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 863591106874
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: 1/15/2009 Custody Seals Description: one in front
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: AP

B. LOG-IN PHASE:

Date samples were logged-in: 1/16/2009 10:03AM
Logged-in by Amanda Ruby (sign) *Amanda Ruby*

9. Describe type of packing in cooler:
bottles wrapped in bubble wrap, in plastic bags, o
10. Were all bottles sealed in separate plastic bags? YES
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 2.3

DISCREPANCIES:

**Supplemental Sample Receipt Log
Pace Analytical Services, Inc.**

SDG: GOLSP0901
Cooler: AAN031
Temperatures: 2.1
COC #: 1255219

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0901-001	0001	500 ml boston round, amber glass	7	N/A
	0002	500 ml boston round, amber glass	7	N/A
GOLSP0901-002	0001	500 ml boston round, amber glass	7	N/A
	0002	500 ml boston round, amber glass	7	N/A
GOLSP0901-003	0001	1000 mL boston round, amber glass, HCl	<2	N/A
	0002	1000 mL boston round, amber glass, HCl	<2	N/A
	0003	1000 mL boston round, amber glass, HCl	<2	N/A
	0004	500 ml boston round, amber glass	7	N/A
	0005	500 ml boston round, amber glass	7	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Base Preserved pH pH must be greater than 12
 NC Not Checked for pH

**Supplemental Sample Receipt Log
Pace Analytical Services, Inc.**

SDG: GOLSP0901
Cooler: AAF202
Temperatures: 2.8
COC #: 1255219

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0901-001	0003	1000 mL boston round, amber glass	7	N/A
	0004	1000 mL boston round, amber glass	7	N/A
	0005	1000 mL boston round, amber glass, HCl	<2	N/A
	0006	1000 mL boston round, amber glass, HCl	<2	N/A
GOLSP0901-002	0003	1000 mL boston round, amber glass	7	N/A
	0004	1000 mL boston round, amber glass	7	N/A
	0005	1000 mL boston round, amber glass, HCl	<2	N/A
	0006	1000 mL boston round, amber glass, HCl	<2	N/A
GOLSP0901-003	0006	1000 mL boston round, amber glass, HCl	<2	N/A
	0007	1000 mL boston round, amber glass, HCl	<2	N/A
	0008	1000 mL boston round, amber glass, HCl	<2	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Base Preserved pH pH must be greater than 12
 NC Not Checked for pH

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0901
Cooler: AAD798
Temperatures: 1.4
COC #: 1255219

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0901-003	0009	1000 mL boston round, amber glass	7	N/A
	0010	1000 mL boston round, amber glass	7	N/A
	0011	1000 mL boston round, amber glass	7	N/A
	0012	1000 mL boston round, amber glass	7	N/A
	0013	1000 mL boston round, amber glass	7	N/A
	0014	1000 mL boston round, amber glass	7	N/A
	0015	500 ml boston round, amber glass	7	N/A
	0016	500 ml boston round, amber glass	7	N/A
	0017	500 ml boston round, amber glass	7	N/A
GOLSP0901-004	0018	500 ml boston round, amber glass	7	N/A
	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass	7	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Base Preserved pH pH must be greater than 12
 NC Not Checked for pH

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0901
Cooler: AAD582
Temperatures: 2.3
COC #: 1255219

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0901-004	0003	1000 mL boston round, amber glass, HCl	<2	N/A
	0004	1000 mL boston round, amber glass, HCl	<2	N/A
	0005	500 ml boston round, amber glass	7	N/A
	0006	500 ml boston round, amber glass	7	N/A
GOLSP0901-005	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass	7	N/A
	0003	1000 mL boston round, amber glass, HCl	<2	N/A
	0004	1000 mL boston round, amber glass, HCl	<2	N/A
	0005	500 ml boston round, amber glass	7	N/A
	0006	500 ml boston round, amber glass	7	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

**DATA VALIDATION
GOLSP0901**

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: All holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not Applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep. Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS); Chart other Contaminants: Qualif. Results <5X RLS according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Examples:

Comments/Qualified Results: _____

No detects in blanks.

MDL	BLANK		SAMPLE		Q
	Result	PQL	Result	Applied	
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....

- Yes Surrogates analyzed
- Yes Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)
- Recoveries above Method Control limits (J detects only)
- Recoveries below Method Control limits but >20% (J/UJ)
- Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results _____

6. Duplicate, Field Duplicates (Check all that apply).....

- Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL Parent ID:
- Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL Duplicate ID:
- Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results Not Applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

- LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]
- LCS %R 50-79% or >120%, results >IDL estimated (J)
- LCS %R 50-79% and results <IDL estimated (UJ)
- LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Recoveries met.

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

- MS/MSD %R 80-120% SPIKED SAMPLE IDs: GMW-04
- MS/MSD %R 50-79% or >120%, results >IDL estimated (J)
- MS/MSD %R 50-79% and results <IDL estimated (UJ)
- MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: _____

Batch 37671: SVOA MS/MSD on Sample GMW-04 ; No qualified analytes;

" 37663: NWTPH-Dx MS; on Sample GMW-04; No qualified analytes;

" OI54C: EPH MS/MSD on sample GMW-4; No qualification applied.

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported ~~in raw data~~; [Raw data provided / (Not Provided)] *TRD*
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____
_____ All associated samples targeted for extractable Petroleum hydrocarbons in this
SDG.

10. Overall Assessment..... Acceptable: ~~Yes~~ NO

Comments/Qualified Results: _____



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Client: Golder Associates
18300 NE Union Hill Rd, #200
Redmond, WA 98052-3333

Project Name:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Date Received:	1/17/2009 12:00:00PM
		Date Reported:	02/02/2009

Enclosed are the analytical results for the sample(s) received by the laboratory on January 17, 2009. The results relate only to the samples included in this report. Unless otherwise instructed all samples with the exception of samples which are consumed during the analysis, such as microbiological samples, will be disposed of on or after May 1, 2009. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

If you have any question concerning the report, please feel free to contact me.

Respectfully submitted,
Pace Analytical Services, Inc.

A handwritten signature in black ink, appearing to read 'Shannon Schelinder', written in a cursive style.

Shannon Schelinder



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Sample Summary

Project:	SemMaterials Spokane Facility R1	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	

Sample Identification:

Sample Description	Lab Sample ID	Collection Date/Time		Type
GMW-01	GOLSP0902-001	01/14/2009	12:15	Water
GMW-02	GOLSP0902-002	01/14/2009	14:05	Water
GMW-22	GOLSP0902-003	01/14/2009	14:07	Water
GMW-27	GOLSP0902-004	01/14/2009	16:20	Water



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Test Request Summary

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Pace Project No.:	073-93170-02	Project Manager:	

Samples	Methods								
	Subcon 1	NWTPH-2	8270-P 3						
Client Sample ID									
GMW-01	X	X	X						
GMW-02	X	X	X						
GMW-22	X	X	X						
GMW-27	X	X	X						

Determinations:

- 1 = Subcontract EPH, WADOE 97-602
- 2 = NWTPH DX + Silica Gel (Water)
- 3 = 8270 SIM Super-Low Water SPE(PAHs)



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-01	Matrix:	Water
Collected On:	1/14/09 12:15	Lab Sample ID:	GOLSP0902-001
Received On:	1/17/09 12:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthenc	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	73	% Rec	1		30-110	Q37749	01/20/2009	01/26/2009	
Fluorene-d10	64	% Rec	1		45-130	Q37749	01/20/2009	01/26/2009	
Pyrene-d10	67	% Rec	1		50-140	Q37749	01/20/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1	38	100	Q37694	01/19/2009	01/27/2009	
Oil Range Organics	ND	ug/L	1	62	510	Q37694	01/19/2009	01/27/2009	
<i>Surrogates:</i>									
o-Terphenyl	114	% Rec	1		50-150	Q37694	01/19/2009	01/27/2009	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-02	Matrix:	Water
Collected On:	1/14/09 14:05	Lab Sample ID:	GOLSP0902-002
Received On:	1/17/09 12:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	94	% Rec	1		30-110	Q37749	01/20/2009	01/26/2009	
Fluorene-d10	84	% Rec	1		45-130	Q37749	01/20/2009	01/26/2009	
Pyrene-d10	85	% Rec	1		50-140	Q37749	01/20/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1	37	100	Q37694	01/19/2009	01/27/2009	
Oil Range Organics	ND	ug/L	1	61	500	Q37694	01/19/2009	01/27/2009	
<i>Surrogates:</i>									
o-Terphenyl	93	% Rec	1		50-150	Q37694	01/19/2009	01/27/2009	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-22	Matrix:	Water
Collected On:	1/14/09 14:07	Lab Sample ID:	GOLSP0902-003
Received On:	1/17/09 12:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	74	% Rec	1		30-110	Q37749	01/20/2009	01/26/2009	
Fluorene-d10	65	% Rec	1		45-130	Q37749	01/20/2009	01/26/2009	
Pyrene-d10	67	% Rec	1		50-140	Q37749	01/20/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1	37	100	Q37694	01/19/2009	01/27/2009	
Oil Range Organics	ND	ug/L	1	61	500	Q37694	01/19/2009	01/27/2009	
<i>Surrogates:</i>									
o-Terphenyl	75	% Rec	1		50-150	Q37694	01/19/2009	01/27/2009	



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Analytical Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
Client Sample ID:	GMW-27	Matrix:	Water
Collected On:	1/14/09 16:20	Lab Sample ID:	GOLSP0902-004
Received On:	1/17/09 12:00		

Analyte	Result	Units	DF	Detection Limit Threshold	Reporting Limit	QC Batch Group	Prepared	Analyzed	Qualifiers
SIM Semivolatile Organic Compounds by GC/MS				Methods (Preparation Analysis): 3535 8270-PNA					
Naphthalene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Acenaphthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluorene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Phenanthrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Chrysene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(b)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(k)fluoranthene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(a)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
Benzo(g,h,i)perylene	ND	ug/L	1		0.0095	Q37749	01/20/2009	01/26/2009	
<i>Surrogates:</i>									
1-Fluoronaphthalene	71	% Rec	1		30-110	Q37749	01/20/2009	01/26/2009	
Fluorene-d10	60	% Rec	1		45-130	Q37749	01/20/2009	01/26/2009	
Pyrene-d10	59	% Rec	1		50-140	Q37749	01/20/2009	01/26/2009	
NWTPH Diesel				Methods (Preparation Analysis): 3510C NWTPH-D					
Diesel Range Organics	ND	ug/L	1	37	100	Q37694	01/19/2009	01/27/2009	
Oil Range Organics	ND	ug/L	1	61	500	Q37694	01/19/2009	01/27/2009	
<i>Surrogates:</i>									
o-Terphenyl	106	% Rec	1		50-150	Q37694	01/19/2009	01/27/2009	



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Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	

QC Batch(es):	Q37694	Analysis Method:	NWTPH-D
QC Batch Method:	3510C (NWTPH)	Analysis Description:	NWTPH Diesel
Preparation Started:	01/19/2009		

Blank: B011909GSVWLA

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Diesel Range Organics	ND	ug/L	1	37	50	
Oil Range Organics	ND	ug/L	1	61	250	
<i>Surrogates:</i>					% Rec	
o-Terphenyl			1		108	50-150

LCS: S011909GSVWLA
LCS Duplicate: SD011909GSVWLA

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	RPD	RPD Limit	Qualifiers
Diesel Range Organics	5500	ug/L	1	5050	109	51-147			
	5500			5050	109	51-147	0	50	
<i>Surrogates:</i>									
o-Terphenyl			1		112	50-150			
					108	50-150			



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Quality Control Results

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Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
QC Batch(es):	Q37749	Analysis Method:	8270-PNA
QC Batch Method:	3535(PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	01/20/2009		
Blank: B012009MPNWLO			

Analyte	Blank Result	Units	DF	Detection Limit Threshold	Control Limit	Qualifiers
Naphthalene	ND	ug/L	1		0.005	
Acenaphthylene	ND	ug/L	1		0.005	
Acenaphthene	ND	ug/L	1		0.005	
Fluorene	ND	ug/L	1		0.005	
Phenanthrene	ND	ug/L	1		0.005	
Anthracene	ND	ug/L	1		0.005	
Fluoranthene	ND	ug/L	1		0.005	
Pyrene	ND	ug/L	1		0.005	
Benzo(a)anthracene	ND	ug/L	1		0.005	
Chrysene	ND	ug/L	1		0.005	
Benzo(b)fluoranthene	ND	ug/L	1		0.005	
Benzo(k)fluoranthene	ND	ug/L	1		0.005	
Benzo(a)pyrene	ND	ug/L	1		0.005	
Indeno(1,2,3-cd)pyrene	ND	ug/L	1		0.005	
Dibenzo(a,h)anthracene	ND	ug/L	1		0.005	
Benzo(g,h,i)perylene	ND	ug/L	1		0.005	
<i>Surrogates:</i>					% Rec	
1-Fluoronaphthalene			1		73	30-110
Fluorene-d10			1		69	45-130
Pyrene-d10			1		74	50-140

LCS: S012009MPNWLO
LCS Duplicate: S012009MPNWLO2

Analyte	Blank Spike Result	Units	DF	Spike Conc.	% Rec	Limits	RPD	RPD Limit	Qualifiers
Naphthalene	1.2	ug/L	1	1.25	92	20-160			
	1.2			1.25	92	20-160	0	50	
Acenaphthylene	1.1	ug/L	1	1.25	91	20-160			
	1.0			1.25	83	20-160	9	50	
Acenaphthene	1.1	ug/L	1	1.25	86	20-160			
	0.95			1.25	76	20-160	13	50	
Fluorene	1.1	ug/L	1	1.25	84	20-160			
	0.97			1.25	77	20-160	8	50	
Phenanthrene	1.1	ug/L	1	1.25	90	20-160			
	1.1			1.25	90	20-160	1	50	
Anthracene	1.2	ug/L	1	1.25	94	20-160			
	1.2			1.25	92	20-160	1	50	
Fluoranthene	1.2	ug/L	1	1.25	96	20-160			
	1.2			1.25	95	20-160	1	50	
Pyrene	1.1	ug/L	1	1.25	91	20-160			
	1.1			1.25	89	20-160	3	50	
Benzo(a)anthracene	1.2	ug/L	1	1.25	92	20-160			
	1.1			1.25	88	20-160	4	50	
Chrysene	1.2	ug/L	1	1.25	92	20-160			
	1.1			1.25	91	20-160	1	50	
Benzo(b)fluoranthene	1.2	ug/L	1	1.25	98	20-160			
	1.2			1.25	97	20-160	1	50	



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Quality Control Results

Project:	SemMaterials Spokane Facility RI	SDG Number:	GOLSP0902
Project Number:	073-93170-02	Project Manager:	
QC Batch(es):	Q37749	Analysis Method:	8270-PNA
QC Batch Method:	3535(PNA)	Analysis Description:	SIM Semivolatile Organic Compounds by GC/MS
Preparation Started:	01/20/2009		
LCS: S012009MPNWLO			
LCS Duplicate: S012009MPNWLO2			

Analyte	Blank Spike		DF	Spike		% Rec	Limits	RPD	RPD Limit	Qualifiers
	Result	Units		Conc.						
Benzo(k)fluoranthene	1.1	ug/L	1	1.25		89	20-160			
	1.1			1.25		85	20-160	5	50	
Bcnzo(a)pyrene	1.1	ug/L	1	1.25		92	20-160			
	1.1			1.25		88	20-160	4	50	
Indeno(1,2,3-cd)pyrene	1.2	ug/L	1	1.25		93	20-160			
	1.1			1.25		90	20-160	3	50	
Dibenzo(a,h)anthracenc	1.2	ug/L	1	1.25		100	20-160			
	1.2			1.25		96	20-160	3	50	
Benzo(g,h,i)perylenc	1.2	ug/L	1	1.25		98	20-160			
	1.2			1.25		94	20-160	3	50	
<i>Surrogates:</i>										
1-Fluoronaphthalene			1			85	30-110			
						81	30-110			
Fluorenc-d10			1			80	45-130			
						73	45-130			
Pyrenc-d10			1			83	50-140			
						77	50-140			



Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
Phone: (206)767-5060
Fax: (206)767-5063

Pace Analytical Services, Inc.

Notes and Definitions

SDG No: **GOLSP0902**

Report Specific Notes:

ND The analyte of interest was not detected, to the limit of detection indicated

Laboratory Reporting Conventions:

DF	Dilution factor
Detection Limit Threshold	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value.
MDL	The project or method defined limit that defines the lower bound for estimated results. This may be the MDL or IDL or a project-specified value. Detection Limit Thresholds are listed on the report only if the data has been evaluated below the Reporting Limit. Results between the Reporting Limit and the Detection Limit Threshold are reported as estimated results.
IDL	Instrument Detection Limit. IDLs are in instrument basis units. Reported results for samples are normalized appropriately using the preparation and analysis steps performed.
Reporting Limit	The minimum detection limit for reporting unqualified results under routine laboratory operating conditions. Typically this is the PQL but it may be a different concentration on a project-specific basis.
QC Batch Group	Quality Control Batch Group. The entity that links analytical results and supporting quality control results.
% Rec	Percent recovery.
Limits	The upper and lower control limits for spike recoveries.
RPD	Relative Percent Difference. The relative difference between duplicate results (matrix spike, blank spike, or sample duplicate) expressed as a percentage.
RPD Limit	The maximum RPD allowed for a set of duplicate measurements (see RPD).
Spike conc.	The measured concentration, in sample basis units, of a spiked sample.
PQL	Practical Quantitation Limit. The quantitation limit achievable by the laboratory under routine operating conditions. The PQL will be normalized for deviations from these conditions such as dilutions, dry weight adjustment, etc.
LCS	Laboratory Control Sample



Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 28, 2009

Shannon Schelinder
Pace Analytical
940 S. Harney Street
Seattle, WA 98108

RE: Client Project: Golder Sem Materials
ARI Job No.: OI82

Dear Shannon:

Please find enclosed the original Chain of Custody (COC) record, sample receipt documentation, and final analytical results for the samples from the project referenced above. Analytical Resources Inc. (ARI) accepted four water samples on January 20, 2009. The cooler temperature measured by IR thermometer following ARI SOP was 7.2°C and the samples were iced. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for EPH as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report as well as all associated raw data will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Cheronne Oreiro".

Cheronne Oreiro
Project Manager
206-695-6214
cheronneo@arilabs.com
www.arilabs.com

Enclosures

cc: eFile OI82

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



www.pacelabs.com

Section A Required Client Information: Company: <u>Pace Analytical Svc.</u> Address: <u>940 S. Harvey St</u> <u>Seattle WA 98108</u> Email To: <u>Shannon.Schneider@pace.com</u> Phone: <u>206-957-2449</u> Requested Due Date/TAT: _____		Section B Required Project Information: Report To: <u>Shannon Schneider</u> Copy To: _____ Purchase Order No.: _____ Project Name: <u>Golden Stem materials</u> Project Number: _____	
Section C Invoice Information: Attention: _____ Company Name: _____ Address: _____ Pace Quote Reference: _____ Pace Project Manager: _____ Pace Profile #: _____		Regulatory Agency: <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____ Site Location: _____ STATE: <u>WA</u>	

Page: 1 of 1

1221838

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test (Y/N)	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB							
			DATE	TIME	DATE	TIME						
		Drinking Water	WT	11/4	12:15		2	Unpreserved	X			GOL-SP0102-1
		Waste Water			14:05		2	H ₂ SO ₄	X			-2
		Waste Water			14:07		1	HCl	X			-3
		Soil/Solid			16:20		2	HNO ₃	X			-4

REQUISITIONED BY / AFFILIATION	DATE <td>TIME</td> <td>ACCEPTED BY / AFFILIATION</td> <td>DATE <td>TIME</td> <td>SAMPLE CONDITIONS</td> </td>	TIME	ACCEPTED BY / AFFILIATION	DATE <td>TIME</td> <td>SAMPLE CONDITIONS</td>	TIME	SAMPLE CONDITIONS
<u>Shannon Schneider</u>	11/20	9:50	<u>Gami Hays</u>	11/20/08	10:45	
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: _____ SIGNATURE of SAMPLER: _____ DATE Signed (MM/DD/YY): _____						
Temp in °C	Received on	Custody	Sealed Cooler	Samples Intact		

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Cooler Receipt Form

ARI Client: Pace
COC No: _____
Assigned ARI Job No: OIS2

Project Name: _____
Delivered by: FedEx
Tracking No: _____

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO
 Were custody papers included with the cooler? YES NO
 Were custody papers properly filled out (ink, signed, etc.) YES NO
 Record cooler temperature (recommended 2.0-6.0 °C for chemistry) 7.2 °C

Cooler Accepted by: JH Date: 1/20/09 Time: 10:50

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
 What kind of packing material was used? blueto
 Was sufficient ice used (if appropriate)? YES NO
 Were all bottles sealed in individual plastic bags? YES NO
 Did all bottle arrive in good condition (unbroken)? YES NO
 Were all bottle labels complete and legible? YES NO
 Did all bottle labels and tags agree with custody papers? YES NO
 Were all bottles used correct for the requested analyses? YES NO
 Do any of the analyses (bottles) require preservation? (attach preservation checklist) YES NO
 Were all VOC vials free of air bubbles? NA YES NO
 Was sufficient amount of sample sent in each bottle? YES NO

Samples Logged by: JH Date: 1/20/09 Time: 10:50

**** Notify Project Manager of discrepancies or concerns ****

Explain discrepancies or negative responses:

By: _____ Date: _____

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-01
SAMPLE

Lab Sample ID: OI82A
LIMS ID: 09-2036
Matrix: Water
Data Release Authorized: *AB*
Reported: 01/28/09

QC Report No: OI82-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/14/09
Date Received: 01/20/09

Date Extracted: 01/20/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 14:55
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 00:43
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	62.9%
Aromatic	o-Terphenyl	59.9%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: GMW-02
 SAMPLE

Lab Sample ID: OI82B
 LIMS ID: 09-2037
 Matrix: Water

QC Report No: OI82-Pace Analytical
 Project: GOLDER SEM MATERIALS

Data Release Authorized:
 Reported: 01/28/09

Date Sampled: 01/14/09
 Date Received: 01/20/09

Date Extracted: 01/20/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 15:18
 Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 01:05
 Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	64.6%
Aromatic	o-Terphenyl	69.8%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-22
SAMPLE

Lab Sample ID: OI82C
LIMS ID: 09-2038
Matrix: Water
Data Release Authorized: *AS*
Reported: 01/28/09

QC Report No: OI82-Pace Analytical
Project: GOLDER SEM MATERIALS
Date Sampled: 01/14/09
Date Received: 01/20/09

Date Extracted: 01/20/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 15:40
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 01:28
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	77.2%
Aromatic	o-Terphenyl	75.5%

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
Page 1 of 1

Sample ID: GMW-27
SAMPLE

Lab Sample ID: OI82D
LIMS ID: 09-2039
Matrix: Water

QC Report No: OI82-Pace Analytical
Project: GOLDER SEM MATERIALS

Data Release Authorized: *[Signature]*
Reported: 01/28/09

Date Sampled: 01/14/09
Date Received: 01/20/09

Date Extracted: 01/20/09

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 16:03
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/28/09 01:50
Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	64.4%
Aromatic	o-Terphenyl	66.8%

ALIPHATIC EPH WATER SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: OI82-Pace Analytical
Project: GOLDER SEM MATERIALS

<u>Client ID</u>	<u>COD</u>	<u>TOT OUT</u>
MB-012009	56.8%	0
LCS-012009	62.2%	0
LCSD-012009	72.0%	0
GMW-01	62.9%	0
GMW-02	64.6%	0
GMW-22	77.2%	0
GMW-27	64.4%	0

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(COD) = 1-Chlorooctadecane	(36-112)	(31-112)

Prep Method: SW3510C
Log Number Range: 09-2036 to 09-2039

AROMATIC EPH WATER SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: OI82-Pace Analytical
Project: GOLDER SEM MATERIALS

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-012009	64.3%	0
LCS-012009	77.7%	0
LCSD-012009	83.1%	0
GMW-01	59.9%	0
GMW-02	69.8%	0
GMW-22	75.5%	0
GMW-27	66.8%	0

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(OTER) = o-Terphenyl	(51-108)	(44-112)

Prep Method: SW3510C
Log Number Range: 09-2036 to 09-2039

ORGANICS ANALYSIS DATA SHEET

Aliphatic/Aromatic GC-EPH

Page 1 of 1

Sample ID: LCS-012009

LCS/LCSD

Lab Sample ID: LCS-012009

LIMS ID: 09-2036

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 01/28/09

QC Report No: OI82-Pace Analytical

Project: GOLDER SEM MATERIALS

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 01/20/09

Sample Amount LCS: 500 mL

LCSD: 500 mL

Final Extract Volume LCS: 1.0 mL

LCSD: 1.0 mL

Aliphatic

Date Analyzed LCS: 01/27/09 14:09

LCSD: 01/27/09 14:32

Instrument/Analyst LCS: FID8/MS

LCSD: FID8/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Aromatic

Date Analyzed LCS: 01/27/09 23:58

LCSD: 01/28/09 00:20

Instrument/Analyst LCS: FID8/MS

LCSD: FID8/MS

Dilution Factor LCS: 1.00

LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
C8-C10 Aliphatics	150	300	50.0%	156	300	52.0%	3.9%
C10-C12 Aliphatics	170	300	56.7%	180	300	60.0%	5.7%
C12-C16 Aliphatics	210	300	70.0%	230	300	76.7%	9.1%
C16-C21 Aliphatics	200	300	66.7%	224	300	74.7%	11.3%
C10-C12 Aromatics	200	300	66.7%	206	300	68.7%	3.0%
C12-C16 Aromatics	250	300	83.3%	268	300	89.3%	6.9%
C16-C21 Aromatics	548	600	91.3%	574	600	95.7%	4.6%
C21-C34 Aromatics	624	600	104%	650	600	108%	4.1%

EPH Surrogate Recovery

		LCS	LCSD
Aliphatic	1-Chlorooctadecane	62.2%	72.0%
Aromatic	o-Terphenyl	77.7%	83.1%

Results reported in µg/L

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
Aliphatic/Aromatic GC-EPH
 Page 1 of 1

Sample ID: MB-012009
 METHOD BLANK

Lab Sample ID: MB-012009
 LIMS ID: 09-2036
 Matrix: Water
 Data Release Authorized: *[Signature]*
 Reported: 01/28/09

QC Report No: OI82-Pace Analytical
 Project: GOLDER SEM MATERIALS
 Date Sampled: 01/14/09
 Date Received: 01/20/09

Date Extracted: 01/20/09

Sample Amount: 500 mL
 Final Extract Volume: 1.0 mL

Aliphatic

Date Analyzed: 01/27/09 13:46
 Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Aromatic

Date Analyzed: 01/27/09 23:35
 Instrument/Analyst: FID8/MS

Dilution Factor: 1.00

Range	RL	Result
C8-C10 Aliphatics	40	< 40 U
C10-C12 Aliphatics	40	< 40 U
C12-C16 Aliphatics	40	< 40 U
C16-C21 Aliphatics	40	< 40 U
C21-C34 Aliphatics	40	< 40 U
C8-C10 Aromatics	40	< 40 U
C10-C12 Aromatics	40	< 40 U
C12-C16 Aromatics	40	< 40 U
C16-C21 Aromatics	40	< 40 U
C21-C34 Aromatics	40	< 40 U

Reported in $\mu\text{g/L}$ (ppb)

EPH Surrogate Recovery

Aliphatic	1-Chlorooctadecane	56.8%
Aromatic	o-Terphenyl	64.3%

PACE ANALYTICAL SERVICES, INC. - SAMPLE CONFIRMATION LOG							
Mtx	Sample ID (SDG-#)	VTSR	Collected On	Client ID	8270 SIM Super-Low Water SPE (PAHs)	NWTPH DX + Silica Gel (Water)	Subcontract EPH, WADOE 97-602
WD	GOLSP0902-001	01/17/2009 12:00 PM	01/14/2009 12:15 PM	GMW-01	IN	P-	IN
WD	GOLSP0902-002	01/17/2009 12:00 PM	01/14/2009 02:05 PM	GMW-02	IN	P-	IN
WD	GOLSP0902-003	01/17/2009 12:00 PM	01/14/2009 02:07 PM	GMW-22	IN	P-	IN
WD	GOLSP0902-004	01/17/2009 12:00 PM	01/14/2009 04:20 PM	GMW-27	IN	P-	IN
Approved By:				On:			
Notes:							
Samples identified with a '*' client has requested QC for							
LEGEND: -:Started , +:Completed , IN:Logged In , P:Preparation , A:Analysis , X:Cancelled, PL:Pre-logged							
Matrices: Water=WD							
FORM LTL-PM-8.0							

6068P002
LS # 10180

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Pace Analytical
www.pacelabs.com

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Golden Assoc	Report To:	Doug Morell	Attention:	Doug Morell
Address:	18300 Union Hill Rd Redmond, WA	Copy To:	Paul Van Millersmith	Company Name:	Golden Assoc
Email To:	PaulVanMillersmith@Golden.com	Purchase Order No.:		Address:	Redmond, WA
Phone:	(509) 755-3000	Project Name:	Sam Materials	Pace Profile #:	
Requested Due Date/TAT:	STL	Project Number:	073-93170-02	Pace Project Manager:	

Page: 1 of 1
1255359

REGULATORY AGENCY:
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER Ecology

Site Location: WA
STATE: WA

ITEM #	SAMPLE ID (A-Z, 0-9, /, -) Sample IDs MUST BE UNIQUE	MATRIX CODES MATRIX / CODE Drinking Water: DW Waste Water: WT Water: WW Product: P Self-Solid: SL Oil: OL Wipe: WP Air: AR Tissue: TS Other: OT	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives H ₂ SO ₄ Unpreserved HNO ₃ HCl NaOH Na ₂ S ₂ O ₃ Methanol Other	Requested Analysis Filtered (Y/N)	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
			COMPOSITE START	COMPOSITE END/GRAB								
1	GMW-01	WT	11/4/09	1215		6		N				
2	GMW-02	WT	1405			6		N				
3	GMW-22		1407			6		N				
4	GMW-27		1620			6		N				
5	UPCMW-4		1545			6		N				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Paul Van Millersmith	11/18/09	1620	Paul Van Millersmith	11/17/09	1200	

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Paul Van Millersmith
 SIGNATURE of SAMPLER: Paul Van Millersmith
 DATE Signed: 11/17/09

ORIGINAL

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0902 Taken By: Client
Cooler: AAN067 Transferred: FedEx
COC #: 1255359
Project: SemMaterials Spokane Facility RI (Golder Associates)

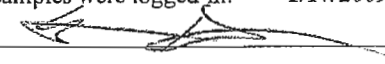
Date samples were received at the laboratory: **1/17/2009**
Date cooler was opened: **1/17/2009 12:00PM**

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? **YES**
if YES, record carrier name and airbill number: **867518917155**
2. Were custody seals unbroken and intact at the date and time of arrival? **INTACT**
Date On Custody Seal: **1/16/2009** Custody Seals Description: **1 on front left**
3. Were custody papers sealed in a plastic bag and taped inside to the lid? **YES**
4. Did you screen samples for radioactivity using the Geiger Counter? **NO**
5. Were custody papers filled out properly (ink, signed, etc.)? **YES**
6. Did you sign custody papers in the appropriate place? **YES**
7. If required, was enough cooling material present? **YES**
8. Have designated person initial here to acknowledge receipt of cooler: PIB

B. LOG-IN PHASE:

Date samples were logged-in: **1/17/2009 3:05PM**

Logged-in by Peter Barnhill (sign) 

9. Describe type of packing in cooler:

Gel ice, bubble wrap, bubble bags, and ice bags

10. Were all bottles sealed in separate plastic bags? **YES**
11. Were labels in good condition? **YES**
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? **YES**
13. Did all bottle labels agree with custody papers? **YES**
14. Were correct containers used for the tests indicated? **YES**
15. Were the correct pHs observed? **YES**
16. Was a sufficient amount of sample sent for tests indicated? **YES**
17. Were bubbles absent in VOA samples? **YES**
18. Temperatures: **0.7**

DISCREPANCIES:

Sample #3 did not include 2 500mL AG.unpres bottles as indicated on the COC, instead the sample has 1 1000mL AG.unpres. This bottle was included in the sample in place of the 2 missing bottles.
Sample #4 did not include 2 500mL AG.unpres bottles as indicated on the COC, instead the sample has 2 1000mL AG.unpres. These bottles were included in the sample in place of the 2 missing bottles.
Sample UDCMW-4 was not included in the coolers and is missing. The COC shows that this sample should be composed of 2 1000mL AG.unpres, 2 1000mL AG.HCl, and 2 500mL AG.unpres bottles.

Cooler Receipt Form
Pace Analytical Services, Inc.

SDG: GOLSP0902 Taken By: Client
Cooler: AAD926 Transferred: FedEx
COC #: 1255359
Project: SemMaterials Spokane Facility RI (Golder Associates)


Date samples were received at the laboratory: 1/17/2009
Date cooler was opened: 1/17/2009 12:00PM

A. PRELIMINARY EXAMINATION PHASE:

1. Did cooler come with a shipping slip (airbill, etc.)? YES
if YES, record carrier name and airbill number: 795524764044
2. Were custody seals unbroken and intact at the date and time of arrival? INTACT
Date On Custody Seal: 1/16/2009 Custody Seals Description: 1 on front left
3. Were custody papers sealed in a plastic bag and taped inside to the lid? YES
4. Did you screen samples for radioactivity using the Geiger Counter? NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES
6. Did you sign custody papers in the appropriate place? YES
7. If required, was enough cooling material present? YES
8. Have designated person initial here to acknowledge receipt of cooler: PB

B. LOG-IN PHASE:

Date samples were logged-in: 1/17/2009 3:05PM

Logged-in by Peter Barnhill (sign) 

9. Describe type of packing in cooler:
Gel ice, bubble wrap, bubble bags, and ice bags
10. Were all bottles sealed in separate plastic bags? YES
11. Were labels in good condition? YES
12. Were all bottle labels complete (ID,date,time signature,preservative,etc.)? YES
13. Did all bottle labels agree with custody papers? YES
14. Were correct containers used for the tests indicated? YES
15. Were the correct pHs observed? YES
16. Was a sufficient amount of sample sent for tests indicated? YES
17. Were bubbles absent in VOA samples? YES
18. Temperatures: 2.0

DISCREPANCIES:

Sample #3 did not include 2 500mL AG.unpres bottles as indicated on the COC, instead the sample has 1 1000mL AG.unpres. This bottle was included in the sample in place of the 2 missing bottles.
Sample #4 did not include 2 500mL AG.unpres bottles as indicated on the COC, instead the sample has 2 1000mL AG.unpres. These bottles were included in the sample in place of the 2 missing bottles.
Sample UDCMW-4 was not included in the coolers and is missing. The COC shows that this sample should be composed of 2 1000mL AG.unpres, 2 1000mL AG.HCl, and 2 500mL AG.unpres bottles.

**Supplemental Sample Receipt Log
Pace Analytical Services, Inc.**

SDG: GOLSP0902
Cooler: AAF897
Temperatures: 0.3
COC #: 1255359

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0902-001	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass	7	N/A
	0003	1000 mL boston round, amber glass, HCl	<2	N/A
	0004	1000 mL boston round, amber glass, HCl	<2	N/A
	0005	500 ml boston round, amber glass	7	N/A
	0006	500 ml boston round, amber glass	7	N/A
GOLSP0902-004	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass	7	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
Base Preserved pH pH must be greater than 12
NC Not Checked for pH

**Supplemental Sample Receipt Log
Pace Analytical Services, Inc.**

SDG: GOLSP0902
Cooler: AAN067
Temperatures: 0.7
COC #: 1255359

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0902-002	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass	7	N/A
	0003	1000 mL boston round, amber glass, HCl	<2	N/A
	0004	1000 mL boston round, amber glass, HCl	<2	N/A
	0005	500 ml boston round, amber glass	7	N/A
	0006	500 ml boston round, amber glass	7	N/A
GOLSP0902-003	0001	1000 mL boston round, amber glass	7	N/A
	0002	1000 mL boston round, amber glass, HCl	<2	N/A
	0003	1000 mL boston round, amber glass, HCl	<2	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2

Base Preserved pH pH must be greater than 12

NC Not Checked for pH

Supplemental Sample Receipt Log
Pace Analytical Services, Inc.

SDG: GOLSP0902
Cooler: AAD926
Temperatures: 2.0
COC #: 1255359

Sample	Bottle #	Bottle Description	pH	Bubbles
GOLSP0902-003	0004	1000 mL boston round, amber glass	7	N/A
	0005	1000 mL boston round, amber glass	7	N/A
GOLSP0902-004	0003	1000 mL boston round, amber glass	7	N/A
	0004	1000 mL boston round, amber glass	7	N/A
	0005	1000 mL boston round, amber glass, HCl	<2	N/A
	0006	1000 mL boston round, amber glass, HCl	<2	N/A

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature Allowable temperature range is 4+/- 2 degrees Celsius

Acid Preserved pH pH must be less than 2
 Base Preserved pH pH must be greater than 12
 NC Not Checked for pH

**DATA VALIDATION
GOLSP0902**

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: All holding times met.

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: _____
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone; 2-butanone (<2X RLS)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: Not Applicable

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep.Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLS); Acetone, 2-butanone (<2X RLS); Chart other Contaminants: Qualif. Results <5X RLS according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Examples:

Comments/Qualified Results: _____

No detects in blanks.

MDL	BLANK		SAMPLE		Q Applied
	Result	PQL	Result		
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

5. Surrogates (Check all that apply).....

Yes ___ Surrogates analyzed

Yes ___ Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)

___ Recoveries above Method Control limits (J detects only)

___ Recoveries below Method Control limits but >20% (J/UJ)

___ Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results _____

6. Duplicate, Field Duplicates (Check all that apply).....

___ Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL

Parent ID:

___ Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL

Duplicate ID:

___ Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results Not Applicable

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]

___ LCS %R 50-79% or >120%, results >IDL estimated (J)

___ LCS %R 50-79% and results <IDL estimated (UJ)

___ LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Recoveries met.

8. MS / MSD Recovery on samples for associated Data Package...

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

___ MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

___ MS/MSD %R 50-79% and results <IDL estimated (UJ)

___ MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Batch Q37749(SVOA)

Batch Q37694: No SVOA MS/MSD; See SDG# GOLSP0901 for associated QC; No qualified analytes; Batch Q37694: No NWTPH-Dx MS; See SDG# GOLSP0901 for associated QC; No qualified analytes;

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

9. Result Verification, Detection Limits

All results supported in raw data; [Raw data provided / (Not Provided)]
 Detection Limits appropriate to meet project needs (Review Work Plan, QAPP) *TJG*

Comments/Qualified Results: _____
_____ All associated samples targeted for extractable Petroleum hydrocarbons in this
SDG.

10. Overall Assessment..... Acceptable: **Yes** **NO**

Comments/Qualified Results: _____

April & May 2009

June 16, 2009

Doug Morell
Golder Associates - WA
18300 NE Union Hill Rd, #200
Redmond, WA 980523333

RE: Project: SEM Materials RI/FS
Pace Project No.: 251085

Amendment to Test Report: Project No. 251085

Dear Doug Morell:

Enclosed are the analytical results for sample(s) received by the laboratory on May 02, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

This report has been revised after re-evaluation of PAH spectra. Sample extracts were reanalyzed and confirmed reported detections.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Shannon Schelinder

shannon.schelinder@pacelabs.com
Project Manager

Enclosures

cc: John Monks, Golder Associates
Tom Stapp, Golder Associates - WA

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: SEM Materials R/FS
Pace Project No.: 251085

Washington Certification IDs

Washington Certification #: C1229
Oregon Certification #: WA200007
Florida/NELAP Certification #: E87617
Alaska CS Certification #: UST-025

Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SEM Materials R/FS
Pace Project No.: 251085

Lab ID	Sample ID	Matrix	Date Collected	Date Received
251085001	GMW-01 (04-30-09)	Water	04/30/09 10:45	05/02/09 12:45
251085002	GMW-02 (04-30-09)	Water	04/30/09 12:33	05/02/09 12:45
251085003	GMW-03 (04-30-09)	Water	04/30/09 14:30	05/02/09 12:45
251085004	GMW-04 (04-30-09)	Water	04/30/09 16:30	05/02/09 12:45
251085005	GMW-05 (04-30-09)	Water	04/30/09 18:22	05/02/09 12:45
251085006	1-GMW-05 (04-30-09)	Water	04/30/09 18:32	05/02/09 12:45
251085007	GMW-FB (04-30-09)	Water	04/30/09 17:46	05/02/09 12:45
251085008	UDCMW-4 (05-01-09)	Water	05/01/09 10:00	05/02/09 12:45
251085009	GMW-06 (05-01-09)	Water	05/01/09 11:49	05/02/09 12:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: SEM Materials R/FS
Pace Project No.: 251085

Lab ID	Sample ID	Method	Analysts	Analytes Reported
251085001	GMW-01 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085002	GMW-02 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085003	GMW-03 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085004	GMW-04 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085005	GMW-05 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085006	1-GMW-05 (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085007	GMW-FB (04-30-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085008	UDCMW-4 (05-01-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4
251085009	GMW-06 (05-01-09)	EPA 8270	JMW	21
		NWTPH-Dx	JNH	4

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM Materials RI/FS
Pace Project No.: 251085

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Golder Associates
Date: June 16, 2009

General Information:

9 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM Materials R/FS
Pace Project No.: 251085

Method: EPA 8270
Description: 8270 MSSV Semivolatile Organic
Client: Golder Associates
Date: June 16, 2009

General Information:

9 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/1035

S0: Surrogate recovery outside laboratory control limits.

- GMW-03 (04-30-09) (Lab ID: 251085003)
- Nitrobenzene-d5 (S)

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/1035

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 938)
- Benzo(b)fluoranthene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM Materials R/FS
Pace Project No.: 251085

Method: EPA 8270
Description: 8270 MSSV Semivolatile Organic
Client: Golder Associates
Date: June 16, 2009

Additional Comments:

Analyte Comments:

QC Batch: OEXT/1035

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- 1-GMW-05 (04-30-09) (Lab ID: 251085006)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- BLANK (Lab ID: 937)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-01 (04-30-09) (Lab ID: 251085001)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-02 (04-30-09) (Lab ID: 251085002)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-03 (04-30-09) (Lab ID: 251085003)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-04 (04-30-09) (Lab ID: 251085004)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-05 (04-30-09) (Lab ID: 251085005)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-06 (05-01-09) (Lab ID: 251085009)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- GMW-FB (04-30-09) (Lab ID: 251085007)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- LCS (Lab ID: 938)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM Materials RI/FS
Pace Project No.: 251085

Method: EPA 8270
Description: 8270 MSSV Semivolatile Organic
Client: Golder Associates
Date: June 16, 2009

Analyte Comments:

QC Batch: OEXT/1035

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- LCSD (Lab ID: 939)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)
- UDCMW-4 (05-01-09) (Lab ID: 251085008)
 - 2-Fluorobiphenyl (S)
 - Nitrobenzene-d5 (S)
 - Terphenyl-d14 (S)

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SEM Materials R/FS
Pace Project No.: 251085

Sample: **GMW-01 (04-30-09)** Lab ID: **251085001** Collected: 04/30/09 10:45 Received: 05/02/09 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.082	1	05/09/09 11:58	05/09/09 18:06		
Motor Oil Range SG	ND	mg/L	0.41	1	05/09/09 11:58	05/09/09 18:06	64742-65-0	
n-Octacosane (S) SG	72	%	50-150	1	05/09/09 11:58	05/09/09 18:06	630-02-4	
o-Terphenyl (S) SG	72	%	50-150	1	05/09/09 11:58	05/09/09 18:06	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	83-32-9	
Acenaphthylene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	208-96-8	
Anthracene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	120-12-7	
Benzo(a)anthracene	0.054	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	205-99-2	
Benzo(g,h,i)perylene	0.11	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	207-08-9	
Chrysene	0.042	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	218-01-9	
Dibenz(a,h)anthracene	0.15	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	53-70-3	
Fluoranthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	206-44-0	
Fluorene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	86-73-7	
Indeno(1,2,3-cd)pyrene	0.11	ug/L	0.0095	1	05/06/09 16:31	05/14/09 13:54	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	91-57-6	
Naphthalene	ND	ug/L	0.0048	1	05/06/09 16:31	05/14/09 13:54	91-20-3	
Phenanthrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	85-01-8	
Pyrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 13:54	129-00-0	
Nitrobenzene-d5 (S)	85	%	50-110	1	05/06/09 16:31	05/14/09 13:54	4165-60-0	E
2-Fluorobiphenyl (S)	65	%	40-110	1	05/06/09 16:31	05/14/09 13:54	321-60-8	E
Terphenyl-d14 (S)	86	%	50-135	1	05/06/09 16:31	05/14/09 13:54	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials RI/FS
Pace Project No.: 251085

Sample: GMW-02 (04-30-09)	Lab ID: 251085002	Collected: 04/30/09 12:33	Received: 05/02/09 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.082	1	05/09/09 11:58	05/09/09 18:25		
Motor Oil Range SG	ND mg/L		0.41	1	05/09/09 11:58	05/09/09 18:25	64742-65-0	
n-Octacosane (S) SG	75 %		50-150	1	05/09/09 11:58	05/09/09 18:25	630-02-4	
o-Terphenyl (S) SG	77 %		50-150	1	05/09/09 11:58	05/09/09 18:25	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	83-32-9	
Acenaphthylene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	208-96-8	
Anthracene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	120-12-7	
Benzo(a)anthracene	0.015 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	205-99-2	
Benzo(g,h,i)perylene	0.087 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	207-08-9	
Chrysene	0.016 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	218-01-9	
Dibenz(a,h)anthracene	0.14 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	53-70-3	
Fluoranthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	206-44-0	
Fluorene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	86-73-7	
Indeno(1,2,3-cd)pyrene	0.085 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:10	193-39-5	
1-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	90-12-0	
2-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	91-57-6	
Naphthalene	ND ug/L		0.0048	1	05/06/09 16:31	05/14/09 10:10	91-20-3	
Phenanthrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	85-01-8	
Pyrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:10	129-00-0	
Nitrobenzene-d5 (S)	83 %		50-110	1	05/06/09 16:31	05/14/09 10:10	4165-60-0	E
2-Fluorobiphenyl (S)	66 %		40-110	1	05/06/09 16:31	05/14/09 10:10	321-60-8	E
Terphenyl-d14 (S)	91 %		50-135	1	05/06/09 16:31	05/14/09 10:10	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials R/FS
Pace Project No.: 251085

Sample: GMW-03 (04-30-09)	Lab ID: 251085003	Collected: 04/30/09 14:30	Received: 05/02/09 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.082	1	05/09/09 11:58	05/09/09 18:45		
Motor Oil Range SG	ND mg/L		0.41	1	05/09/09 11:58	05/09/09 18:45	64742-65-0	
n-Octacosane (S) SG	65 %		50-150	1	05/09/09 11:58	05/09/09 18:45	630-02-4	
o-Terphenyl (S) SG	67 %		50-150	1	05/09/09 11:58	05/09/09 18:45	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	83-32-9	
Acenaphthylene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	208-96-8	
Anthracene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	205-99-2	
Benzo(g,h,i)perylene	0.078 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	207-08-9	
Chrysene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	218-01-9	
Dibenz(a,h)anthracene	0.13 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	53-70-3	
Fluoranthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	206-44-0	
Fluorene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	86-73-7	
Indeno(1,2,3-cd)pyrene	0.078 ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	193-39-5	
1-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	90-12-0	
2-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	91-57-6	
Naphthalene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 10:32	91-20-3	
Phenanthrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	85-01-8	
Pyrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 10:32	129-00-0	
Nitrobenzene-d5 (S)	117 %		50-110	1	05/06/09 16:31	05/14/09 10:32	4165-60-0	E, S0
2-Fluorobiphenyl (S)	91 %		40-110	1	05/06/09 16:31	05/14/09 10:32	321-60-8	E
Terphenyl-d14 (S)	122 %		50-135	1	05/06/09 16:31	05/14/09 10:32	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials R/FS
Pace Project No.: 251085

Sample: **GMW-04 (04-30-09)** Lab ID: **251085004** Collected: 04/30/09 16:30 Received: 05/02/09 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.084	1	05/09/09 11:58	05/09/09 19:04		
Motor Oil Range SG	ND	mg/L	0.42	1	05/09/09 11:58	05/09/09 19:04	64742-65-0	
n-Octacosane (S) SG	74	%	50-150	1	05/09/09 11:58	05/09/09 19:04	630-02-4	
o-Terphenyl (S) SG	75	%	50-150	1	05/09/09 11:58	05/09/09 19:04	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	83-32-9	
Acenaphthylene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	208-96-8	
Anthracene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	205-99-2	
Benzo(g,h,i)perylene	0.086	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	207-08-9	
Chrysene	0.011	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	218-01-9	
Dibenz(a,h)anthracene	0.14	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	53-70-3	
Fluoranthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	206-44-0	
Fluorene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	86-73-7	
Indeno(1,2,3-cd)pyrene	0.084	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	91-57-6	
Naphthalene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 10:54	91-20-3	
Phenanthrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	85-01-8	
Pyrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 10:54	129-00-0	
Nitrobenzene-d5 (S)	78	%	50-110	1	05/06/09 16:31	05/14/09 10:54	4165-60-0	E
2-Fluorobiphenyl (S)	64	%	40-110	1	05/06/09 16:31	05/14/09 10:54	321-60-8	E
Terphenyl-d14 (S)	102	%	50-135	1	05/06/09 16:31	05/14/09 10:54	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials RI/FS
Pace Project No.: 251085

Sample: GMW-05 (04-30-09)	Lab ID: 251085005	Collected: 04/30/09 18:22	Received: 05/02/09 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.082	1	05/09/09 11:58	05/09/09 19:23		
Motor Oil Range SG	ND mg/L		0.41	1	05/09/09 11:58	05/09/09 19:23	64742-65-0	
n-Octacosane (S) SG	70 %		50-150	1	05/09/09 11:58	05/09/09 19:23	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	05/09/09 11:58	05/09/09 19:23	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	83-32-9	
Acenaphthylene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	208-96-8	
Anthracene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	205-99-2	
Benzo(g,h,i)perylene	0.087 ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	207-08-9	
Chrysene	0.012 ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	218-01-9	
Dibenz(a,h)anthracene	0.14 ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	53-70-3	
Fluoranthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	206-44-0	
Fluorene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	86-73-7	
Indeno(1,2,3-cd)pyrene	0.086 ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	193-39-5	
1-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	90-12-0	
2-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	91-57-6	
Naphthalene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 11:17	91-20-3	
Phenanthrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	85-01-8	
Pyrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 11:17	129-00-0	
Nitrobenzene-d5 (S)	78 %		50-110	1	05/06/09 16:31	05/14/09 11:17	4165-60-0	E
2-Fluorobiphenyl (S)	66 %		40-110	1	05/06/09 16:31	05/14/09 11:17	321-60-8	E
Terphenyl-d14 (S)	85 %		50-135	1	05/06/09 16:31	05/14/09 11:17	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials RI/FS
Pace Project No.: 251085

Sample: 1-GMW-05 (04-30-09) Lab ID: 251085006 Collected: 04/30/09 18:32 Received: 05/02/09 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.082	1	05/09/09 11:58	05/09/09 19:42		
Motor Oil Range SG	ND	mg/L	0.41	1	05/09/09 11:58	05/09/09 19:42	64742-65-0	
n-Octacosane (S) SG	68	%	50-150	1	05/09/09 11:58	05/09/09 19:42	630-02-4	
o-Terphenyl (S) SG	69	%	50-150	1	05/09/09 11:58	05/09/09 19:42	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	83-32-9	
Acenaphthylene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	208-96-8	
Anthracene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	120-12-7	
Benzo(a)anthracene	0.012	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	205-99-2	
Benzo(g,h,i)perylene	0.084	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	207-08-9	
Chrysene	0.013	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	218-01-9	
Dibenz(a,h)anthracene	0.13	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	53-70-3	
Fluoranthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	206-44-0	
Fluorene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	86-73-7	
Indeno(1,2,3-cd)pyrene	0.084	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	91-57-6	
Naphthalene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 11:39	91-20-3	
Phenanthrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	85-01-8	
Pyrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 11:39	129-00-0	
Nitrobenzene-d5 (S)	81	%	50-110	1	05/06/09 16:31	05/14/09 11:39	4165-60-0	E
2-Fluorobiphenyl (S)	64	%	40-110	1	05/06/09 16:31	05/14/09 11:39	321-60-8	E
Terphenyl-d14 (S)	93	%	50-135	1	05/06/09 16:31	05/14/09 11:39	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials RI/FS
Pace Project No.: 251085

Sample: **GMW-FB (04-30-09)** Lab ID: **251085007** Collected: 04/30/09 17:46 Received: 05/02/09 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.082	1	05/09/09 11:58	05/09/09 20:02		
Motor Oil Range SG	ND	mg/L	0.41	1	05/09/09 11:58	05/09/09 20:02	64742-65-0	
n-Octacosane (S) SG	61	%	50-150	1	05/09/09 11:58	05/09/09 20:02	630-02-4	
o-Terphenyl (S) SG	61	%	50-150	1	05/09/09 11:58	05/09/09 20:02	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	83-32-9	
Acenaphthylene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	208-96-8	
Anthracene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	205-99-2	
Benzo(g,h,i)perylene	0.079	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	207-08-9	
Chrysene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	218-01-9	
Dibenz(a,h)anthracene	0.13	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	53-70-3	
Fluoranthene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	206-44-0	
Fluorene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	86-73-7	
Indeno(1,2,3-cd)pyrene	0.077	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	91-57-6	
Naphthalene	ND	ug/L	0.0095	1	05/06/09 16:31	05/14/09 12:02	91-20-3	
Phenanthrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	85-01-8	
Pyrene	ND	ug/L	0.095	1	05/06/09 16:31	05/14/09 12:02	129-00-0	
Nitrobenzene-d5 (S)	74	%	50-110	1	05/06/09 16:31	05/14/09 12:02	4165-60-0	E
2-Fluorobiphenyl (S)	62	%	40-110	1	05/06/09 16:31	05/14/09 12:02	321-60-8	E
Terphenyl-d14 (S)	94	%	50-135	1	05/06/09 16:31	05/14/09 12:02	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials R/FS
Pace Project No.: 251085

Sample: UDCMW-4 (05-01-09)	Lab ID: 251085008	Collected: 05/01/09 10:00	Received: 05/02/09 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.082	1	05/09/09 11:58	05/09/09 20:40		
Motor Oil Range SG	ND mg/L		0.41	1	05/09/09 11:58	05/09/09 20:40	64742-65-0	
n-Octacosane (S) SG	70 %		50-150	1	05/09/09 11:58	05/09/09 20:40	630-02-4	
o-Terphenyl (S) SG	70 %		50-150	1	05/09/09 11:58	05/09/09 20:40	84-15-1	
8270 MSSV Semivolatile Organic		Analytical Method: EPA 8270 Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	83-32-9	
Acenaphthylene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	208-96-8	
Anthracene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	207-08-9	
Chrysene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	53-70-3	
Fluoranthene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	206-44-0	
Fluorene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	193-39-5	
1-Methylnaphthalene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	90-12-0	
2-Methylnaphthalene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	91-57-6	
Naphthalene	ND ug/L		0.0096	1	05/06/09 16:31	05/14/09 12:24	91-20-3	
Phenanthrene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	85-01-8	
Pyrene	ND ug/L		0.096	1	05/06/09 16:31	05/14/09 12:24	129-00-0	
Nitrobenzene-d5 (S)	72 %		50-110	1	05/06/09 16:31	05/14/09 12:24	4165-60-0	E
2-Fluorobiphenyl (S)	61 %		40-110	1	05/06/09 16:31	05/14/09 12:24	321-60-8	E
Terphenyl-d14 (S)	91 %		50-135	1	05/06/09 16:31	05/14/09 12:24	1718-51-0	E

ANALYTICAL RESULTS

Project: SEM Materials RI/FS
Pace Project No.: 251085

Sample: GMW-06 (05-01-09)	Lab ID: 251085009	Collected: 05/01/09 11:49	Received: 05/02/09 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

NWTPH-Dx GCS

Analytical Method: NWTPH-Dx Preparation Method: EPA 3510

Diesel Range SG	ND mg/L		0.082	1	05/09/09 11:58	05/09/09 20:59		
Motor Oil Range SG	ND mg/L		0.41	1	05/09/09 11:58	05/09/09 20:59	64742-65-0	
n-Octacosane (S) SG	63 %		50-150	1	05/09/09 11:58	05/09/09 20:59	630-02-4	
o-Terphenyl (S) SG	64 %		50-150	1	05/09/09 11:58	05/09/09 20:59	84-15-1	

8270 MSSV Semivolatile Organic

Analytical Method: EPA 8270 Preparation Method: EPA 3510

Acenaphthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	83-32-9	
Acenaphthylene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	208-96-8	
Anthracene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	120-12-7	
Benzo(a)anthracene	0.015 ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	205-99-2	
Benzo(g,h,i)perylene	0.083 ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	207-08-9	
Chrysene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	218-01-9	
Dibenz(a,h)anthracene	0.13 ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	53-70-3	
Fluoranthene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	206-44-0	
Fluorene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	86-73-7	
Indeno(1,2,3-cd)pyrene	0.081 ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	193-39-5	
1-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	90-12-0	
2-Methylnaphthalene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	91-57-6	
Naphthalene	ND ug/L		0.0095	1	05/06/09 16:31	05/14/09 12:47	91-20-3	
Phenanthrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	85-01-8	
Pyrene	ND ug/L		0.095	1	05/06/09 16:31	05/14/09 12:47	129-00-0	
Nitrobenzene-d5 (S)	77 %		50-110	1	05/06/09 16:31	05/14/09 12:47	4165-60-0	E
2-Fluorobiphenyl (S)	61 %		40-110	1	05/06/09 16:31	05/14/09 12:47	321-60-8	E
Terphenyl-d14 (S)	81 %		50-135	1	05/06/09 16:31	05/14/09 12:47	1718-51-0	E

QUALITY CONTROL DATA

Project: SEM Materials RI/FS
Pace Project No.: 251085

QC Batch: OEXT/1035 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 251085001, 251085002, 251085003, 251085004, 251085005, 251085006, 251085007, 251085008, 251085009

METHOD BLANK: 937 Matrix: Water
Associated Lab Samples: 251085001, 251085002, 251085003, 251085004, 251085005, 251085006, 251085007, 251085008, 251085009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.10	05/14/09 13:31	
2-Methylnaphthalene	ug/L	ND	0.10	05/14/09 13:31	
Acenaphthene	ug/L	ND	0.10	05/14/09 13:31	
Acenaphthylene	ug/L	ND	0.10	05/14/09 13:31	
Anthracene	ug/L	ND	0.10	05/14/09 13:31	
Benzo(a)anthracene	ug/L	ND	0.010	05/14/09 13:31	
Benzo(a)pyrene	ug/L	ND	0.010	05/14/09 13:31	
Benzo(b)fluoranthene	ug/L	ND	0.010	05/14/09 13:31	
Benzo(g,h,i)perylene	ug/L	ND	0.010	05/14/09 13:31	
Benzo(k)fluoranthene	ug/L	ND	0.010	05/14/09 13:31	
Chrysene	ug/L	ND	0.010	05/14/09 13:31	
Dibenz(a,h)anthracene	ug/L	ND	0.010	05/14/09 13:31	
Fluoranthene	ug/L	ND	0.10	05/14/09 13:31	
Fluorene	ug/L	ND	0.10	05/14/09 13:31	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.010	05/14/09 13:31	
Naphthalene	ug/L	ND	0.0050	05/14/09 13:31	
Phenanthrene	ug/L	ND	0.10	05/14/09 13:31	
Pyrene	ug/L	ND	0.10	05/14/09 13:31	
2-Fluorobiphenyl (S)	%	71	40-110	05/14/09 13:31	E
Nitrobenzene-d5 (S)	%	85	50-110	05/14/09 13:31	E
Terphenyl-d14 (S)	%	101	50-135	05/14/09 13:31	E

LABORATORY CONTROL SAMPLE & LCSD: 938 939

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1.2	0.55	0.68	44	54	20-160		30	
2-Methylnaphthalene	ug/L	1.2	0.56	0.70	45	56	20-98		30	
Acenaphthene	ug/L	1.2	0.75	0.82	60	66	42-91		30	
Acenaphthylene	ug/L	1.2	0.73	0.79	58	63	29-94		30	
Anthracene	ug/L	1.2	0.99	1.0	80	80	42-103		30	
Benzo(a)anthracene	ug/L	1.2	1.3	1.3	104	100	44-107		30	
Benzo(a)pyrene	ug/L	1.2	1.1	1.1	90	87	27-106		30	
Benzo(b)fluoranthene	ug/L	1.2	1.5	1.4	118	112	51-112		30	L1
Benzo(g,h,i)perylene	ug/L	1.2	1.1	1.1	90	88	28-115		30	
Benzo(k)fluoranthene	ug/L	1.2	1.1	1.1	85	85	50-110		30	
Chrysene	ug/L	1.2	1.1	1.1	86	84	47-110		30	
Dibenz(a,h)anthracene	ug/L	1.2	1.2	1.2	93	93	26-118		30	
Fluoranthene	ug/L	1.2	1.2	1.2	97	94	51-112		30	
Fluorene	ug/L	1.2	0.99	1.0	79	81	54-94		30	
Indeno(1,2,3-cd)pyrene	ug/L	1.2	1.3	1.3	105	105	28-107		30	
Naphthalene	ug/L	1.2	0.58	0.69	47	55	20-99		30	

QUALITY CONTROL DATA

Project: SEM Materials R/FS
Pace Project No.: 251085

LABORATORY CONTROL SAMPLE & LCSD: 938		939								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1.2	1.0	1.0	80	82	48-109		30	
Pyrene	ug/L	1.2	1.0	1.0	84	80	41-112		30	
2-Fluorobiphenyl (S)	%				65	68	40-110			E
Nitrobenzene-d5 (S)	%				82	89	50-110			E
Terphenyl-d14 (S)	%				103	102	50-135			E

QUALITY CONTROL DATA

Project: SEM Materials R/FS
Pace Project No.: 251085

QC Batch: OEXT/1045 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 251085001, 251085002, 251085003, 251085004, 251085005, 251085006, 251085007, 251085008, 251085009

METHOD BLANK: 1172 Matrix: Water
Associated Lab Samples: 251085001, 251085002, 251085003, 251085004, 251085005, 251085006, 251085007, 251085008, 251085009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.080	05/09/09 17:08	
Motor Oil Range SG	mg/L	ND	0.40	05/09/09 17:08	
n-Octacosane (S) SG	%	74	50-150	05/09/09 17:08	
o-Terphenyl (S) SG	%	71	50-150	05/09/09 17:08	

LABORATORY CONTROL SAMPLE & LCSD: 1173 1174

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range SG	mg/L	5	3.6	3.9	72	78	51-147	8	30	
Motor Oil Range SG	mg/L	5	3.7	3.8	75	76	20-160	1	30	
n-Octacosane (S) SG	%				70	77	50-150			
o-Terphenyl (S) SG	%				77	78	50-150			

QUALIFIERS

Project: SEM Materials R/FS
Pace Project No.: 251085

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

ANALYTE QUALIFIERS

- E Analyte concentration exceeded the calibration range. The reported result is estimated.
- L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
- S0 Surrogate recovery outside laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SEM Materials R/FS
Pace Project No.: 251085

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
251085001	GMW-01 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085002	GMW-02 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085003	GMW-03 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085004	GMW-04 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085005	GMW-05 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085006	1-GMW-05 (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085007	GMW-FB (04-30-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085008	UDCMW-4 (05-01-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085009	GMW-06 (05-01-09)	EPA 3510	OEXT/1035	EPA 8270	MSSV/1006
251085001	GMW-01 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085002	GMW-02 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085003	GMW-03 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085004	GMW-04 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085005	GMW-05 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085006	1-GMW-05 (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085007	GMW-FB (04-30-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085008	UDCMW-4 (05-01-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026
251085009	GMW-06 (05-01-09)	EPA 3510	OEXT/1045	NWTPH-Dx	GCSV/1026

**DATA VALIDATION WITH LABORATORY REPORT
251085**

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170.02		SITE: SEM MATERIALS, LP; Spokane, WA	
LABORATORY: PACE ANALYTICAL		SDG: # 21085	
SAMPLES	GMW-01	Collected: 4/30-09	MATRIX
	" -02		WATER
	" -03		
	" -04		
	" -05 + 1-GMW-05		
GMW-FB, UDCMW-4, GMW-06		5-01-09	

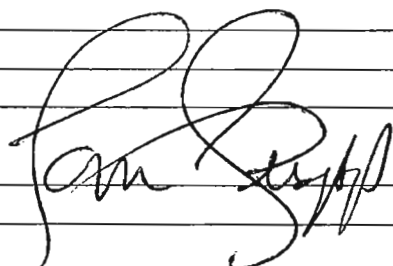
DATA ASSESSMENT SUMMARY

REVIEW ITEM	VOA	BNA 8270	Pest / PCB	Chlor / Herb.	Dioxin/ Furan	OTHER NWTAP Dx-MO	OTHER
1. Data Completeness		O				O	
2. Holding Times		O				O	
3. Field Blanks (1)		X				O	
4. Laboratory Blanks		O				O	
5. Surrogates (3)		M				O	
6. Lab Duplicate, Field Duplicate		O				O	
7. LCS, Blank Spike (2)		O				O	
8. Matrix Spike /MS Duplicate		O				O	
9. Result Verify , Detection Limits		O				O	
10. Overall Summary		O				O	

O = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or U)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/U)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: (1) Field Blank "GMW-FB" has detects of select PAH's - All associated samples have the same contaminants. Results for samples are raised to level detected and qualified as non-detect per D.V. guidance.
 (2) Analyte out of control (HIGH), Does not affect assoc. samples. NO QUALIF. APPLIED. 11-02-09
 (3) "E" Qualifier due to inappropriate Surrogate level - NO QUALIF. APPLIED.

Validated by:
 Reviewed by:



Date: Oct. 15, 2009
 Date: Revised Nov. 2, 2009

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES/ NO

1. Date Package Completeness (Check if present).....

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> Case narrative | <input checked="" type="checkbox"/> Blank Results | / Acceptable
x Absent
o Not required for data package requested. |
| <input checked="" type="checkbox"/> Chain of Custody | <input checked="" type="checkbox"/> Surrogate Results | |
| <input checked="" type="checkbox"/> Sample Results | <input checked="" type="checkbox"/> Internal Standards | |
| <input checked="" type="checkbox"/> Detection Limits | <input checked="" type="checkbox"/> GC/MS LCS Results | |
| <input type="checkbox"/> GC/MS Tuning | <input type="checkbox"/> Preparation Logs | |
| <input type="checkbox"/> Initial Calibration | <input type="checkbox"/> Analysis Run Logs | |
| <input type="checkbox"/> Continuing Calib. | <input type="checkbox"/> Raw Data | |
| _____ | <input type="checkbox"/> Other _____ | |

Comments/Qualified Results: _____

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (U)

Comments/Qualified Results: 8220: Collect 4-30-09 Analysis 5-06-09 ✓
5-01-09 ↓
NWTPH-Dx Collect SAME Analysis 5-09-09 ✓

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: GMW-FB.
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Comments/Qualified Results: Examples:
F. Blank identified as "GMW-FB"
Detects reported: Benzo (ghi) perylene
Dibenz (a,h) anthracene *
Ideno (123) pyrene *

* ASSOCIATED detected in GMW-06, -05, -04, -03, -02, & -01 are qualified as "U" non-detect. 2

[Signature]

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep. Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs); Chart other Contaminants: Qualif. Results <5X RLs according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Comments/Qualified Results: _____

Examples:

MDL	BLANK		SAMPLE		Q
	Result	PQL	Result	Applied	
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	J

No detects. ✓

5. Surrogates (Check all that apply).....

- Surrogates analyzed
- Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)
- Recoveries above Method Control limits (J detects only)
- Recoveries below Method Control limits but >20% (J/UJ)
- Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

→ See attached E-mail Mon Oct. 12, '09

Comments/Qualified Results All surrogate amounts noted as out of Calib. range — However, recovery amounts are acceptable.

→ Laboratory provides followup E-mail to describe spike of surrogates to samples. Due to processing of PAH-SIM extract, the spike level was not appropriate to extract volume, NO QUALIF. APPLIED *MDJ*

6. Duplicate, Field Duplicates (Check all that apply).....

- Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL
- Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL
- Field duplicate RPD ≤20% (≤35% for soils)

Parent ID: Gmw-05
 Duplicate ID: 1-Gmw-05

Comments/Qualified Results _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

- LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?]
- LCS %R 50-79% or >120%, results >IDL estimated (J)
- LCS %R 50-79% and results <IDL estimated (UJ)
- LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Benzo(b)fluoranthene out of limit 1 (high)
No assoc. detects, therefore No qualifiers.

8. MS / MSD Recovery on samples for associated Data Package... NA

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

- MS/MSD %R 80-120% SPIKED SAMPLE IDs:
- MS/MSD %R 50-79% or >120%, results >IDL estimated (J)
- MS/MSD %R 50-79% and results <IDL estimated (UJ)
- MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: MS/MSD not performed.

9. Result Verification, Detection Limits

- All results supported in raw data; [Raw data provided / Not Provided]
- Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: _____

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

10. Overall Assessment..... Acceptable: Yes NO

Comments/Qualified Results: _____

Stapp, Tom

From: Natalie Taylor [Natalie.Taylor@pacelabs.com]
Sent: Monday, October 12, 2009 3:40 PM
To: Stapp, Tom
Subject: 251085 surrogates

Tom,

I have discussed the issue we just spoke about on the phone regarding workorder 251085 SIM PAH surrogates with our Quality Assurance Manager. She informed me that during extraction the spike concentration was used for regular level 8270 which put the surrogate concentrations above the calibration range for the low level SIM PAHs being reported. Because the calculated recoveries were in control samples were not re-extracted. The surrogates are "E" flagged.

Let me know if you need any further information.

Thank you,

Natalie Taylor
Project Manager
Pace Analytical Services, Seattle
940 S. Harney St.
Seattle, WA 98108
Direct:206-957-2440
Main:206-767-5060
Fax:206-767-5063
natalie.taylor@pacelabs.com

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July 2009

September 01, 2009

Doug Morell
Golder Associates - WA
18300 NE Union Hill Rd, #200
Redmond, WA 980523333

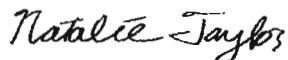
RE: Project: SEM-Materials
Pace Project No.: 251812

Dear Doug Morell:

Enclosed are the analytical results for sample(s) received by the laboratory on August 08, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Taylor

natalie.taylor@pacelabs.com
Project Manager

(206) 767-5060

Enclosures

cc: John Monks, Golder Associates
Tom Stapp, Golder Associates - WA

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: SEM-Materials
Pace Project No.: 251812

Washington Certification IDs

Washington Certification #: C1229
Oregon Certification #: WA200007
Florida/NELAP Certification #: E87617
Alaska CS Certification #: UST-025

Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: SEM-Materials
Pace Project No.: 251812

Lab ID	Sample ID	Matrix	Date Collected	Date Received
251812001	UDC-MW4	Water	08/04/09 12:20	08/08/09 09:00
251812002	GMW-01-1	Water	08/05/09 14:55	08/08/09 09:00
251812003	GMW-01-2	Water	08/05/09 15:35	08/08/09 09:00
251812004	FB	Water	08/05/09 14:23	08/08/09 09:00
251812005	GMW-03	Water	08/06/09 15:25	08/08/09 09:00
251812006	GMW-02	Water	08/06/09 11:40	08/08/09 09:00
251812007	Office Blank	Water	08/06/09 17:43	08/08/09 09:00
251812008	FB-2	Water	08/06/09 15:50	08/08/09 09:00

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SAMPLE ANALYTE COUNT

Project: SEM-Materials
Pace Project No.: 251812

Lab ID	Sample ID	Method	Analysts	Analytes Reported
251812001	UDC-MW4	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	4
251812002	GMW-01-1	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	4
251812003	GMW-01-2	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	4
251812004	FB	EPA 8270 by SIM	JMW	19
251812005	GMW-03	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	4
251812006	GMW-02	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	4
251812007	Office Blank	EPA 8270 by SIM	JMW	19
251812008	FB-2	NWTPH-Dx	KRK	4

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM-Materials
Pace Project No.: 251812

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Golder Associates
Date: September 01, 2009

General Information:

6 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/1376

S0: Surrogate recovery outside laboratory control limits.

- BLANK (Lab ID: 8832)
 - n-Octacosane (S) SG
 - o-Terphenyl (S) SG
- FB-2 (Lab ID: 251812008)
 - n-Octacosane (S) SG
- GMW-01-1 (Lab ID: 251812002)
 - n-Octacosane (S) SG
- GMW-01-2 (Lab ID: 251812003)
 - n-Octacosane (S) SG
- GMW-02 (Lab ID: 251812006)
 - n-Octacosane (S) SG
- GMW-03 (Lab ID: 251812005)
 - n-Octacosane (S) SG
- LCSD (Lab ID: 8834)
 - n-Octacosane (S) SG
- UDC-MW4 (Lab ID: 251812001)
 - n-Octacosane (S) SG

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: SEM-Materials
Pace Project No.: 251812

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Golder Associates
Date: September 01, 2009

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM-Materials
Pace Project No.: 251812

Method: EPA 8270 by SIM
Description: 8270 MSSV Low Level PAH SIM
Client: Golder Associates
Date: September 01, 2009

General Information:

7 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

QC Batch: OEXT/1361

B+: Analyte was detected in the associated method blank as well as in the sample.

- BLANK (Lab ID: 8638)
- Phenanthrene

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/1361

R1: RPD value was outside control limits.

- LCSD (Lab ID: 8640)
 - Acenaphthene
 - Acenaphthylene
 - Fluorene
 - Naphthalene

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: SEM-Materials
Pace Project No.: 251812

Method: EPA 8270 by SIM
Description: 8270 MSSV Low Level PAH SIM
Client: Golder Associates
Date: September 01, 2009

QC Batch: MSSV/1095

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/1361

1n: Result confirmed by re-extraction (out of hold) and re-analysis.

- UDC-MW4 (Lab ID: 251812001)
 - Phenanthrene

2n: Result could not be confirmed by re-extraction (out of hold) and re-analysis due to insufficient sample volume.

- Office Blank (Lab ID: 251812007)
 - Phenanthrene

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

9-30-09

Project: SEM-Materials
Pace Project No.: 251812

Sample: UDC-MW4		Lab ID: 251812001	Collected: 08/04/09 12:20	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.076	1	08/18/09 10:57	08/28/09 20:09		UT
Motor Oil Range SG	ND mg/L		0.38	1	08/18/09 10:57	08/28/09 20:09	64742-65-0	UT
n-Octacosane (S) SG	48 %		50-150	1	08/18/09 10:57	08/28/09 20:09	630-02-4	SO
o-Terphenyl (S) SG	77 %		50-150	1	08/18/09 10:57	08/28/09 20:09	84-15-1	
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	193-39-5	
Naphthalene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	91-20-3	
Phenanthrene	0.016 ug/L	u	0.0095	1	08/11/09 00:00	08/17/09 21:06	85-01-8	in U
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:06	129-00-0	
Nitrobenzene-d5 (S)	92 %		20-160	1	08/11/09 00:00	08/17/09 21:06	4165-60-0	
2-Fluorobiphenyl (S)	96 %		20-160	1	08/11/09 00:00	08/17/09 21:06	321-60-8	
Terphenyl-d14 (S)	97 %		20-160	1	08/11/09 00:00	08/17/09 21:06	1718-51-0	

Sample: GMW-01-1		Lab ID: 251812002	Collected: 08/05/09 14:55	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.075	1	08/18/09 10:57	08/28/09 20:29		UT
Motor Oil Range SG	ND mg/L		0.38	1	08/18/09 10:57	08/28/09 20:29	64742-65-0	UT
n-Octacosane (S) SG	41 %		50-150	1	08/18/09 10:57	08/28/09 20:29	630-02-4	SO
o-Terphenyl (S) SG	65 %		50-150	1	08/18/09 10:57	08/28/09 20:29	84-15-1	
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	207-08-9	

Date: 09/01/2009 04:17 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SEM-Materials
Pace Project No.: 251812

Sample: GMW-01-1		Lab ID: 251812002	Collected: 08/05/09 14:55	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	193-39-5	
Naphthalene	0.022 ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	91-20-3	
Phenanthrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:27	129-00-0	
Nitrobenzene-d5 (S)	88 %		20-160	1	08/11/09 00:00	08/17/09 21:27	4165-60-0	
2-Fluorobiphenyl (S)	93 %		20-160	1	08/11/09 00:00	08/17/09 21:27	321-60-8	
Terphenyl-d14 (S)	92 %		20-160	1	08/11/09 00:00	08/17/09 21:27	1718-51-0	

Sample: GMW-01-2		Lab ID: 251812003	Collected: 08/05/09 15:35	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.076	1	08/18/09 10:57	08/28/09 20:48		UT
Motor Oil Range SG	ND mg/L		0.38	1	08/18/09 10:57	08/28/09 20:48	64742-65-0	UT
n-Octacosane (S) SG	45 %		50-150	1	08/18/09 10:57	08/28/09 20:48	630-02-4	S0
o-Terphenyl (S) SG	71 %		50-150	1	08/18/09 10:57	08/28/09 20:48	84-15-1	

8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	193-39-5	
Naphthalene	0.020 ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	91-20-3	
Phenanthrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 21:49	129-00-0	
Nitrobenzene-d5 (S)	74 %		20-160	1	08/11/09 00:00	08/17/09 21:49	4165-60-0	
2-Fluorobiphenyl (S)	78 %		20-160	1	08/11/09 00:00	08/17/09 21:49	321-60-8	
Terphenyl-d14 (S)	88 %		20-160	1	08/11/09 00:00	08/17/09 21:49	1718-51-0	

ANALYTICAL RESULTS

Project: SEM-Materials
Pace Project No.: 251812

Sample: FB		Lab ID: 251812004	Collected: 08/05/09 14:23	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	193-39-5	
Naphthalene	0.014 ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	91-20-3	
Phenanthrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:10	129-00-0	
Nitrobenzene-d5 (S)	58 %		20-160	1	08/11/09 00:00	08/17/09 22:10	4165-60-0	
2-Fluorobiphenyl (S)	60 %		20-160	1	08/11/09 00:00	08/17/09 22:10	321-60-8	
Terphenyl-d14 (S)	73 %		20-160	1	08/11/09 00:00	08/17/09 22:10	1718-51-0	

Sample: GMW-03		Lab ID: 251812005	Collected: 08/06/09 15:25	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.080	1	08/18/09 10:57	08/28/09 21:07		
Motor Oil Range SG	ND mg/L		0.40	1	08/18/09 10:57	08/28/09 21:07	64742-65-0	
n-Octacosane (S) SG	43 %		50-150	1	08/18/09 10:57	08/28/09 21:07	630-02-4	SO
o-Terphenyl (S) SG	71 %		50-150	1	08/18/09 10:57	08/28/09 21:07	84-15-1	

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8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	193-39-5	
Naphthalene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	91-20-3	

ANALYTICAL RESULTS

Project: SEM-Materials
Pace Project No.: 251812

Sample: GMW-03		Lab ID: 251812005	Collected: 08/06/09 15:25	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Phenanthrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:32	129-00-0	
Nitrobenzene-d5 (S)	75 %		20-160	1	08/11/09 00:00	08/17/09 22:32	4165-60-0	
2-Fluorobiphenyl (S)	81 %		20-160	1	08/11/09 00:00	08/17/09 22:32	321-60-8	
Terphenyl-d14 (S)	85 %		20-160	1	08/11/09 00:00	08/17/09 22:32	1718-51-0	

Sample: GMW-02		Lab ID: 251812006	Collected: 08/06/09 11:40	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND mg/L		0.075	1	08/18/09 10:57	08/28/09 21:27		
Motor Oil Range SG	ND mg/L		0.38	1	08/18/09 10:57	08/28/09 21:27	64742-65-0	
n-Octacosane (S) SG	38 %		50-150	1	08/18/09 10:57	08/28/09 21:27	630-02-4	S0
o-Terphenyl (S) SG	62 %		50-150	1	08/18/09 10:57	08/28/09 21:27	84-15-1	

Sample: GMW-03		Lab ID: 251812005	Collected: 08/06/09 15:25	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	193-39-5	
Naphthalene	0.023 ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	91-20-3	
Phenanthrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 22:53	129-00-0	
Nitrobenzene-d5 (S)	59 %		20-160	1	08/11/09 00:00	08/17/09 22:53	4165-60-0	
2-Fluorobiphenyl (S)	61 %		20-160	1	08/11/09 00:00	08/17/09 22:53	321-60-8	
Terphenyl-d14 (S)	72 %		20-160	1	08/11/09 00:00	08/17/09 22:53	1718-51-0	

Sample: Office Blank		Lab ID: 251812007	Collected: 08/06/09 17:43	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 23:15	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/11/09 00:00	08/17/09 23:15	208-96-8	

Date: 09/01/2009 04:17 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SEM-Materials
Pace Project No.: 251812

Sample: Office Blank		Lab ID: 251812007	Collected: 08/06/09 17:43	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Anthracene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	207-08-9	
Chrysene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	53-70-3	
Fluoranthene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	206-44-0	
Fluorene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	193-39-5	
Naphthalene	0.018	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	91-20-3	
Phenanthrene	0.016	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	85-01-8	2+ U
Pyrene	ND	ug/L	0.0095	1	08/11/09 00:00	08/17/09 23:15	129-00-0	
Nitrobenzene-d5 (S)	80 %		20-160	1	08/11/09 00:00	08/17/09 23:15	4165-60-0	
2-Fluorobiphenyl (S)	85 %		20-160	1	08/11/09 00:00	08/17/09 23:15	321-60-8	
Terphenyl-d14 (S)	91 %		20-160	1	08/11/09 00:00	08/17/09 23:15	1718-51-0	

Sample: FB-2		Lab ID: 251812008	Collected: 08/06/09 15:50	Received: 08/08/09 09:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range SG	ND	mg/L	0.076	1	08/18/09 10:57	08/28/09 21:45		UJ
Motor Oil Range SG	ND	mg/L	0.38	1	08/18/09 10:57	08/28/09 21:45	64742-65-0	UJ
n-Octacosane (S) SG	40 %		50-150	1	08/18/09 10:57	08/28/09 21:45	630-02-4	S0
o-Terphenyl (S) SG	66 %		50-150	1	08/18/09 10:57	08/28/09 21:45	84-15-1	

TJG 9-30-09

QUALITY CONTROL DATA

Project: SEM-Materials
Pace Project No.: 251812

QC Batch: OEXT/1361 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Low Level PAH SIM
Associated Lab Samples: 251812001, 251812002, 251812003, 251812004, 251812005, 251812006, 251812007

METHOD BLANK: 8638 Matrix: Water
Associated Lab Samples: 251812001, 251812002, 251812003, 251812004, 251812005, 251812006, 251812007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.010	08/17/09 19:40	
Acenaphthylene	ug/L	ND	0.010	08/17/09 19:40	
Anthracene	ug/L	ND	0.010	08/17/09 19:40	
Benzo(a)anthracene	ug/L	ND	0.010	08/17/09 19:40	
Benzo(a)pyrene	ug/L	ND	0.010	08/17/09 19:40	
Benzo(b)fluoranthene	ug/L	ND	0.010	08/17/09 19:40	
Benzo(g,h,i)perylene	ug/L	ND	0.010	08/17/09 19:40	
Benzo(k)fluoranthene	ug/L	ND	0.010	08/17/09 19:40	
Chrysene	ug/L	ND	0.010	08/17/09 19:40	
Dibenz(a,h)anthracene	ug/L	ND	0.010	08/17/09 19:40	
Fluoranthene	ug/L	ND	0.010	08/17/09 19:40	
Fluorene	ug/L	ND	0.010	08/17/09 19:40	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.010	08/17/09 19:40	
Naphthalene	ug/L	ND	0.010	08/17/09 19:40	
Phenanthrene	ug/L	0.016	0.010	08/17/09 19:40	B+
Pyrene	ug/L	ND	0.010	08/17/09 19:40	
2-Fluorobiphenyl (S)	%	75	20-160	08/17/09 19:40	
Nitrobenzene-d5 (S)	%	78	20-160	08/17/09 19:40	
Terphenyl-d14 (S)	%	89	20-160	08/17/09 19:40	

LABORATORY CONTROL SAMPLE & LCSD: 8639 8640

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	2.5	0.69	0.98	28	39	20-160	35	30	R1
Acenaphthylene	ug/L	2.5	0.64	0.92	25	37	20-160	37	30	R1
Anthracene	ug/L	2.5	0.76	0.99	30	40	20-160	26	30	
Benzo(a)anthracene	ug/L	2.5	0.79	1.0	32	41	20-160	26	30	
Benzo(a)pyrene	ug/L	2.5	0.80	1.0	32	42	20-160	26	30	
Benzo(b)fluoranthene	ug/L	2.5	0.82	1.1	33	44	20-160	28	30	
Benzo(g,h,i)perylene	ug/L	2.5	0.81	1.1	32	43	20-160	29	30	
Benzo(k)fluoranthene	ug/L	2.5	0.80	1.1	32	43	20-160	29	30	
Chrysene	ug/L	2.5	0.79	1.1	31	42	20-160	30	30	
Dibenz(a,h)anthracene	ug/L	2.5	0.87	1.2	35	47	20-160	30	30	
Fluoranthene	ug/L	2.5	0.83	1.1	33	44	20-160	27	30	
Fluorene	ug/L	2.5	0.74	1.0	30	40	20-160	31	30	R1
Indeno(1,2,3-cd)pyrene	ug/L	2.5	0.90	1.1	36	45	20-160	23	30	
Naphthalene	ug/L	2.5	0.61	0.96	24	38	20-160	45	30	R1
Phenanthrene	ug/L	2.5	0.81	1.1	32	42	20-160	27	30	
Pyrene	ug/L	2.5	0.74	0.97	30	39	20-160	27	30	
2-Fluorobiphenyl (S)	%				51	82	20-160			
Nitrobenzene-d5 (S)	%				48	83	20-160			

QUALITY CONTROL DATA

Project: SEM-Materials
Pace Project No.: 251812

LABORATORY CONTROL SAMPLE & LCSD:		8639		8640							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
Terphenyl-d14 (S)	%				62	87	20-160				

QUALITY CONTROL DATA

Project: SEM-Materials
Pace Project No.: 251812

QC Batch: OEXT/1376 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 251812001, 251812002, 251812003, 251812005, 251812006, 251812008

METHOD BLANK: 8832 Matrix: Water
Associated Lab Samples: 251812001, 251812002, 251812003, 251812005, 251812006, 251812008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range SG	mg/L	ND	0.080	08/28/09 19:11	
Motor Oil Range SG	mg/L	ND	0.40	08/28/09 19:11	
n-Octacosane (S) SG	%	19	50-150	08/28/09 19:11	S0
o-Terphenyl (S) SG	%	32	50-150	08/28/09 19:11	S0

LABORATORY CONTROL SAMPLE & LCSD: 8833 8834

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range SG	mg/L	5	3.5	3.0	69	59	51-147	16	30	
Motor Oil Range SG	mg/L	5	3.8	3.2	76	63	20-160	18	30	
n-Octacosane (S) SG	%				58	47	50-150			S0
o-Terphenyl (S) SG	%				89	73	50-150			

QUALIFIERS

Project: SEM-Materials
Pace Project No.: 251812

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: MSSV/1095

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1n Result confirmed by re-extraction (out of hold) and re-analysis.

2n Result could not be confirmed by re-extraction (out of hold) and re-analysis due to insufficient sample volume.

B+ Analyte was detected in the associated method blank as well as in the sample.

R1 RPD value was outside control limits.

S0 Surrogate recovery outside laboratory control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SEM-Materials
Pace Project No.: 251812

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
251812001	UDC-MW4	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812002	GMW-01-1	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812003	GMW-01-2	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812004	FB	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812005	GMW-03	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812006	GMW-02	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812007	Office Blank	EPA 3510	OEXT/1361	EPA 8270 by SIM	MSSV/1095
251812001	UDC-MW4	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203
251812002	GMW-01-1	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203
251812003	GMW-01-2	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203
251812005	GMW-03	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203
251812006	GMW-02	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203
251812008	FB-2	EPA 3510	OEXT/1376	NWTPH-Dx	GCSV/1203



Sample Condition Upon Receipt

Client Name: Goldier Project # 251812

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____
Tracking #: 8690 1146 0190

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 4.7, 3.0, 2.9 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

Date and Initials of person examining contents: NSS 08/08/09

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, conform. TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ Field Data Required? Y / N
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: Mahesh Jais Date: 8/11/09



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: **Section B** Required Project Information: **Section C** Invoice Information:

Company: Golden Assoc/John Monks
Address: 18300NE Elmwood Hwy
Report To: Doug Morell
Copy To: John Monks
Phone: 125-653-6777
Project Name: Sem Water rats
Request Date/TAT: 8/25/09
Attention: Doug Morell
Company Name: Golden Assoc
Address: SAME
Regulatory Agency: NPDES GROUND WATER RCRA UST
Site Location: WA
State: WA
Other: DRINKING WATER OTHER DOZ

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ITEM #	SAMPLE ID (A-Z, 0-9 / - / .)	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see vial codes to left)	SAMPLER TEMP AT COLLECTION		# OF CONTAINERS	Preservatives	Analysis Test	Requested Analysis Filtered (Y/N)
			COMPOSITE START	COMPOSITE END			DATE	TIME				
1	UDL-MW-1	DW	8/4/09	1220	G	WT		4	Z	NADPH-DX	Y	
2	GMW-01-1	WW	8/5/09	1455	G	WT		4	Z	NADPH-DX	Y	
3	GMW-01-2	P	8/5/09	1535	G	WT		4	Z	NADPH-DX	Y	
4	FB	SL	8/5/09	1423	C	WT		1	1		Y	
5	GMW-03	WP	8/6/09	1525	G	WT		4	Z	NADPH-DX	Y	
6	GMW-02	AR	8/6/09	1140	G	WT		4	Z	NADPH-DX	Y	
7	Efflu Blank	TS	8/6/09	1743	C	WT		1	1		Y	
8	FB-2	OT	8/6/09	1550	C	WT		1	1		Y	
9												
10												
11												
12												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	BRENDA BOBER / GOLDEN	8/7/09	1710	Jyothi	8/10/09	0000	Temp in C: 47

Residual Chlorine (Y/N): 251812
Pace Project No./ Lab I.D.: 251812-001
Temp in C: 47
Received on:
Sealed Cooler (Y/N):
Custody (Y/N):
Samples Intact (Y/N):

SAMPLER NAME AND SIGNATURE:
 PRINT Name of SAMPLER: John Monks
 SIGNATURE of SAMPLER: [Signature]

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to into charges of 1.5% per month for any invoices not paid within 30 days.

October 07, 2009

Doug Morell
Golder Associates - WA
18300 NE Union Hill Rd, #200
Redmond, WA 980523333

Amendment to final report for 251855: Corrected LCS recoveries for PAH to reflect correct spiking amount.

RE: Project: Sem Materials
Pace Project No.: 251855

Dear Doug Morell:

Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

The reported results for diesel were taken from the PAH extract, per client request. The detect in the diesel range was contribution from the PAH surrogate in both the blank and samples. No surrogate or LCS recoveries were available for the diesel analysis, because the extract only contained PAH surrogates and target analytes.

The diesel reporting limits reflected on this report are lower than the Pace Analytical Seattle's routine diesel limits because the extract was taken down to a smaller volume in order to meet the PAH reporting limits.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Taylor

natalie.taylor@pacelabs.com
Project Manager

REPORT OF LABORATORY ANALYSIS

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October 07, 2009
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Enclosures

cc: John Monks, Golder Associates
Tom Stapp, Golder Associates - WA

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Sem Materials
Pace Project No.: 251855

Washington Certification IDs

Washington Certification #: C1229
Oregon Certification #: WA200007
Florida/NELAP Certification #: E87617
Alaska CS Certification #: UST-025

Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Sem Materials
Pace Project No.: 251855

Lab ID	Sample ID	Matrix	Date Collected	Date Received
251855001	GMW-04	Water	08/10/09 12:31	08/12/09 08:30
251855002	GMW-05	Water	08/10/09 15:35	08/12/09 08:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Sem Materials
Pace Project No.: 251855

Lab ID	Sample ID	Method	Analysts	Analytes Reported
251855001	GMW-04	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	2
251855002	GMW-05	EPA 8270 by SIM	JMW	19
		NWTPH-Dx	KRK	2

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Sem Materials
Pace Project No.: 251855

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Golder Associates
Date: October 07, 2009

General Information:

2 samples were analyzed for NWTPH-Dx. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

QC Batch: OEXT/1531

CC: The continuing calibration for this compound is outside of method control limits. The result is estimated.

- BLANK (Lab ID: 12337)
 - Motor Oil Range
- GMW-04 (Lab ID: 251855001)
 - Motor Oil Range
- GMW-05 (Lab ID: 251855002)
 - Motor Oil Range

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Contradicts what is stated
on Cover page,
see below. *[Signature]*

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

QC Batch: OEXT/1531

B: Analyte was detected in the associated method blank.

- BLANK (Lab ID: 12337)
 - Diesel Range

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Sem Materials
Pace Project No.: 251855

Method: NWTPH-Dx
Description: NWTPH-Dx GCS
Client: Golder Associates
Date: October 07, 2009

Additional Comments:

Batch Comments:

Diesel data provided was analyzed from the 8270-PAH extract per client request. Diesel surrogates are therefore not available.
• QC Batch: GCSV / 1260

Analyte Comments:

QC Batch: OEXT/1531

1n: Detection is associated with 8270 surrogate compounds.

- BLANK (Lab ID: 12337)
 - Diesel Range
- GMW-04 (Lab ID: 251855001)
 - Diesel Range
- GMW-05 (Lab ID: 251855002)
 - Diesel Range

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: Sem Materials
Pace Project No.: 251855

Method: EPA 8270 by SIM
Description: 8270 MSSV Low Level PAH SIM
Client: Golder Associates
Date: October 07, 2009

General Information:

2 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

QC Batch: OEXT/1374

B-: Analyte detected in method blank but was not detected in the associated samples.

- BLANK (Lab ID: 8823)
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Benzo(k)fluoranthene
 - Indeno(1,2,3-cd)pyrene

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/1096

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

REPORT OF LABORATORY ANALYSIS

PROJECT NARRATIVE

Project: Sem Materials
Pace Project No.: 251855

Method: EPA 8270 by SIM
Description: 8270 MSSV Low Level PAH SIM
Client: Golder Associates
Date: October 07, 2009

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

[Signature] 10-12-2009

Project: Sem Materials
Pace Project No.: 251855

Sample: GMW-04		Lab ID: 251855001	Collected: 08/10/09 12:31	Received: 08/12/09 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.027 mg/L	J	0.0095	1	08/13/09 14:00	09/10/09 21:21		1n,B
Motor Oil Range	ND mg/L	UJ	0.047	1	08/13/09 14:00	09/10/09 21:21	64742-65-0	CC
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	193-39-5	
Naphthalene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	91-20-3	
Phenanthrene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	85-01-8	
Pyrene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 01:45	129-00-0	
Nitrobenzene-d5 (S)	80 %		20-160	1	08/13/09 14:00	08/18/09 01:45	4165-60-0	
2-Fluorobiphenyl (S)	71 %		20-160	1	08/13/09 14:00	08/18/09 01:45	321-60-8	
Terphenyl-d14 (S)	79 %		20-160	1	08/13/09 14:00	08/18/09 01:45	1718-51-0	

Sample: GMW-05		Lab ID: 251855002	Collected: 08/10/09 15:35	Received: 08/12/09 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS		Analytical Method: NWTPH-Dx Preparation Method: EPA 3510						
Diesel Range	0.041 mg/L	J	0.0095	1	08/13/09 14:00	09/10/09 21:40		1n,B
Motor Oil Range	ND mg/L	UJ	0.047	1	08/13/09 14:00	09/10/09 21:40	64742-65-0	CC
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	83-32-9	
Acenaphthylene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	208-96-8	
Anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	120-12-7	
Benzo(a)anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	56-55-3	
Benzo(a)pyrene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	207-08-9	
Chrysene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	53-70-3	
Fluoranthene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	206-44-0	
Fluorene	ND ug/L		0.0095	1	08/13/09 14:00	08/18/09 02:07	86-73-7	

ANALYTICAL RESULTS

Project: Sem Materials
Pace Project No.: 251855

Sample: GMW-05		Lab ID: 251855002	Collected: 08/10/09 15:35	Received: 08/12/09 08:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.0095	1	08/13/09 14:00	08/18/09 02:07	193-39-5	
Naphthalene	ND	ug/L	0.0095	1	08/13/09 14:00	08/18/09 02:07	91-20-3	
Phenanthrene	0.014	ug/L	0.0095	1	08/13/09 14:00	08/18/09 02:07	85-01-8	
Pyrene	ND	ug/L	0.0095	1	08/13/09 14:00	08/18/09 02:07	129-00-0	
Nitrobenzene-d5 (S)	39	%	20-160	1	08/13/09 14:00	08/18/09 02:07	4165-60-0	
2-Fluorobiphenyl (S)	33	%	20-160	1	08/13/09 14:00	08/18/09 02:07	321-60-8	
Terphenyl-d14 (S)	40	%	20-160	1	08/13/09 14:00	08/18/09 02:07	1718-51-0	

QUALITY CONTROL DATA

Project: Sem Materials
Pace Project No.: 251855

QC Batch: OEXT/1374 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Low Level PAH SIM
Associated Lab Samples: 251855001, 251855002

METHOD BLANK: 8823 Matrix: Water

Associated Lab Samples: 251855001, 251855002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.010	08/17/09 23:58	
Acenaphthylene	ug/L	ND	0.010	08/17/09 23:58	
Anthracene	ug/L	ND	0.010	08/17/09 23:58	
Benzo(a)anthracene	ug/L	0.014	0.010	08/17/09 23:58	B-
Benzo(a)pyrene	ug/L	ND	0.010	08/17/09 23:58	
Benzo(b)fluoranthene	ug/L	0.051	0.010	08/17/09 23:58	B-
Benzo(g,h,i)perylene	ug/L	ND	0.010	08/17/09 23:58	
Benzo(k)fluoranthene	ug/L	0.011	0.010	08/17/09 23:58	B-
Chrysene	ug/L	ND	0.010	08/17/09 23:58	
Dibenz(a,h)anthracene	ug/L	ND	0.010	08/17/09 23:58	
Fluoranthene	ug/L	ND	0.010	08/17/09 23:58	
Fluorene	ug/L	ND	0.010	08/17/09 23:58	
Indeno(1,2,3-cd)pyrene	ug/L	0.022	0.010	08/17/09 23:58	B-
Naphthalene	ug/L	ND	0.010	08/17/09 23:58	
Phenanthrene	ug/L	ND	0.010	08/17/09 23:58	
Pyrene	ug/L	ND	0.010	08/17/09 23:58	
2-Fluorobiphenyl (S)	%	29	20-160	08/17/09 23:58	
Nitrobenzene-d5 (S)	%	31	20-160	08/17/09 23:58	
Terphenyl-d14 (S)	%	35	20-160	08/17/09 23:58	

LABORATORY CONTROL SAMPLE & LCSD: 8824 8825

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1.2	1.0	1.1	83	89	20-160	6	30	
Acenaphthylene	ug/L	1.2	0.96	1.0	77	80	20-160	4	30	
Anthracene	ug/L	1.2	1.1	1.1	84	85	20-160	1	30	
Benzo(a)anthracene	ug/L	1.2	1.2	1.1	94	87	20-160	8	30	
Benzo(a)pyrene	ug/L	1.2	1.2	1.1	94	87	20-160	8	30	
Benzo(b)fluoranthene	ug/L	1.2	1.2	1.2	97	96	20-160	1	30	
Benzo(g,h,i)perylene	ug/L	1.2	1.2	1.1	100	89	20-160	11	30	
Benzo(k)fluoranthene	ug/L	1.2	1.3	1.1	102	90	20-160	13	30	
Chrysene	ug/L	1.2	1.2	1.1	97	90	20-160	8	30	
Dibenz(a,h)anthracene	ug/L	1.2	1.3	1.1	104	91	20-160	14	30	
Fluoranthene	ug/L	1.2	1.3	1.2	102	94	20-160	8	30	
Fluorene	ug/L	1.2	1.1	1.2	87	93	20-160	7	30	
Indeno(1,2,3-cd)pyrene	ug/L	1.2	1.2	1.0	97	84	20-160	15	30	
Naphthalene	ug/L	1.2	0.85	1.1	68	86	20-160	23	30	
Phenanthrene	ug/L	1.2	1.2	1.2	96	93	20-160	3	30	
Pyrene	ug/L	1.2	1.1	1.1	91	85	20-160	7	30	
2-Fluorobiphenyl (S)	%				67	76	20-160			
Nitrobenzene-d5 (S)	%				70	84	20-160			

QUALITY CONTROL DATA

Project: Sem Materials
Pace Project No.: 251855

LABORATORY CONTROL SAMPLE & LCSD: 8824		8825									
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
Terphenyl-d14 (S)	%				89	83	20-160				

QUALITY CONTROL DATA

Project: Sem Materials
Pace Project No.: 251855

QC Batch: OEXT/1531 Analysis Method: NWTPH-Dx
QC Batch Method: EPA 3510 Analysis Description: NWTPH-Dx GCS
Associated Lab Samples: 251855001, 251855002

METHOD BLANK: 12337 Matrix: Water
Associated Lab Samples: 251855001, 251855002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range	mg/L	0.022	0.010	09/10/09 21:02	1n,B
Motor Oil Range	mg/L	ND	0.050	09/10/09 21:02	CC

QUALIFIERS

Project: Sem Materials
Pace Project No.: 251855

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: MSSV/1096

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/1260

[1] Diesel data provided was analyzed from the 8270-PAH extract per client request. Diesel surrogates are therefore not available.

ANALYTE QUALIFIERS

1n Detection is associated with 8270 surrogate compounds.

B Analyte was detected in the associated method blank.

B- Analyte detected in method blank but was not detected in the associated samples.

CC The continuing calibration for this compound is outside of method control limits. The result is estimated.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Sem Materials
Pace Project No.: 251855

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
251855001	GMW-04	EPA 3510	OEXT/1374	EPA 8270 by SIM	MSSV/1096
251855002	GMW-05	EPA 3510	OEXT/1374	EPA 8270 by SIM	MSSV/1096
251855001	GMW-04	EPA 3510	OEXT/1531	NWTPH-Dx	GCSV/1260
251855002	GMW-05	EPA 3510	OEXT/1531	NWTPH-Dx	GCSV/1260



Sample Condition Upon Receipt

Client Name: Golden Associates

Project # 251855

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: A27 AWC 79011186 8/11/09
SL 8321412325

Custody Seal on Cooler/Box Present: yes no Seals Intact: yes no

Optional:
Proj. Due Date:
Proj. Name:

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used Horiba 132013

Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 19, 18, 2.6
Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/12/09 AR

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1. <u>Pace coc # 1222688</u>
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>Water</u>		
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____

Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <u>Grider Associates</u>	Report To: <u>Doug Moxley</u>	Attention: <u>Doug Moxley</u>	Invoice # <u>1222688</u>		
Address: <u>15330 NE Union Hill Rd</u>	Copy To: <u>John Marks</u>	Company Name: <u>Grider Assoc.</u>	REGULATORY AGENCY		
Requester: <u>Richard W.A.</u>	Purchase Order No.:	Address:	<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
Email To: <u>Dmoxley@grider.com</u>	Project Name: <u>Send Materials</u>	Pico Quote Reference:	<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input checked="" type="checkbox"/> OTHER <u>D&E</u>
Phone: <u>425-853-0777</u>	Requested Date: <u>8/10/09</u>	Pico Project Manager: <u>Nature Taylor</u>	Site Location		
Requested Date: <u>8/10/09</u>	Project Number: <u>673-93170-07</u>	Pico Profile #:	STATE: <u>WA</u>		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Residual Chlorine (Y/N)	Temp in °C	Recovery un	Sealed Cooler (Y/N)	Samples Intact (Y/N)																		
				DATE	TIME			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₈	Methanol	Other						Analysis Test																	
1	7-MW-04	DW	WTG	8/10/09	17:31		2																														
2	7-MW-05	WW	WTG	8/10/09	15:35		2																														
3		P																																			
4		SL																																			
5		OL																																			
6		WP																																			
7		AR																																			
8		TS																																			
9		OT																																			
10																																					
11																																					
12																																					

ADDITIONAL COMMENTS: P&H needs low levels detection 0.01 ug/L

RELINQUISHED BY: Richard W.A. Grider DATE: 8/10/09 TIME: 15:50

ACCEPTED BY: John Marks DATE: 8/10/09 TIME: 08:30

DATE SIGNED: 8/10/09

SIGNATURE OF SAMPLER: [Signature]

PRINT NAME OF SAMPLER: John Marks

DATE SIGNED (MM/DD/YYYY): 8/10/09

SIGNATURE OF SAMPLER: [Signature]

PRINT NAME OF SAMPLER: John Marks

DATE SIGNED (MM/DD/YYYY): 8/10/09

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020-rev.07, 15-May-2007

DATA VALIDATION
251783

August 27, 2009

QA Officer

RE: Project: Bottle Lot Testing
Pace Project No.: 251783

Dear QA Officer:

Enclosed are the analytical results for sample(s) received by the laboratory on August 05, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Natalie Taylor for
Monica L Carr
monica.carr@pacelabs.com
Quality Assurance Officer

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 9

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CERTIFICATIONS

Project: Bottle Lot Testing
Pace Project No.: 251783

Washington Certification IDs

Washington Certification #: C1229
Oregon Certification #: WA200007
Florida/NELAP Certification #: E87617
Alaska CS Certification #: UST-025

Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
California Certification #: 01153CA

REPORT OF LABORATORY ANALYSIS

Page 2 of 9

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SAMPLE SUMMARY

Project: Bottle Lot Testing
Pace Project No.: 251783

Lab ID	Sample ID	Matrix	Date Collected	Date Received
251783001	Bottle Lot 037778	Water	08/05/09 14:30	08/05/09 14:31

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Bottle Lot Testing
Pace Project No.: 251783

Lab ID	Sample ID	Method	Analysts	Analytes Reported
251783001	Bottle Lot 037778	EPA 8270 by SIM	JMW	19

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Bottle Lot Testing
Pace Project No.: 251783

Sample: Bottle Lot 037778 **Lab ID: 251783001** Collected: 08/05/09 14:30 Received: 08/05/09 14:31 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Low Level PAH SIM		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Acenaphthene	ND	ug/L	0.0033	1	08/11/09 11:14	08/24/09 17:12	83-32-9	
Acenaphthylene	ND	ug/L	0.0075	1	08/11/09 11:14	08/24/09 17:12	208-96-8	
Anthracene	ND	ug/L	0.0037	1	08/11/09 11:14	08/24/09 17:12	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.016	1	08/11/09 11:14	08/24/09 17:12	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.0094	1	08/11/09 11:14	08/24/09 17:12	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.0096	1	08/11/09 11:14	08/24/09 17:12	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.016	1	08/11/09 11:14	08/24/09 17:12	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.012	1	08/11/09 11:14	08/24/09 17:12	207-08-9	
Chrysene	ND	ug/L	0.017	1	08/11/09 11:14	08/24/09 17:12	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.015	1	08/11/09 11:14	08/24/09 17:12	53-70-3	
Fluoranthene	ND	ug/L	0.0069	1	08/11/09 11:14	08/24/09 17:12	206-44-0	
Fluorene	ND	ug/L	0.0037	1	08/11/09 11:14	08/24/09 17:12	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.019	1	08/11/09 11:14	08/24/09 17:12	193-39-5	
Naphthalene	ND	ug/L	0.019	1	08/11/09 11:14	08/24/09 17:12	91-20-3	
Phenanthrene	ND	ug/L	0.0048	1	08/11/09 11:14	08/24/09 17:12	85-01-8	
Pyrene	ND	ug/L	0.0058	1	08/11/09 11:14	08/24/09 17:12	129-00-0	
Nitrobenzene-d5 (S)	116	%	20-160	1	08/11/09 11:14	08/24/09 17:12	4165-60-0	
2-Fluorobiphenyl (S)	107	%	20-160	1	08/11/09 11:14	08/24/09 17:12	321-60-8	
Terphenyl-d14 (S)	124	%	20-160	1	08/11/09 11:14	08/24/09 17:12	1718-51-0	

QUALITY CONTROL DATA

Project: Bottle Lot Testing
Pace Project No.: 251783

QC Batch: OEXT/1348 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 Analysis Description: 8270 Low Level PAH SIM
Associated Lab Samples: 251783001

METHOD BLANK: 8309 Matrix: Water
Associated Lab Samples: 251783001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.0034	08/24/09 16:18	
Acenaphthylene	ug/L	ND	0.0078	08/24/09 16:18	
Anthracene	ug/L	ND	0.0038	08/24/09 16:18	
Benzo(a)anthracene	ug/L	ND	0.016	08/24/09 16:18	
Benzo(a)pyrene	ug/L	ND	0.0098	08/24/09 16:18	
Benzo(b)fluoranthene	ug/L	ND	0.010	08/24/09 16:18	
Benzo(g,h,i)perylene	ug/L	ND	0.017	08/24/09 16:18	
Benzo(k)fluoranthene	ug/L	ND	0.013	08/24/09 16:18	
Chrysene	ug/L	ND	0.018	08/24/09 16:18	
Dibenz(a,h)anthracene	ug/L	ND	0.016	08/24/09 16:18	
Fluoranthene	ug/L	ND	0.0072	08/24/09 16:18	
Fluorene	ug/L	ND	0.0038	08/24/09 16:18	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.020	08/24/09 16:18	
Naphthalene	ug/L	ND	0.020	08/24/09 16:18	
Phenanthrene	ug/L	ND	0.0050	08/24/09 16:18	
Pyrene	ug/L	ND	0.0060	08/24/09 16:18	
2-Fluorobiphenyl (S)	%	97	20-160	08/24/09 16:18	
Nitrobenzene-d5 (S)	%	126	20-160	08/24/09 16:18	
Terphenyl-d14 (S)	%	123	20-160	08/24/09 16:18	

LABORATORY CONTROL SAMPLE & LCSD: 8310

8311

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	2.5	1.2	1.2	47	47	20-160	.9	30	
Acenaphthylene	ug/L	2.5	1.3	1.3	53	51	20-160	4	30	
Anthracene	ug/L	2.5	1.3	1.2	51	50	20-160	3	30	
Benzo(a)anthracene	ug/L	2.5	1.5	1.5	62	59	20-160	5	30	
Benzo(a)pyrene	ug/L	2.5	1.5	1.4	58	56	20-160	3	30	
Benzo(b)fluoranthene	ug/L	2.5	1.6	1.6	65	62	20-160	5	30	
Benzo(g,h,i)perylene	ug/L	2.5	1.6	1.5	62	61	20-160	1	30	
Benzo(k)fluoranthene	ug/L	2.5	1.5	1.5	59	60	20-160	1	30	
Chrysene	ug/L	2.5	1.5	1.4	58	57	20-160	2	30	
Dibenz(a,h)anthracene	ug/L	2.5	1.6	1.6	65	63	20-160	3	30	
Fluoranthene	ug/L	2.5	1.6	1.5	62	60	20-160	3	30	
Fluorene	ug/L	2.5	1.3	1.3	51	51	20-160	.3	30	
Indeno(1,2,3-cd)pyrene	ug/L	2.5	1.6	1.6	64	62	20-160	3	30	
Naphthalene	ug/L	2.5	1.2	1.2	47	47	20-160	.4	30	
Phenanthrene	ug/L	2.5	1.3	1.4	54	54	20-160	.7	30	
Pyrene	ug/L	2.5	1.5	1.5	60	58	20-160	3	30	
2-Fluorobiphenyl (S)	%				97	87	20-160			
Nitrobenzene-d5 (S)	%				119	106	20-160			

Date: 08/27/2009 07:40 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bottle Lot Testing
Pace Project No.: 251783

LABORATORY CONTROL SAMPLE & LCSD: 8310		8311									
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
Terphenyl-d14 (S)	%				127	127	20-160				

QUALIFIERS

Project: Bottle Lot Testing
Pace Project No.: 251783

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: MSSV/1099

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Bottle Lot Testing
Pace Project No.: 251783

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
251783001	Bottle Lot 037778	EPA 3510	OEXT/1348	EPA 8270 by SIM	MSSV/1099

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170-02	SITE: SEM Materials, LP; Spokane, WA
LABORATORY: PACE ANALYTICAL	SDG: # 251812 & # 251855
SAMPLES UDC-MW4	Collected: 8-4-09
GMW-01-1 and -2	8-5-09
FB	"
GMW-03	8-6-09
GMW-02	
OFFICE BLANK	
FB-2	

MATRIX
WATER

DATA ASSESSMENT SUMMARY

REVIEW ITEM	SVOA 8270C	NW-TPH Diesel-X	Pest / PCB	Chlor / Herb.	Dioxin/ Furan	OTHER	OTHER
1. Data Completeness	○	○					
2. Holding Times	○	○					
3. Field Blanks (5)	X	○					
4. Laboratory Blanks (1)	X	○					
5. Surrogates (2)	○	X					
6. Lab Duplicate, Field Duplicate	○	○					
7. LCS, Blank Spike	○	○					
8. Matrix Spike /MS Duplicate	○	○					
9. Result Verify, Detection Limits	○	○					
10. Overall Summary (3, 4)	○	OX					

○ = Data had no problems ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or U)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/U)].
 Z = Data unacceptable [typically data rejected (R)].

Comments/Qualified Results: (1) Phenanthrene Contaminant in Method Blank qualifies assoc. Phenanthr. results as "U" for samples UDC-MW4 and OFFICE BLANK. (2) Surrogate out of limit for NWTPH - Qualifies select results (J/U) see pg. 3.

(3) - Revised Laboratory Submittal cites results reported for D_x as affected biased by Surrogate compounds. Results Qualif. (J) as estimated for GMW-04 and GMW-05.

(4) Out of Limit Contin. Calib. qualifies Motor Oil (range as estimated)

(5) Field Blank "Office" qualifies assoc. Samples as non-detect "U" for Naphthalene & Phenanthrene. See Section #3. 10-12-09 (J/U)

* See page 5 for Sample List for SDG # 251855. 11-02-09

Validated by:

Date: Sept. 28, 2009

Reviewed by:

Date: Revised Nov. 2, 2009

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

YES NO

1. Date Package Completeness (Check if present).....

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results:

Extraction Method: 3510 ^{Separat.} Funnel SDG # 251812 ✓
 3510 # 251855 ✓
 Sample Receipt - 251855 ✓
 251812 ✓

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection NWTPH-D_x
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: #251855 : 8270 ✓, NWTPH-D_x ✓ for

GMW-04, GMW-05, (3 Days Prep.)
 #251812 : 8270 on UDC-MW4, GMW-01-1, GMW-01-2, FB, GMW-03, GMW-02, and OFFICE BLANK. Collect 8/4, 5, 6 Analysis on 8/11/09. NWTPH on all above except FB and OFFICE BLANK, but add FB-2. Collect: 8/4, 5, 6 Prepon 8/18/09

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set,
- Storage Blanks; Target Cmpnds <RL, Me2I2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

FIELD BLANK ID: (FB) Office Blank, FB-2

Comments/Qualified Results:

Examples:
 #251855 - Not applicable.
 #251812 - (FB) for 8270 has trace detect Naphthalene. OFFICE BLANK has trace detect Naphthalene & Phenanthrene. These analytes qualified 'U' non-detect for samples: "FIELD BLANK", UDCMW-4, GMW-01-1, GMW-01-2, and GMW-02.

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep. Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs); Chart other Contaminants: Qualif. Results <5X RLs according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Comments/Qualified Results: Examples:

BLANK			SAMPLE	Q
MDL	Result	PQL	Result	Applied
0.3	0.45	1.0	0.8	1.0 U
0.3	0.99	1.0	1.8	1.8 J
0.3	1.5	1.0	1.1	1.5 U
0.3	1.5	1.0	1.8	1.8 J
0.3	0	1.0	0.85	0.85 J
0.3	0	1.0	1.8	1.8

#251855: ⁸²⁷⁰ Defects reported in Method Blanks do not affect assoc. Samples - No Qualif. — QC data not provided for NWTPH, but narrative supports No Qualif.

#251812: 8270 ~~#8638~~ has trace defect Phenanthrene; Result (Phenanth) for UDC-MW4 equals "U" @ blank contain level. Same for Sample "OFFICE BLANK".
 Sample 11-02-09

5. Surrogates (Check all that apply).....

- Surrogates analyzed
- Recoveries within Method Control (lab) limits (VOA: 80 – 120%, SVOA: Lab Established, PEST: 30-150%)
- Recoveries above Method Control limits (J detects only)
- Recoveries below Method Control limits but >20% (J/UJ) NWTPH " "
- Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results

#251855 for 8270 # NWTPH.

#251812 NWTPH Surrog. out for UDC-MW4, GMW-01, GMW-01-2, GMW-03, GMW-02, FB-2; Assoc. results qualif. (J/UJ).
 8270 surrogates.

6. Duplicate, Field Duplicates (Check all that apply).....

- Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL Parent ID:
- Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL Duplicate ID:
- Field duplicate RPD ≤20% (≤35% for soils)

Comments/Qualified Results #251855 - Not applicable.

#251812 - Not Applic.

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

- LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD ?] Lab Established ✓
- LCS %R 50-79% or >120%, results >IDL estimated (J)
- LCS %R 50-79% and results <IDL estimated (UJ)
- LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: SDG #251855 ✓:
★ Recoveries exceedingly Low but meet "recovery Study" values and NO Qualif is applied. Lab communicates these limits are being studied.
SDG 251812: 8270 ✓; NWTP4 ✓ laboratory limits.

8. MS / MSD Recovery on samples for associated Data Package... NA

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

- MS/MSD %R 80-120% SPIKED SAMPLE IDs:
- MS/MSD %R 50-79% or >120%, results >IDL estimated (J)
- MS/MSD %R 50-79% and results <IDL estimated (UJ)
- MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: # 251855 - No MS/MSD.
251812 - " "

9. Result Verification, Detection Limits

- Data Complete
- All results supported in raw data; [Raw data provided (Not Provided)]
- Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: # 251855: Reporting limit for Dx and M.Oil are suspect. → However, Lab was forced to use 8270 extract and RLs as reported are correct!

251812: 8270: 0.0095 µg/L ✓
Dx: 0.075 mg/L ✓
M.Oil: 0.40 mg/L ✓

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

10. Overall Assessment.....

Comments/Qualified Results: _____

* Note calibration standard is indicated to be
out of range for these Sample results only.
Assoc. results are qualified as estimated.

[Signature]

SDG # 251855 Sample List:

		<u>Collected</u>
*	GMW-04	8-10-09
*	GMW-05	8-10-09

ANALYTICAL REPORT

Job Number: 580-14775-1

Job Description: SEM Materials

For:

Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333
Attention: Douglas Morell



Approved for release,
Terri L. Torres
Project Manager II
8/20/2009 12:28 PM

Terri L. Torres
Project Manager II
terri.torres@testamericainc.com
08/20/2009

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424

Tel (253) 922-2310 Fax (253) 922-5047 www.testamericainc.com



Job Narrative
580-J14775-1

Receipt

COC lacks sampling times. Times taken from labels.

One container for sample 580-14775-1 was received broken: HCl preserved amber.

GC/MS Semi VOA - Method(s) 8270C

The surrogate recovery of 2-Fluorobiphenyl in sample 580-14775-1 exceeded QC limits by 1%. The recovery of all other surrogates was within QC limits, no further action was taken on this outlier. The anomaly was flagged "X."

GC Semi VOA - Method(s) NWTPH-Dx

The continuing calibration verification (CCV) for #2 Diesel (C10-C24) recovered above the upper control limit. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

METHOD SUMMARY

Client: Golder Associates Inc.

Job Number: 580-14775-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Semivolatile Organic Compounds (GC/MS SIM)	TAL TAC	SW846 8270C	
Liquid-Liquid Extraction (Continuous)	TAL TAC		SW846 3520C
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Golder Associates Inc.

Job Number: 580-14775-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-14775-1	GMW-04	Water	07/30/2009 1437	08/05/2009 0930
580-14775-2	GMW-05	Water	07/30/2009 1811	08/05/2009 0930
580-14775-3	GMW-06	Water	07/31/2009 1154	08/05/2009 0930
580-14775-4	Bottle Blank	Water	08/06/2009 0000	08/05/2009 0930

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-04**

Lab Sample ID: 580-14775-1

Date Sampled: 07/30/2009 1437

Client Matrix: Water

Date Received: 08/05/2009 0930

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48416	Instrument ID:	TAC023
Preparation:	3520C	Prep Batch: 580-47910	Lab File ID:	HP14593.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 1524		Final Weight/Volume:	1 mL
Date Prepared:	08/06/2009 1807		Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	0.012		0.0094
2-Methylnaphthalene	ND		0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND		0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND		0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND		0.0094
Chrysene	ND		0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	54		50 - 120
2-Fluorobiphenyl	49	X	50 - 120
Terphenyl-d14	62		50 - 120

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: GMW-05

Lab Sample ID: 580-14775-2

Date Sampled: 07/30/2009 1811

Client Matrix: Water

Date Received: 08/05/2009 0930

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48416	Instrument ID:	TAC023
Preparation:	3520C	Prep Batch: 580-47910	Lab File ID:	HP14594.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 1544		Final Weight/Volume:	1 mL
Date Prepared:	08/06/2009 1807		Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND		0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND		0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND		0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND		0.0094
Chrysene	ND		0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	79		50 - 120
2-Fluorobiphenyl	74		50 - 120
Terphenyl-d14	93		50 - 120

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-06**

Lab Sample ID: 580-14775-3

Date Sampled: 07/31/2009 1154

Client Matrix: Water

Date Received: 08/05/2009 0930

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48416	Instrument ID:	TAC023
Preparation:	3520C	Prep Batch: 580-47910	Lab File ID:	HP14595.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 1604		Final Weight/Volume:	1 mL
Date Prepared:	08/06/2009 1807		Injection Volume:	1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND		0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND		0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND		0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND		0.0094
Chrysene	ND		0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	84		50 - 120
2-Fluorobiphenyl	82		50 - 120
Terphenyl-d14	106		50 - 120

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: Bottle Blank

Lab Sample ID: 580-14775-4
 Client Matrix: Water

Date Sampled: 08/06/2009 0000
 Date Received: 08/05/2009 0930

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48416	Instrument ID: TAC023
Preparation:	3520C	Prep Batch: 580-47910	Lab File ID: HP14596.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/15/2009 1623		Final Weight/Volume: 1 mL
Date Prepared:	08/06/2009 1807		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND		0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND		0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND		0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND		0.0094
Chrysene	ND		0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	89		50 - 120
2-Fluorobiphenyl	79		50 - 120
Terphenyl-d14	98		50 - 120

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-04**

REVISED

Lab Sample ID: 580-14775-1

10-01-09

Date Sampled: 07/30/2009 1437

Client Matrix: Water

Date Received: 08/05/2009 0930

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48462	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-47937	Lab File ID:	FA39024.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/17/2009 1403		Final Weight/Volume:	5 mL
Date Prepared:	08/09/2009 1533		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	95		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-04**

Lab Sample ID: 580-14775-1

Date Sampled: 07/30/2009 1437

Client Matrix: Water

Date Received: 08/05/2009 0930

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48462	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-47937	Lab File ID:	FA39024.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/17/2009 1403		Final Weight/Volume:	5 mL
Date Prepared:	08/09/2009 1533		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-05**

Lab Sample ID: 580-14775-2

Date Sampled: 07/30/2009 1811

Client Matrix: Water

Date Received: 08/05/2009 0930

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48027	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-47937	Lab File ID:	AA000919.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/11/2009 1456		Final Weight/Volume:	5 mL
Date Prepared:	08/09/2009 1533		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	107		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14775-1

Client Sample ID: **GMW-06**

Lab Sample ID: 580-14775-3

Date Sampled: 07/31/2009 1154

Client Matrix: Water

Date Received: 08/05/2009 0930

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48027	Instrument ID:	SEA011
Preparation:	3510C	Prep Batch: 580-47937	Lab File ID:	AA000920.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/11/2009 1515		Final Weight/Volume:	5 mL
Date Prepared:	08/09/2009 1533		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	103		50 - 150

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14775-1

Method Blank - Batch: 580-47910

Method: 8270C
Preparation: 3520C

Lab Sample ID: MB 580-47910/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 1406
Date Prepared: 08/06/2009 1807

Analysis Batch: 580-48416
Prep Batch: 580-47910
Units: ug/L

Instrument ID: TAC023
Lab File ID: HP14589.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
Naphthalene	ND		0.010
2-Methylnaphthalene	ND		0.013
1-Methylnaphthalene	ND		0.010
Acenaphthylene	ND		0.010
Acenaphthene	ND		0.010
Fluorene	ND		0.010
Phenanthrene	ND		0.010
Anthracene	ND		0.010
Fluoranthene	ND		0.010
Pyrene	ND		0.010
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.020
Indeno[1,2,3-cd]pyrene	ND		0.010
Dibenz(a,h)anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010
Surrogate	% Rec	Acceptance Limits	
Nitrobenzene-d5	91	50 - 120	
2-Fluorobiphenyl	83	50 - 120	
Terphenyl-d14	105	50 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14775-1

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 580-47910**

**Method: 8270C
Preparation: 3520C**

LCS Lab Sample ID: LCS 580-47910/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 1426
Date Prepared: 08/06/2009 1807

Analysis Batch: 580-48416
Prep Batch: 580-47910
Units: ug/L

Instrument ID: TAC023
Lab File ID: HP14590.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-47910/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 1445
Date Prepared: 08/06/2009 1807

Analysis Batch: 580-48416
Prep Batch: 580-47910
Units: ug/L

Instrument ID: TAC023
Lab File ID: HP14591.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Naphthalene	99	74	60 - 140	29	40		
2-Methylnaphthalene	106	83	60 - 140	25	40		
1-Methylnaphthalene	98	77	60 - 140	24	40		
Acenaphthylene	99	77	60 - 140	25	40		
Acenaphthene	93	73	60 - 140	23	40		
Fluorene	99	78	60 - 140	23	40		
Phenanthrene	93	72	60 - 140	25	40		
Anthracene	106	82	60 - 140	26	40		
Fluoranthene	108	82	60 - 140	26	40		
Pyrene	102	80	60 - 140	25	40		
Benzo[a]anthracene	109	83	60 - 140	27	40		
Chrysene	111	85	60 - 140	27	40		
Benzo[b]fluoranthene	100	75	60 - 140	28	40		
Benzo[k]fluoranthene	99	74	60 - 140	29	40		
Benzo[a]pyrene	109	82	60 - 140	28	40		
Indeno[1,2,3-cd]pyrene	122	92	60 - 140	27	40		
Dibenz(a,h)anthracene	124	94	60 - 140	28	40		
Benzo[g,h,i]perylene	123	95	60 - 140	26	40		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Nitrobenzene-d5	95		73		50 - 120		
2-Fluorobiphenyl	85		65		50 - 120		
Terphenyl-d14	104		78		50 - 120		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14775-1

Method Blank - Batch: 580-47937

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: MB 580-47937/1-B
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/11/2009 1139
Date Prepared: 08/09/2009 1533

Analysis Batch: 580-48027
Prep Batch: 580-47937
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA000909.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.25
Surrogate	% Rec		Acceptance Limits
o-Terphenyl	124		50 - 150

Method Blank - Batch: 580-47937

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: MB 580-47937/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/11/2009 1412
Date Prepared: 08/09/2009 1533

Analysis Batch: 580-48027
Prep Batch: 580-47937
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA000917.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.25
Surrogate	% Rec		Acceptance Limits
o-Terphenyl	109		50 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14775-1

Lab Control Sample - Batch: 580-47937

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: LCS 580-47937/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/11/2009 1352
Date Prepared: 08/09/2009 1533

Analysis Batch: 580-48027
Prep Batch: 580-47937
Units: mg/L

Instrument ID: SEA011
Lab File ID: AA000916.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Motor Oil (>C24-C36)	5.00	5.50	110	66 - 125	
Surrogate		% Rec		Acceptance Limits	
o-Terphenyl		125		50 - 150	

Lab Control Sample - Batch: 580-47937

Method: NWTPH-Dx
Preparation: 3510C

Lab Sample ID: LCS 580-47937/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/17/2009 1338
Date Prepared: 08/09/2009 1533

Analysis Batch: 580-48462
Prep Batch: 580-47937
Units: mg/L

Instrument ID: TAC013
Lab File ID: FA39023.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
#2 Diesel (C10-C24)	5.00	5.27	105	70 - 140	
Motor Oil (>C24-C36)	5.00	6.03	121	66 - 125	
Surrogate		% Rec		Acceptance Limits	
o-Terphenyl		118		50 - 150	

Calculations are performed before rounding to avoid round-off errors in calculated results.

DATA REPORTING QUALIFIERS

Client: Golder Associates Inc.

Job Number: 580-14775-1

Lab Section	Qualifier	Description
GC/MS Semi VOA	X	Surrogate exceeds the control limits

Client GOLDER ASSOCIATES	Project Manager DOUG MORELL	Date 7/31/09	Chain of Custody Number 4984
Address 18300 NE UNION HILL RD STE 200	Telephone Number (Area Code)/Fax Number (425) 883-0777	Lab Number 14775	Page 1 of 1
City/State/Zip Code REDMOND WA	Site Contact JOHN MOKES	Analysis (Attach list if more space is needed)	
Project Name and Location (State) SEM MATERIALS WA	Carrier/Waybill Number FED EX	Special Instructions/Conditions of Receipt	
Contract/Purchase Order/Quote No. 073-53170-02	Lab Contact		
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix
GMW-04	7/30/09		
GMW-05	7/30/09		
GMW-06	7/30/09		
GMW-06	7/31/09		
Containers & Preservatives			
<input type="checkbox"/> Air	<input type="checkbox"/> Aqueous	<input type="checkbox"/> Sed.	<input type="checkbox"/> Soil
<input type="checkbox"/> Unpres.	<input type="checkbox"/> H2SO4	<input type="checkbox"/> HNO3	<input type="checkbox"/> HCl
<input type="checkbox"/> NaOH	<input type="checkbox"/> ZnAc	<input type="checkbox"/> NaOH	

QC Requirements (Specify)	Sample Disposal	Disposal By Lab
<input type="checkbox"/> Turn Around Time Required (business days) <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 10 Days <input type="checkbox"/> 15 Days <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> Relinquished By Manda Pava Date: 8/4/09 Time: 5:00 PM	<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Archive For _____ Months	<input checked="" type="checkbox"/> Disposal By Lab (A fee may be assessed if samples are retained longer than 1 month)

1. Received By	Date	Time
Tom / [Signature]	8/5/09	0930
2. Received By	Date	Time
3. Relinquished By	Date	Time

Login Sample Receipt Check List

Client: Golder Associates Inc.

Job Number: 580-14775-1

Login Number: 14775
Creator: Blankinship, Tom
List Number: 1

List Source: TestAmerica Tacoma

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Missing times, times taken from labels.
There are no discrepancies between the sample IDs on the containers and the COC.	False	one unpr. amber of Sx -3 missing ID on label. Times on labels, not COC
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	One HCl amber of Sx -1 received broken.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

ANALYTICAL REPORT

Job Number: 580-14829-1

Job Description: SEM Materials

For:

Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333
Attention: Douglas Morell



Approved for release.
Terri L. Torres
Project Manager II
8/20/2009 12:32 PM

Terri L Torres
Project Manager II
terri.torres@testamericainc.com
08/20/2009

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

TestAmerica Laboratories, Inc.

TestAmerica Tacoma 5755 8th Street East, Tacoma, WA 98424

Tel (253) 922-2310 Fax (253) 922-5047 www.testamericainc.com



Job Narrative
580-J14829-1

GC/MS Semi VOA - Method(s) 8270C

The laboratory control sample (LCS) for preparation batch 580-48079 analytical batch 580-48434 exceeded control limits for five target analytes. These analytes were biased high in the LCS and were not detected in the associated samples (580-14829-1 through 580-14829-8); therefore, the analytes outside of the control limits were "" flagged in the LCS and all associated samples and the data have been reported.

METHOD SUMMARY

Client: Golder Associates Inc.

Job Number: 580-14829-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Semivolatile Organic Compounds (GC/MS SIM)	TAL TAC	SW846 8270C	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C
Northwest - Semi-Volatile Petroleum Products (GC)	TAL TAC	NWTPH NWTPH-Dx	
Liquid-Liquid Extraction (Separatory Funnel)	TAL TAC		SW846 3510C

Lab References:

TAL TAC = TestAmerica Tacoma

Method References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Golder Associates Inc.

Job Number: 580-14829-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-14829-1	GMW-01-1	Water	08/05/2009 1609	08/08/2009 1525
580-14829-2	GMW-01-2	Water	08/05/2009 1638	08/08/2009 1525
580-14829-3	FB-1	Water	08/05/2009 1325	08/08/2009 1525
580-14829-4	GMW-02	Water	08/06/2009 1200	08/08/2009 1525
580-14829-5	GMW-03	Water	08/06/2009 1540	08/08/2009 1525
580-14829-6	FB-2	Water	08/06/2009 1544	08/08/2009 1525
580-14829-7	OB	Water	08/06/2009 1735	08/08/2009 1525
580-14829-8	UDC-MW-4	Water	08/04/2009 1414	08/08/2009 1525

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-01-1

Lab Sample ID: 580-14829-1

Date Sampled: 08/05/2009 1609

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000511.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/16/2009 2324		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	100		34 - 146
2-Fluorobiphenyl	88		35 - 143
Terphenyl-d14	99		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-01-2

Lab Sample ID: 580-14829-2

Date Sampled: 08/05/2009 1638

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000512.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/16/2009 2346		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	94		34 - 146
2-Fluorobiphenyl	85		35 - 143
Terphenyl-d14	95		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: FB-1

Lab Sample ID: 580-14829-3

Date Sampled: 08/05/2009 1325

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000513.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/17/2009 0007		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	0.030		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	0.0095		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	0.011		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	97		34 - 146
2-Fluorobiphenyl	89		35 - 143
Terphenyl-d14	98		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-02

Lab Sample ID: 580-14829-4

Date Sampled: 08/06/2009 1200

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000514.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/17/2009 0028		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	0.013		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	89		34 - 146
2-Fluorobiphenyl	78		35 - 143
Terphenyl-d14	93		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-03

Lab Sample ID: 580-14829-5

Date Sampled: 08/06/2009 1540

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000515.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/17/2009 0050		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	89		34 - 146
2-Fluorobiphenyl	78		35 - 143
Terphenyl-d14	97		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: OB

Lab Sample ID: 580-14829-7

Date Sampled: 08/06/2009 1735

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000516.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/17/2009 0111		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	ND		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	97		34 - 146
2-Fluorobiphenyl	81		35 - 143
Terphenyl-d14	97		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: UDC-MW-4

Lab Sample ID: 580-14829-8

Date Sampled: 08/04/2009 1414

Client Matrix: Water

Date Received: 08/08/2009 1525

8270C Semivolatile Organic Compounds (GC/MS SIM)

Method:	8270C	Analysis Batch: 580-48434	Instrument ID: SEA016
Preparation:	3510C	Prep Batch: 580-48079	Lab File ID: SE000517.D
Dilution:	1.0		Initial Weight/Volume: 1060 mL
Date Analyzed:	08/17/2009 0132		Final Weight/Volume: 1 mL
Date Prepared:	08/11/2009 1513		Injection Volume: 1 uL

Analyte	Result (ug/L)	Qualifier	RL
Naphthalene	ND		0.0094
2-Methylnaphthalene	ND	*	0.012
1-Methylnaphthalene	ND		0.0094
Acenaphthylene	ND		0.0094
Acenaphthene	ND		0.0094
Fluorene	ND	*	0.0094
Phenanthrene	ND		0.0094
Anthracene	0.012		0.0094
Fluoranthene	ND	*	0.0094
Pyrene	ND		0.0094
Benzo[a]anthracene	ND	*	0.0094
Chrysene	ND	*	0.0094
Benzo[b]fluoranthene	ND		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	ND		0.019
Indeno[1,2,3-cd]pyrene	ND		0.0094
Dibenz(a,h)anthracene	ND		0.0094
Benzo[g,h,i]perylene	ND		0.0094

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5	95		34 - 146
2-Fluorobiphenyl	68		35 - 143
Terphenyl-d14	86		35 - 166

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-01-1

Lab Sample ID: 580-14829-1

Date Sampled: 08/05/2009 1609

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38983.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/14/2009 2329		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	96		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: **GMW-01-2**

Lab Sample ID: 580-14829-2

Date Sampled: 08/05/2009 1638

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38984.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/14/2009 2349		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	103		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-02

Lab Sample ID: 580-14829-4

Date Sampled: 08/06/2009 1200

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38985.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 0010		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	94		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: GMW-03

Lab Sample ID: 580-14829-5

Date Sampled: 08/06/2009 1540

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38986.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 0030		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	102		50 - 150

Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: FB-2

Lab Sample ID: 580-14829-6

Date Sampled: 08/06/2009 1544

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38987.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 0050		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	95		50 - 150

Report Date: 17-Aug-2009 07:48:29

Chrom Revision: 1.0.2009.716

Data File: \\tacsrv5\ChromData\TAC013\20090814-1.b\FA38988.D

Inj Date: 15-Aug-2009 01:10:47

Limit Group: NWTPH-DX Standard list

Lims Batch ID: 48333

Lims Sample ID: 49

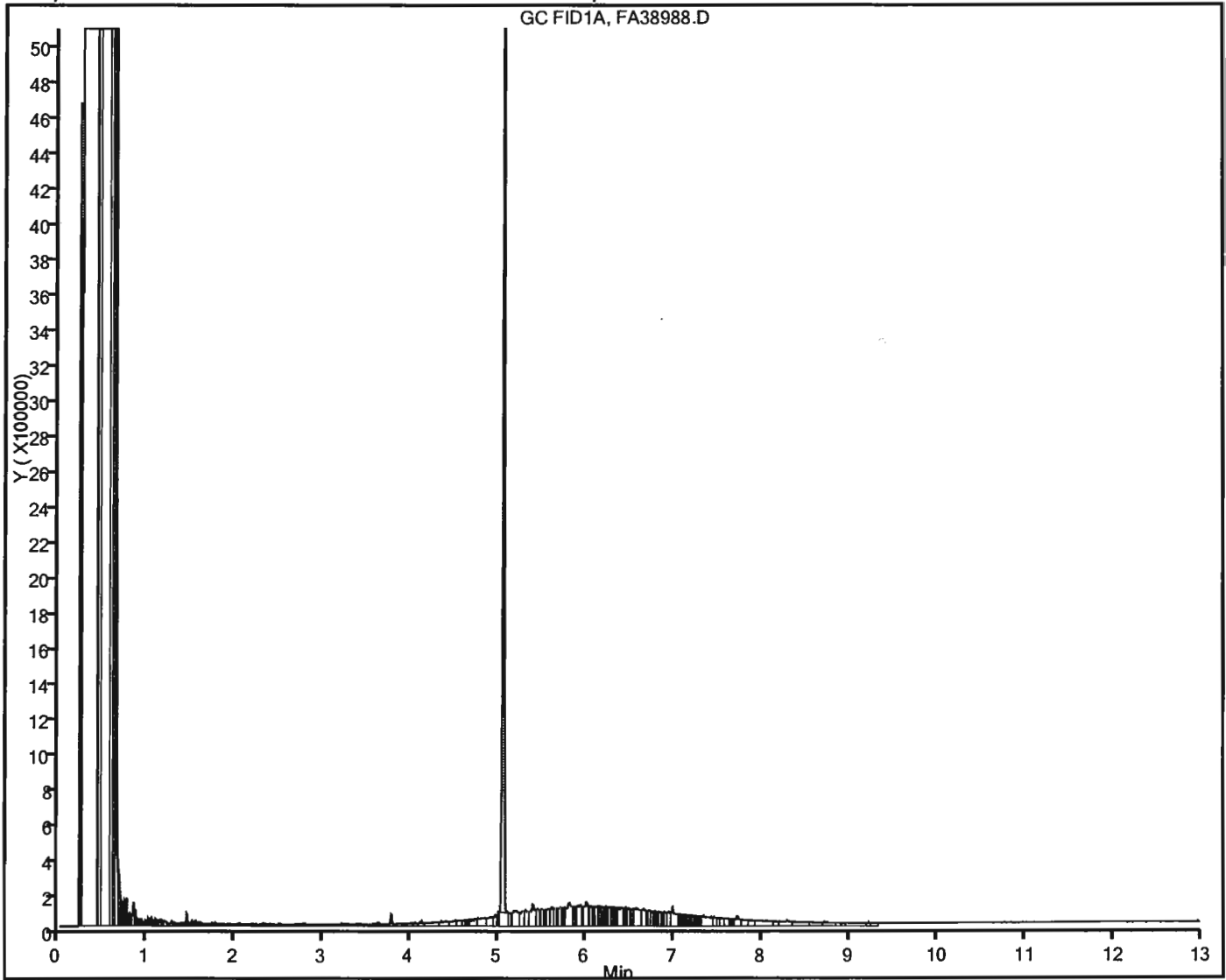
Client ID: UDC-MW-4

Instrument: TAC013

Sample Info: 580-14829-A-8-A

Sample Amount: 1.00 uL

Operator: SH



Analytical Data

Client: Golder Associates Inc.

Job Number: 580-14829-1

Client Sample ID: UDC-MW-4

Lab Sample ID: 580-14829-8

Date Sampled: 08/04/2009 1414

Client Matrix: Water

Date Received: 08/08/2009 1525

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Method:	NWTPH-Dx	Analysis Batch: 580-48333	Instrument ID:	TAC013
Preparation:	3510C	Prep Batch: 580-48206	Lab File ID:	FA38988.D
Dilution:	1.0		Initial Weight/Volume:	1060 mL
Date Analyzed:	08/15/2009 0110		Final Weight/Volume:	5 mL
Date Prepared:	08/12/2009 1714		Injection Volume:	1 uL

Analyte	Result (mg/L)	Qualifier	RL
#2 Diesel (C10-C24)	0.27		0.12
Motor Oil (>C24-C36)	0.24		0.24

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	102		50 - 150

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14829-1

Method Blank - Batch: 580-48079

Method: 8270C
Preparation: 3510C

Lab Sample ID: MB 580-48079/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/16/2009 2242
Date Prepared: 08/11/2009 1513

Analysis Batch: 580-48434
Prep Batch: 580-48079
Units: ug/L

Instrument ID: SEA016
Lab File ID: SE000509.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
Naphthalene	ND		0.010
2-Methylnaphthalene	ND		0.013
1-Methylnaphthalene	ND		0.010
Acenaphthylene	ND		0.010
Acenaphthene	ND		0.010
Fluorene	ND		0.010
Phenanthrene	ND		0.010
Anthracene	ND		0.010
Fluoranthene	ND		0.010
Pyrene	ND		0.010
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.020
Indeno[1,2,3-cd]pyrene	ND		0.010
Dibenz(a,h)anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate	% Rec	Acceptance Limits
Nitrobenzene-d5	105	34 - 146
2-Fluorobiphenyl	84	35 - 143
Terphenyl-d14	98	35 - 166

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14829-1

Lab Control Sample - Batch: 580-48079

Method: 8270C
Preparation: 3510C

Lab Sample ID: LCS 580-48079/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/16/2009 2303
Date Prepared: 08/11/2009 1513

Analysis Batch: 580-48434
Prep Batch: 580-48079
Units: ug/L

Instrument ID: SEA016
Lab File ID: SE000510.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1 mL
Injection Volume: 1 uL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Naphthalene	1.00	1.13	113	49 - 130	
2-Methylnaphthalene	1.00	1.28	127	64 - 125	*
1-Methylnaphthalene	1.00	1.13	113	47 - 148	
Acenaphthylene	1.00	1.25	124	71 - 126	
Acenaphthene	1.00	1.20	120	65 - 130	
Fluorene	1.00	1.30	130	69 - 129	*
Phenanthrene	1.00	1.22	122	62 - 128	
Anthracene	1.00	1.19	119	73 - 128	
Fluoranthene	1.00	1.27	127	64 - 124	*
Pyrene	1.00	1.19	119	58 - 140	
Benzo[a]anthracene	1.00	1.39	139	70 - 126	*
Chrysene	1.00	1.29	129	70 - 126	*
Benzo[b]fluoranthene	1.00	1.19	119	64 - 140	
Benzo[k]fluoranthene	1.00	1.07	107	62 - 142	
Benzo[a]pyrene	1.00	1.19	118	72 - 128	
Indeno[1,2,3-cd]pyrene	1.00	1.08	108	58 - 139	
Dibenz(a,h)anthracene	1.00	1.10	110	61 - 146	
Benzo[g,h,i]perylene	1.00	1.02	101	59 - 144	
Surrogate			% Rec	Acceptance Limits	
Nitrobenzene-d5			134	34 - 146	
2-Fluorobiphenyl			109	35 - 143	
Terphenyl-d14			122	35 - 166	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Golder Associates Inc.

Job Number: 580-14829-1

Method Blank - Batch: 580-48206

**Method: NWTPH-Dx
Preparation: 3510C**

Lab Sample ID: MB 580-48206/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 0130
Date Prepared: 08/12/2009 1714

Analysis Batch: 580-48333
Prep Batch: 580-48206
Units: mg/L

Instrument ID: TAC013
Lab File ID: FA38989.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	Result	Qual	RL
#2 Diesel (C10-C24)	ND		0.12
Motor Oil (>C24-C36)	ND		0.25
<hr/>			
Surrogate	% Rec	Acceptance Limits	
o-Terphenyl	103	50 - 150	

**Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 580-48206**

**Method: NWTPH-Dx
Preparation: 3510C**

LCS Lab Sample ID: LCS 580-48206/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 0151
Date Prepared: 08/12/2009 1714

Analysis Batch: 580-48333
Prep Batch: 580-48206
Units: mg/L

Instrument ID: TAC013
Lab File ID: FA38990.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 580-48206/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 08/15/2009 0216
Date Prepared: 08/12/2009 1714

Analysis Batch: 580-48333
Prep Batch: 580-48206
Units: mg/L

Instrument ID: TAC013
Lab File ID: FA38991.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5 mL
Injection Volume: 1 uL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
#2 Diesel (C10-C24)	94	89	70 - 140	6	27		
Motor Oil (>C24-C36)	115	117	66 - 125	2	27		
<hr/>							
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
o-Terphenyl	107		103		50 - 150		

Calculations are performed before rounding to avoid round-off errors in calculated results.

DATA REPORTING QUALIFIERS

Client: Golder Associates Inc.

Job Number: 580-14829-1

Lab Section	Qualifier	Description
GC/MS Semi VOA	*	LCS or LCSD exceeds the control limits

Client GOLDER ASSOC.		Project Manager DOUGLAS MORELL		Date		Chain of Custody Number 4517	
Address 18300 UNION HILL RD STE		Telephone Number (Area Code)/Fax Number 425-883-0777		Lab Number 14829		Page 1 of 1	
City REDMOND		Site Contact JOHN MARKS TERRY TORREZ		Analysis (Attach list if more space is needed)			
State WA		Carrier/Waybill Number					
Zip Code 98052							
Project Name and Location (State) SEM MATERIALS, WA							
Contract/Purchase Order/Quote No. 013-93170-02							
Sample I.D. and Location/Description (Containers for each sample may be combined on one line)		Matrix		Containers & Preservatives		Special Instructions/ Conditions of Receipt	
		Air		Unpres.			
		Aqueous		H2SO4			
		Sed.		HNO3			
		Soil		HCl			
		Time		ZnAc			
		Date		NaOH			
GMW-01-1		8/5/09 1600		2		-1	
GMW-01-2		8/5/09 1638		2		-2	
FB-1		8/5/09 1725		1		-3	
GMW-02		8/6/09 1740		2		-4	
GMW-03		8/6/09 1540		2		-5	
GMW-04		8/6/09		2			
FB-2		8/6/09 1544		1		-6	
0B		8/6/09 1735		1		-7	

QC Requirements (Specify)

Turn Around Time Required (business days)
 24 Hours 48 Hours 5 Days 10 Days 15 Days Other

1. Relinquished By
BRENDA BOBER Bauda Bay Date **8/7/09 1710** Time

2. Relinquished By
John Date **8/8/09 1525** Time

3. Relinquished By
Date Time

Comments

Blue+Green #1 = 4.0°C
Blue+Green #2 = 2.1°C
Blue+White = 4.2°C

ice bubble

Client: **GOLDER ASSOC.** Address: **18300 NE UNION HILL RD** City: **REDMOND** State: **WA** Zip Code: **98052**
 Project Name and Location (State): **Skin Materials, WA**
 Contract/Purchase Order/Quote No.: **073-2370.02**
 Project Manager: **DOUGLAS MORDELL** Telephone Number (Area Code)/Fax Number: **425-883-0777**
 Site Contact: **JOHN MONKSS** Lab Contact: **TEREK TORRES**
 Carrier/Waybill Number: [blank]
 Chain of Custody Number: **4516** Page **1** of **1**

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives					Special Instructions/ Conditions of Receipt			
			Air	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH		ZnAc/NaOH		
VDC-MW-4	8/4/09	1414	✓			2								

Analysis (Attach list if more space is needed):

Sample Disposal: Return To Client Archive For: _____ Months Dispose By Lab

Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other

QC Requirements (Specify):

1. Relinquished By: **BLANDA BOER - Blanda Boer** Date: **8/7/09 1710** Time: _____
 2. Relinquished By: _____ Date: _____ Time: _____
 3. Relinquished By: _____ Date: _____ Time: _____

Received By: **John Monks** Date: **8/8/09 15:25**
 2. Received By: _____ Date: _____ Time: _____
 3. Received By: _____ Date: _____ Time: _____

Comments:

Login Sample Receipt Check List

Client: Golder Associates Inc.

Job Number: 580-14829-1

Login Number: 14829
Creator: Torres, Terri L
List Number: 1

List Source: TestAmerica Tacoma

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	rcvd 2 more containers of Sx -4 than noted on COC .
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

GOLDER PROJECT #: 073-93170	SITE: SEM Materials, LP; Spokane, WA
LABORATORY: TEST AMERICA	SDG: 580-14775* & 14829#
SAMPLES* GMW-04	Collect: 7-30-09
GMW-05	7-30-09
GMW-06	7-31-09
Bottle Blank	8-06-09
MATRIX WATER	
(# See Back page for SDG 14829 LIST.)	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	SVOA 8270C	NW-TPH Diesel-X	Pest / PCB	Chlor / Herb.	Dioxin / Furan	OTHER	OTHER
1. Data Completeness (5)	○	⊖					
2. Holding Times	○	○					
3. Field Blanks (1)	○	○					
4. Laboratory Blanks	○	○					
5. Surrogates (2)	○	○					
6. Lab Duplicate, Field Duplicate	○	○					
7. LCS, Blank Spike (3)	○	○					
8. Matrix Spike /MS Duplicate	○	○					
9. Result Verify, Detection Limits (4)	○	○					
10. Overall Summary	○	○					

○ = Data had no problems
 ⊖ = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or U)].
 M = Data qualified due to major problems [typically more than 50% qualified (J/U)].
 Z = Data unacceptable [typically data rejected (R)].

Associated Naphthalene detects for GMW-02 and GMW-04 qualified "U" Non-detect. 11-02-09

Comments/Qualified Results: (1) SVOA Field Blank shows trace Naphthalene detects. Method Blank + OFFICE BOTTLE Blank are all ND.
 (2) One surrogate out of limit - NO Qualif. applied.
 (3) LCS out of limit high for select analytes, Assoc. results are all ND - NO Qualif. applied.

(4) B(a)P report limit (0.01 ug/L) not met by Lab. Qualif. not applied. Report Limit (RL) provided = 0.019 ug/L.

(5) Sample result for Motor Oil on GMW-04 is an ERROR; Lab contacted and they will reissue reportsheet-revised.

DONE
 TRS 9/30/09
 Validated by: [Signature]
 Reviewed by: [Signature]

Date: Sept. 22, 2009
 Date: Revised 11-02-09 [Signature]

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable:

1. Date Package Completeness (Check if present).....

YES NO

- Case narrative
- Chain of Custody
- Sample Results
- Detection Limits
- GC/MS Tuning
- Initial Calibration
- Continuing Calib.

- Blank Results
- Surrogate Results
- Internal Standards
- MS/MSD, LCS Results
- Preparation Logs
- Analysis Run Logs
- Raw Data
- Other _____

Acceptable
 Absent
 Not required for data package requested.

Comments/Qualified Results: _____

Method Blank and LCS only for QC.

2. Holding Times (Check all that apply).....

- Unpreserved VOA analyzed in 7 days from collection; Preserved 14 days from collection
- BNA samples extracted within 7 days (14 day soil) of collection
- BNA extracts analyzed within 40 days of collection
- Pest/PCBs samples extracted within 7 days (14 day soil) of collection
- Pest/PCBs extracts analyzed within 40 days of collection

Qualify as estimated (J/UJ) all results analyzed past hold time limits, but within 2X of the limit. Outside the 2X limit, qualify detects as (J) and non-detects as (UR).

Comments/Qualified Results: _____

ANALYSIS: <u>8270C SVOA</u>	<u>NWTPH</u>	
<u>8-06 / 8-15-09</u>	<u>8-11-09, 8-17</u>	<u>GMW-04</u>
↓	<u>8-11</u>	<u>-05</u>
↓	<u>8-11</u>	<u>-06</u>
	<u>--</u>	<u>Bottle</u>

[See Section 10 for SDG # 580-14829 data.]

3. Field Blanks, Storage Blanks (VOA only) (Check all that apply).....

- Storage Blanks; prepared upon receipt of sample set, FIELD BLANK ID: FB-1
- Storage Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs)
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L
- Field Blanks; Qualification is advisory, but should be called out in Report Text.

Examples:

Comments/Qualified Results: SDG # 580-14829 : Trace detects of ~~3-methyl~~ Naphthalene, phenanthrene and pyrene. Assoc. samples GMW-02 and -04 qualif. "u" for Naphthalene. FB-2 for NWTPH all ND.

FB-1
TDS
11-02-09

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

4. Laboratory Blanks (Check all that apply).....

- Method Blanks, Prep. Blanks analyzed after Cal Stnds and every 12 hours
- Method Blanks; Target Cmpnds <RL, MeCl2 & cyclohex (<10X RLs); Acetone, 2-butanone (<2X RLs); Chart other Contaminants: Qualif. Results <5X RLs according to Chart below
- Instrument blanks after all high level samples, All cmpnds must be <RL
- All blanks; Non-Target Cmpnds must be < 2.0 ug/L

Comments/Qualified Results: _____

Examples:

MDL	BLANK		SAMPLE		Q
	Result	PQL	Result	Applied	
0.3	0.45	1.0	0.8	1.0	U
0.3	0.99	1.0	1.8	1.8	J
0.3	1.5	1.0	1.1	1.5	U
0.3	1.5	1.0	1.8	1.8	J
0.3	0	1.0	0.85	0.85	J
0.3	0	1.0	1.8	1.8	

SVOA(82700) : No detects
 NWTPH : No detects

SDG: # 580-14775 ✓
 # " -14829 ✓

5. Surrogates (Check all that apply).....

- Surrogates analyzed
- Recoveries within Method Control (lab) limits (VOA: 80 - 120%, SVOA: Lab Established, PEST: 30-150%)
- Recoveries above Method Control limits (J detects only)
- Recoveries below Method Control limits but >20% (J/UJ)
- Recoveries below 20%, 10% for PEST (J/UR for VOA, J/ UJ or UR for SVOA, J/UR for PEST)

Comments/Qualified Results _____

① SVOA (82700) : 2-fluorobiphenyl below accept. limits. Assoc values for Fluorene No analytes are closely associated with this surrogate structure and qualification is NOT Applied.

6. Duplicate, Field Duplicates (Check all that apply)..... NA

- Duplicate RPD ≤20% for waters (≤35% for soils) for results >5X CRDL
- Duplicate range is within ±CRDL (± 2X CRDL for soils) for results <5X CRDL
- Field duplicate RPD ≤20% (≤35% for soils)

Parent ID:
 Duplicate ID:

Comments/Qualified Results Not Reported.

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

7. Lab Control Samples, Blank Spikes (Check all that apply).....

LCS %R 80-120% [Provided: LCS, LCSD, BS, BSD?] → Lab provided limits 60-140%

LCS %R 50-79% or >120%, results >IDL estimated (J)

LCS %R 50-79% and results <IDL estimated (UJ)

LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results: *SUA (8270): Batch recovery ✓

#SDG#14829 SUA: Select analytes exceed limit - NO Qual.

*NW-TPH-Dx: Diesel #2: ✓ accept. Limits

M.Oil: ✓ " "

8. MS / MSD Recovery on samples for associated Data Package... NA

MS/MSD Recovery data is not specified in Functional Guidelines, however the following limits will be advisory.

MS/MSD %R 80-120%

SPIKED SAMPLE IDs:

MS/MSD %R 50-79% or >120%, results >IDL estimated (J)

MS/MSD %R 50-79% and results <IDL estimated (UJ)

MS/MSD %R <50% and all results rejected (R/UR)

Comments/Qualified Results: Not Performed.

9. Result Verification, Detection Limits

All results supported in raw data; [Raw data provided / Not Provided]

Detection Limits appropriate to meet project needs (Review Work Plan, QAPP)

Comments/Qualified Results: TEST AMERICA

(X) SUA 8270 C = 0.0094 - 0.019 µg/L ± BAP RL is not met by TA.

NW-TPH: Diesel #2 = 0.12 µg/L (120 µg/L)

M.Oil = 0.24 " (240 µg/L)

PACE

↓
10 µg/L
50 µg/L

ORGANIC ANALYTE - Tier I & II Data Validation Summary Checklist

Acceptable: Yes NO

10. Overall Assessment.....

Comments/Qualified Results: _____

SDG # 14829	Sample	Collect Date	Matrix	ANALYSIS DATE	
				NW-TPH	SUOC
	GMW-01-1	8-05-09	WATER	—	8/11, 8/16
	GMW-01-2	"		8/12, 8/14	↓
	GMW-02	8-06-09		8/12, 8/15	8/11 / 8/17
	GMW-03	"		↓	↓
	FB-1	8-05-09		—	8/11, 8/17
	FB-2	8-06-09		8/12, 8/15	—
	OB	8-06-09		—	8/11, 8/17
	UDCMW-4	8-04-09	↓	8/12, 8/15	↓
				HOLD TIMES ✓	✓

Stapp, Tom

From: Natalie Taylor [Natalie.Taylor@pacelabs.com]
Sent: Wednesday, October 07, 2009 3:09 PM
To: Morell, Doug; Stapp, Tom
Subject: Revised report for SEM Materials 251855
Attachments: 251855_fr.pdf; 251855_coc.pdf

Doug and Tom,

After reviewing the low spike for PAHs, the lab investigated the data. During the investigation, we reviewed all the data for calculations, transcription and QC errors. It was determined that there was a transcription error for the amount spiked which resulted in a low bias on the LCS recoveries. We have re-posted the corrected LCS recoveries and have issued you a revised report.

We apologize for any inconvenience this has caused you. If you have any further questions, please feel free to contact me or Monica Carr, QA Manager monica.carr@pacelabs.com.

Thank you,
Natalie Taylor
Project Manager
Pace Analytical Services, Seattle
940 S. Harney St.
Seattle, WA 98108
Direct:206-957-2440
Main:206-767-5060
Fax:206-767-5063
natalie.taylor@pacelabs.com

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*Tom Review ✓
10-12-09
Result: No change to Qualifiers.*

August 2010

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

August 26, 2010

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on August 13, 2010 from the Sem Materials/090190, F&BI 008152 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com
ASP0826R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 13, 2010 by Friedman & Bruya, Inc. from the Aspect Consulting Sem Materials/090190, F&BI 008152 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
008152-01	GMW-06-081110
008152-02	GMW-05-081110
008152-03	GMW-04-081110
008152-04	GMW-03-081110
008152-05	GMW-02-081110
008152-06	GMW-01-081110
008152-07	FB-081110
008152-08	UDCMW-4-081210
008152-09	UDCMW-4D-081210

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/10
 Date Received: 08/13/10
 Project: Sem Materials/090190, F&BI 008152
 Date Extracted: 08/12/10
 Date Analyzed: 08/17/10 and 08/18/10

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS
 DIESEL AND MOTOR OIL
 USING METHOD NWTPH-Dx**
 Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
GMW-06-081110 008152-01	<50	<250	91
GMW-05-081110 008152-02	<50	<250	102
GMW-04-081110 008152-03	<50	<250	101
GMW-03-081110 008152-04	<50	<250	94
GMW-02-081110 008152-05	<50	<250	105
GMW-01-081110 008152-06	<50	<250	93
FB-081110 008152-07	<50	<250	94
UDCMW-4-081210 008152-08	190 x	<250	108
UDCMW-4D-081210 008152-09	210 x	260 x	101
Method Blank 00-1259 MB	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-06-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-01
Date Analyzed:	08/18/10	Data File:	081811.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-05-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-02
Date Analyzed:	08/18/10	Data File:	081812.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-04-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-03
Date Analyzed:	08/18/10	Data File:	081813.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	86	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-03-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-04
Date Analyzed:	08/18/10	Data File:	081814.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	50	150
Benzo(a)anthracene-d12	86	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-02-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-05
Date Analyzed:	08/18/10	Data File:	081818.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	GMW-01-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-06
Date Analyzed:	08/18/10	Data File:	081815.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	FB-081110	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-07
Date Analyzed:	08/19/10	Data File:	081821.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	UDCMW-4-081210	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-08
Date Analyzed:	08/18/10	Data File:	081819.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	79	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	UDCMW-4D-081210	Client:	Aspect Consulting
Date Received:	08/13/10	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	008152-09
Date Analyzed:	08/19/10	Data File:	081820.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	81	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	00-1258 mb
Date Analyzed:	08/18/10	Data File:	081810.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	91	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/10

Date Received: 08/13/10

Project: Sem Materials/090190, F&BI 008152

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 008152-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	108	100	52-149	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	105	58-134	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/10

Date Received: 08/13/10

Project: Sem Materials/090190, F&BI 008152

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 008152-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	<0.1	76	77	50-150	1
Acenaphthylene	ug/L (ppb)	5	<0.1	77	78	50-150	1
Acenaphthene	ug/L (ppb)	5	<0.1	77	78	50-150	1
Fluorene	ug/L (ppb)	5	<0.1	83	85	50-150	2
Phenanthrene	ug/L (ppb)	5	<0.1	81	83	50-150	2
Anthracene	ug/L (ppb)	5	<0.1	77	79	50-150	3
Fluoranthene	ug/L (ppb)	5	<0.1	88	91	50-150	3
Pyrene	ug/L (ppb)	5	<0.1	88	91	50-150	3
Benz(a)anthracene	ug/L (ppb)	5	<0.1	78	83	50-150	6
Chrysene	ug/L (ppb)	5	<0.1	82	86	50-150	5
Benzo(b)fluoranthene	ug/L (ppb)	5	<0.1	72	75	50-150	4
Benzo(k)fluoranthene	ug/L (ppb)	5	<0.1	67	66	50-150	2
Benzo(a)pyrene	ug/L (ppb)	5	<0.1	69	70	50-150	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	<0.1	30 ip	30 ip	50-150	0
Dibenz(a,h)anthracene	ug/L (ppb)	5	<0.1	28 ip	27 ip	50-150	4
Benzo(g,h,i)perylene	ug/L (ppb)	5	<0.1	29 ip	28 ip	50-150	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	78	81	68-101	4
Acenaphthylene	ug/L (ppb)	5	78	82	68-102	5
Acenaphthene	ug/L (ppb)	5	78	81	69-104	4
Fluorene	ug/L (ppb)	5	84	88	63-109	5
Phenanthrene	ug/L (ppb)	5	82	85	66-106	4
Anthracene	ug/L (ppb)	5	78	82	67-112	5
Fluoranthene	ug/L (ppb)	5	89	92	69-116	3
Pyrene	ug/L (ppb)	5	90	93	68-115	3
Benz(a)anthracene	ug/L (ppb)	5	80	86	65-102	7
Chrysene	ug/L (ppb)	5	83	89	66-103	7
Benzo(b)fluoranthene	ug/L (ppb)	5	91	91	66-112	0
Benzo(k)fluoranthene	ug/L (ppb)	5	81	86	64-116	6
Benzo(a)pyrene	ug/L (ppb)	5	86	88	61-108	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	87	90	50-120	3
Dibenz(a,h)anthracene	ug/L (ppb)	5	83	84	51-115	1
Benzo(g,h,i)perylene	ug/L (ppb)	5	82	84	50-113	2

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

008052

SAMPLE CHAIN OF CUSTODY

ME

08/13/10

CO5

Send Report To Chip Goodhue
 Company Aspect Consulting LLC
 Address 179 Madrone Lane North
 City, State, ZIP Bainbridge Island WA 98110
 Phone # 206-780-9370 Fax # 206-780-9438

SAMPLERS (signature) David Pugh
 PROJECT NAME/NO. Sam Materials / 090190 PO #
 REMARKS

Page # 1 of 1
 TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by:
 SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED										Notes		
						TPH-Diesel-EX	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Low Level PAHs 8270C-SIM	Naphthalene 8270C					
GMW-06-081110	01 ^A _B	8/11/10	1020	water	2	X						X	X					
GMW-05-081110	02 ^A _B		1145		2	X						X	X					
GMW-04-081110	03 ^A _B		1340		2	X						X	X					
GMW-03-081110	04 ^A _B		1500		2	X						X	X					
GMW-02-081110	05 ^A _B		1610		2	X						X	X					
GMW-01-081110	06 ^A _B		1740		6	X						X	X					*extra bottles
FB-081110	07 ^A _B	✓	1730		2	X						X	X					for MS/MSD
UDCMW-4-081110 ⁰⁸¹²¹⁰	08 ^A _B	8/12/10	920		2	X						X	X					
UDCMW-4D-081110 ⁰⁸¹²¹⁰	09 ^A _B	↓	925		2	X						X	X					
	PO DE 8/17/10			↓														Samples received at <u>4</u> °C

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>David Pugh</u>	DAVID PUGH	Aspect LLC	8/12/10	1530
Received by: <u>Amy Tice</u>	Amy Tice	Aspect LLC	8/12/10	1930
Relinquished by: <u>Amy Tice</u>	Amy Tice	Aspect LLC	8/13/10	0807
Received by: <u>HONG NGUYEN</u>	HONG NGUYEN	FBI	2	✓

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 14, 2010

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the additional results from the testing of material submitted on August 13, 2010 from the Sem Materials/090190, F&BI 008152 project. There are 13 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com, Jeremy Shaha
ASP0914R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 13, 2010 by Friedman & Bruya, Inc. from the Aspect Consulting Sem Materials/090190, F&BI 008152 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
008152-01	GMW-06-081110
008152-02	GMW-05-081110
008152-03	GMW-04-081110
008152-04	GMW-03-081110
008152-05	GMW-02-081110
008152-06	GMW-01-081110
008152-07	FB-081110
008152-08	UDCMW-4-081210
008152-09	UDCMW-4D-081210

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-06-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-01
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	18:52:00	081811.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	18:52:00	081811.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	18:52:00	081811.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	18:52:00	081811.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	18:52:00	081811.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	18:52:00	081811.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	18:52:00	081811.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	18:52:00	081811.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	18:52:00	081811.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	18:52:00	081811.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	18:52:00	081811.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	18:52:00	081811.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	18:52:00	081811.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	18:52:00	081811.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	18:52:00	081811.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	18:52:00	081811.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	18:52:00	081811.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	18:52:00	081811.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-05-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-02
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	19:43:00	081812.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	19:43:00	081812.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	19:43:00	081812.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	19:43:00	081812.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	19:43:00	081812.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	19:43:00	081812.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	19:43:00	081812.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	19:43:00	081812.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	19:43:00	081812.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	19:43:00	081812.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	19:43:00	081812.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	19:43:00	081812.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	19:43:00	081812.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	19:43:00	081812.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	19:43:00	081812.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	19:43:00	081812.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	19:43:00	081812.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	19:43:00	081812.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-04-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-03
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	86	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	20:18:00	081813.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	20:18:00	081813.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	20:18:00	081813.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	20:18:00	081813.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	20:18:00	081813.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	20:18:00	081813.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	20:18:00	081813.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	20:18:00	081813.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	20:18:00	081813.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	20:18:00	081813.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	20:18:00	081813.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	20:18:00	081813.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	20:18:00	081813.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	20:18:00	081813.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	20:18:00	081813.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	20:18:00	081813.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	20:18:00	081813.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	20:18:00	081813.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-03-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-04
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	50	150
Benzo(a)anthracene-d12	86	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	20:54:00	081814.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	20:54:00	081814.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	20:54:00	081814.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	20:54:00	081814.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	20:54:00	081814.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	20:54:00	081814.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	20:54:00	081814.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	20:54:00	081814.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	20:54:00	081814.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	20:54:00	081814.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	20:54:00	081814.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	20:54:00	081814.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	20:54:00	081814.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	20:54:00	081814.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	20:54:00	081814.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	20:54:00	081814.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	20:54:00	081814.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	20:54:00	081814.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-02-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-05
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	23:15:00	081818.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	23:15:00	081818.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	23:15:00	081818.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	23:15:00	081818.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	23:15:00	081818.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	23:15:00	081818.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	23:15:00	081818.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	23:15:00	081818.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	23:15:00	081818.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	23:15:00	081818.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	23:15:00	081818.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	23:15:00	081818.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	23:15:00	081818.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	23:15:00	081818.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	23:15:00	081818.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	23:15:00	081818.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	23:15:00	081818.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	23:15:00	081818.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-01-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-06
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	87	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	21:29:00	081815.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	21:29:00	081815.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	21:29:00	081815.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	21:29:00	081815.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	21:29:00	081815.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	21:29:00	081815.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	21:29:00	081815.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	21:29:00	081815.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	21:29:00	081815.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	21:29:00	081815.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	21:29:00	081815.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	21:29:00	081815.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	21:29:00	081815.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	21:29:00	081815.D
Benzo(a)pyrene	50-32-8	0.023	0.10	0.0041	ug/L (ppb)	j	08/18/10	21:29:00	081815.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	21:29:00	081815.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	21:29:00	081815.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	21:29:00	081815.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: FB-081110	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-07
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/19/10	1:01:00	081821.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/19/10	1:01:00	081821.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/19/10	1:01:00	081821.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/19/10	1:01:00	081821.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/19/10	1:01:00	081821.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/19/10	1:01:00	081821.D
Phenanthrene	85-01-8	0.021	0.10	0.0049	ug/L (ppb)	fb j	08/19/10	1:01:00	081821.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/19/10	1:01:00	081821.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/19/10	1:01:00	081821.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/19/10	1:01:00	081821.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/19/10	1:01:00	081821.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/19/10	1:01:00	081821.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/19/10	1:01:00	081821.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/19/10	1:01:00	081821.D
Benzo(a)pyrene	50-32-8	0.023	0.10	0.0041	ug/L (ppb)	j	08/19/10	1:01:00	081821.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/19/10	1:01:00	081821.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/19/10	1:01:00	081821.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/19/10	1:01:00	081821.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4-081210	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-08
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	79	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	23:50:00	081819.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	23:50:00	081819.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	23:50:00	081819.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	23:50:00	081819.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	23:50:00	081819.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	23:50:00	081819.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/18/10	23:50:00	081819.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	23:50:00	081819.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	23:50:00	081819.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	23:50:00	081819.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	23:50:00	081819.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	23:50:00	081819.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	23:50:00	081819.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	23:50:00	081819.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	23:50:00	081819.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	23:50:00	081819.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	23:50:00	081819.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	23:50:00	081819.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4D-081210	Client: Aspect Consulting
Date Received: 08/13/10	Project: Sem Materials/090190, F&BI 008152
Date Extracted: 08/17/10	Lab ID: 008152-09
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	81	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/19/10	0:25:00	081820.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/19/10	0:25:00	081820.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/19/10	0:25:00	081820.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/19/10	0:25:00	081820.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/19/10	0:25:00	081820.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/19/10	0:25:00	081820.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		08/19/10	0:25:00	081820.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/19/10	0:25:00	081820.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/19/10	0:25:00	081820.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/19/10	0:25:00	081820.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/19/10	0:25:00	081820.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/19/10	0:25:00	081820.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/19/10	0:25:00	081820.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/19/10	0:25:00	081820.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/19/10	0:25:00	081820.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/19/10	0:25:00	081820.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/19/10	0:25:00	081820.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/19/10	0:25:00	081820.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Sem Materials/090190, F&BI 008152
Date Extracted:	08/17/10	Lab ID:	00-1258 mb
Matrix:	Water	Instrument:	GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	91	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		08/18/10	18:17:00	081810.D
2-Methylnaphthalene	91-57-6	ND	0.10	0.0041	ug/L (ppb)		08/18/10	18:17:00	081810.D
1-Methylnaphthalene	90-12-0	ND	0.10	0.0045	ug/L (ppb)		08/18/10	18:17:00	081810.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		08/18/10	18:17:00	081810.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		08/18/10	18:17:00	081810.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		08/18/10	18:17:00	081810.D
Phenanthrene	85-01-8	0.023	0.10	0.0049	ug/L (ppb)	lc j	08/18/10	18:17:00	081810.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		08/18/10	18:17:00	081810.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		08/18/10	18:17:00	081810.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		08/18/10	18:17:00	081810.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		08/18/10	18:17:00	081810.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		08/18/10	18:17:00	081810.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		08/18/10	18:17:00	081810.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		08/18/10	18:17:00	081810.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		08/18/10	18:17:00	081810.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		08/18/10	18:17:00	081810.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		08/18/10	18:17:00	081810.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		08/18/10	18:17:00	081810.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/14/10

Date Received: 08/13/10

Project: Sem Materials/090190, F&BI 008152

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 008152-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	<0.1	76	77	50-150	1
2-Methylnaphthalene	ug/L (ppb)	5	<0.1	93	95	50-150	2
1-Methylnaphthalene	ug/L (ppb)	5	<0.1	80	81	50-150	1
Acenaphthylene	ug/L (ppb)	5	<0.1	77	78	50-150	1
Acenaphthene	ug/L (ppb)	5	<0.1	77	78	50-150	1
Fluorene	ug/L (ppb)	5	<0.1	83	85	50-150	2
Phenanthrene	ug/L (ppb)	5	<0.1	81	83	50-150	2
Anthracene	ug/L (ppb)	5	<0.1	77	79	50-150	3
Fluoranthene	ug/L (ppb)	5	<0.1	88	91	50-150	3
Pyrene	ug/L (ppb)	5	<0.1	88	91	50-150	3
Benz(a)anthracene	ug/L (ppb)	5	<0.1	78	83	50-150	6
Chrysene	ug/L (ppb)	5	<0.1	82	86	50-150	5
Benzo(b)fluoranthene	ug/L (ppb)	5	<0.1	72	75	50-150	4
Benzo(k)fluoranthene	ug/L (ppb)	5	<0.1	67	66	50-150	2
Benzo(a)pyrene	ug/L (ppb)	5	<0.1	69	70	50-150	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	<0.1	30 vo	30 vo	50-150	0
Dibenz(a,h)anthracene	ug/L (ppb)	5	<0.1	28 vo	27 vo	50-150	4
Benzo(g,h,i)perylene	ug/L (ppb)	5	<0.1	29 vo	28 vo	50-150	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	78	81	68-101	4
Acenaphthylene	ug/L (ppb)	5	78	82	68-102	5
Acenaphthene	ug/L (ppb)	5	78	81	69-104	4
Fluorene	ug/L (ppb)	5	84	88	63-109	5
Phenanthrene	ug/L (ppb)	5	82	85	66-106	4
Anthracene	ug/L (ppb)	5	78	82	67-112	5
Fluoranthene	ug/L (ppb)	5	89	92	69-116	3
Pyrene	ug/L (ppb)	5	90	93	68-115	3
Benz(a)anthracene	ug/L (ppb)	5	80	86	65-102	7
Chrysene	ug/L (ppb)	5	83	89	66-103	7
Benzo(b)fluoranthene	ug/L (ppb)	5	91	91	66-112	0
Benzo(k)fluoranthene	ug/L (ppb)	5	81	86	64-116	6
Benzo(a)pyrene	ug/L (ppb)	5	86	88	61-108	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	87	90	50-120	3
Dibenz(a,h)anthracene	ug/L (ppb)	5	83	84	51-115	1
Benzo(g,h,i)perylene	ug/L (ppb)	5	82	84	50-113	2

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc – The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j – The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

November 2010

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 22, 2010

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included is the amended report from the testing of material submitted on November 10, 2010 from the Sem Materials 090190, F&BI 011128 project. The sample IDs have been corrected.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com
ASP1119R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 19, 2010

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on November 10, 2010 from the Sem Materials 090190, F&BI 011128 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com
ASP1119R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 10, 2010 by Friedman & Bruya, Inc. from the Aspect Consulting Sem Materials 090190, F&BI 011128 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
011128-01	GMW-06-110810
011128-02	GMW-05-110810
011128-03	GMW-02-110910
011128-04	GMW-04-110910
011128-05	GMW-01-110910
011128-06	FB-110910
011128-07	UDCMW-4-110910
011128-08	UDCMW-4D-110910
011128-09	GMW-03-110910

Several compounds in the 8270D matrix spike and matrix spike duplicate failed the acceptance criteria. The analytes were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/10
 Date Received: 11/10/10
 Project: Sem Materials 090190, F&BI 011128
 Date Extracted: 11/11/10
 Date Analyzed: 11/12/10

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS
 DIESEL AND MOTOR OIL
 USING METHOD NWTPH-Dx**
 Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
GMW-06-110810 011128-01	<50	<250	98
GMW-05-110810 011128-02	<50	<250	102
GMW-02-110910 011128-03	<50	<250	102
GMW-04-110910 011128-04	<50	<250	95
GMW-01-110910 011128-05	<50	<250	98
FB-110910 011128-06	<50	<250	93
UDCMW-4-110910 011128-07	<50	<250	100
UDCMW-4D-110910 011128-08	<50	<250	103
GMW-03-110910 011128-09	<50	<250	94
Method Blank 00-1844 MB2	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-06-110810	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-01
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	92.3	50	150
Benzo(a)anthracene-d12	86.72	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	16:28:00	111209.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	16:28:00	111209.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	16:28:00	111209.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	16:28:00	111209.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	16:28:00	111209.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	16:28:00	111209.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	16:28:00	111209.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	16:28:00	111209.D
Benzo(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	16:28:00	111209.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	16:28:00	111209.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	16:28:00	111209.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	16:28:00	111209.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	16:28:00	111209.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	16:28:00	111209.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	16:28:00	111209.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	16:28:00	111209.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-05-110810	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-02
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	97.51	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	17:04:00	111210.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	17:04:00	111210.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	17:04:00	111210.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	17:04:00	111210.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	17:04:00	111210.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	17:04:00	111210.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	17:04:00	111210.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	17:04:00	111210.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	17:04:00	111210.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	17:04:00	111210.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	17:04:00	111210.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	17:04:00	111210.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	17:04:00	111210.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	17:04:00	111210.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	17:04:00	111210.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	17:04:00	111210.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-02-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-03
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	96.41	50	150
Benzo(a)anthracene-d12	90.97	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	17:39:00	111211.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	17:39:00	111211.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	17:39:00	111211.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	17:39:00	111211.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	17:39:00	111211.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	17:39:00	111211.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	17:39:00	111211.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	17:39:00	111211.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	17:39:00	111211.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	17:39:00	111211.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	17:39:00	111211.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	17:39:00	111211.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	17:39:00	111211.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	17:39:00	111211.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	17:39:00	111211.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	17:39:00	111211.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-04-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-04
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	91.88	50	150
Benzo(a)anthracene-d12	80.6	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	18:14:00	111212.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	18:14:00	111212.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	18:14:00	111212.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	18:14:00	111212.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	18:14:00	111212.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	18:14:00	111212.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	18:14:00	111212.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	18:14:00	111212.D
Benzo(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	18:14:00	111212.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	18:14:00	111212.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	18:14:00	111212.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	18:14:00	111212.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	18:14:00	111212.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	18:14:00	111212.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	18:14:00	111212.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	18:14:00	111212.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-01-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-05
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	97.29	50	150
Benzo(a)anthracene-d12	86.02	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	18:49:00	111213.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	18:49:00	111213.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	18:49:00	111213.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	18:49:00	111213.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	18:49:00	111213.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	18:49:00	111213.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	18:49:00	111213.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	18:49:00	111213.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	18:49:00	111213.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	18:49:00	111213.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	18:49:00	111213.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	18:49:00	111213.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	18:49:00	111213.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	18:49:00	111213.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	18:49:00	111213.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	18:49:00	111213.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: FB-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-06
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	93.68	50	150
Benzo(a)anthracene-d12	79.44	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	20:36:00	111216.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	20:36:00	111216.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	20:36:00	111216.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	20:36:00	111216.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	20:36:00	111216.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	20:36:00	111216.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	20:36:00	111216.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	20:36:00	111216.D
Benzo(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	20:36:00	111216.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	20:36:00	111216.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	20:36:00	111216.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	20:36:00	111216.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	20:36:00	111216.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	20:36:00	111216.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	20:36:00	111216.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	20:36:00	111216.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-07
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	96.39	50	150
Benzo(a)anthracene-d12	90.93	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	21:12:00	111217.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	21:12:00	111217.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	21:12:00	111217.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	21:12:00	111217.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	21:12:00	111217.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	21:12:00	111217.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	21:12:00	111217.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	21:12:00	111217.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	21:12:00	111217.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	21:12:00	111217.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	21:12:00	111217.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	21:12:00	111217.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	21:12:00	111217.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	21:12:00	111217.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	21:12:00	111217.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	21:12:00	111217.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4D-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-08
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	92.42	50	150
Benzo(a)anthracene-d12	85.17	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	21:48:00	111218.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	21:48:00	111218.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	21:48:00	111218.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	21:48:00	111218.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	21:48:00	111218.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	21:48:00	111218.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	21:48:00	111218.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	21:48:00	111218.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	21:48:00	111218.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	21:48:00	111218.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	21:48:00	111218.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	21:48:00	111218.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	21:48:00	111218.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	21:48:00	111218.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	21:48:00	111218.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	21:48:00	111218.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-03-110910	Client: Aspect Consulting
Date Received: 11/10/10	Project: Sem Materials 090190
Date Extracted: 11/11/10	Lab ID: 011128-09
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recory:	Lower Limit:	Upper Limit:
Anthracene-d10	93.31	50	150
Benzo(a)anthracene-d12	79.2	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	22:23:00	111219.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	22:23:00	111219.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	22:23:00	111219.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	22:23:00	111219.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	22:23:00	111219.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	22:23:00	111219.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	22:23:00	111219.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	22:23:00	111219.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	22:23:00	111219.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	22:23:00	111219.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	22:23:00	111219.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	22:23:00	111219.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	22:23:00	111219.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	22:23:00	111219.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	22:23:00	111219.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	22:23:00	111219.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Sem Materials 090190
Date Extracted:	11/11/10	Lab ID:	00-1847 mb
Matrix:	Water	Instrument:	GCMS6

Surrogates:	% Recory:	Lower	Upper
Anthracene-d10	88.36	Limit:	Limit:
Benzo(a)anthracene-d12	88.06	50	150
		50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		11/12/10	15:53:00	111208A.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0052	ug/L (ppb)		11/12/10	15:53:00	111208A.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/10

Date Received: 11/10/10

Project: Sem Materials 090190, F&BI 011128

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 011128-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	107	109	52-149	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	106	58-134	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/19/10

Date Received: 11/10/10

Project: Sem Materials 090190, F&BI 011128

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 011128-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	<0.1	84	88	50-150	5
Acenaphthylene	ug/L (ppb)	5	<0.1	86	91	50-150	6
Acenaphthene	ug/L (ppb)	5	<0.1	84	89	50-150	6
Fluorene	ug/L (ppb)	5	<0.1	82	87	50-150	6
Phenanthrene	ug/L (ppb)	5	<0.1	82	88	50-150	7
Anthracene	ug/L (ppb)	5	<0.1	82	88	50-150	7
Fluoranthene	ug/L (ppb)	5	<0.1	90	96	50-150	6
Pyrene	ug/L (ppb)	5	<0.1	89	95	50-150	7
Benz(a)anthracene	ug/L (ppb)	5	<0.1	71	77	50-150	8
Chrysene	ug/L (ppb)	5	<0.1	79	84	50-150	6
Benzo(b)fluoranthene	ug/L (ppb)	5	<0.1	76	86	50-150	12
Benzo(k)fluoranthene	ug/L (ppb)	5	<0.1	64	82	50-150	25 vo
Benzo(a)pyrene	ug/L (ppb)	5	<0.1	69	80	50-150	15
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	<0.1	36 vo	40 vo	50-150	11
Dibenz(a,h)anthracene	ug/L (ppb)	5	<0.1	33 vo	35 vo	50-150	6
Benzo(g,h,i)perylene	ug/L (ppb)	5	<0.1	34 vo	38 vo	50-150	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	82	84	68-101	2
Acenaphthylene	ug/L (ppb)	5	85	86	68-102	1
Acenaphthene	ug/L (ppb)	5	82	83	69-104	1
Fluorene	ug/L (ppb)	5	80	81	63-109	1
Phenanthrene	ug/L (ppb)	5	81	82	66-106	1
Anthracene	ug/L (ppb)	5	80	81	67-112	1
Fluoranthene	ug/L (ppb)	5	91	89	69-116	2
Pyrene	ug/L (ppb)	5	90	88	68-115	2
Benz(a)anthracene	ug/L (ppb)	5	73	73	65-102	0
Chrysene	ug/L (ppb)	5	79	81	66-103	2
Benzo(b)fluoranthene	ug/L (ppb)	5	86	83	66-112	4
Benzo(k)fluoranthene	ug/L (ppb)	5	80	83	64-116	4
Benzo(a)pyrene	ug/L (ppb)	5	81	82	61-108	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	79	84	50-120	6
Dibenz(a,h)anthracene	ug/L (ppb)	5	75	79	51-115	5
Benzo(g,h,i)perylene	ug/L (ppb)	5	78	82	50-113	5

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc – The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j – The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

811128

SAMPLE CHAIN OF CUSTODY

ME 11-10-10 105

Send Report To Chip Goodhue
 Company Aspect Consulting
 Address 179 Madrone Lane North
 City, State, ZIP Bainbridge Island, WA 98110
 Phone # 206.750.9370 Fax # 206.780.9458

SAMPLERS (signature) [Signature] PO # _____
 PROJECT NAME/NO. _____
 Sem materials 090190
 REMARKS
 Please report concentrations down to
 the method detection limit.

Page # 1 of 1
 TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by: _____
 SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED							Notes				
						TPH-Diesel-C	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Low Level PAHs		8270C-SIM	naphthalene	8270C	
GMW-06-110810	01A ^B	11/8/10	1335	water	2	X						X					
GMW-05-110810	02A ^B	11/8/10	1445		2	X						X					
GMW-02-110910	03A ^B	11/9/10	0855		2	X						X					
GMW-04-110910	04A ^B	11/9/10	1100		2	X						X					
GMW-01-110910	05A ^B	11/9/10	1410		6	X						X					MS/MSD
FB-110910	06A ^B	11/9/10	1440		2	X						X					
UDCMW-4-110910	07A ^B	11/9/10	1535	↓	2	X						X					
UDCMW-4D-110910	08A ^B	11/9/10	1540	↓	2	X						X					
GMW-03-110910	09A ^B	11/9/10	1255	↓	2	X						X					

SIGNATURE
 Relinquished by: [Signature]
 Received by: [Signature]
 Relinquished by: _____
 Received by: _____

PRINT NAME: DAVID RUGH
 COMPANY: Aspect LLC
 DATE: 11/10/10
 TIME: 800

PRINT NAME: DO VO
 COMPANY: Febe
 DATE: 11
 TIME: 11:00

Relinquished by: _____
 Received by: _____
 Samples received at: 5 °C

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
 FORMS\COC\COC.DOC

February 2011

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

May 13, 2011

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included is the amended report from the testing of material submitted on February 16, 2011 from the Sem Materials 090190, F&BI 102174 project. Per your request, the PAH list has been expanded to include the entire PAH list.

We apologize for the inconvenience and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com, Jeremy Shaha
ASP0228R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

February 28, 2011

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on February 16, 2011 from the Sem Materials 090190, F&BI 102174 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com
ASP0228R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 16, 2011 by Friedman & Bruya, Inc. from the Aspect Consulting Sem Materials 090190, F&BI 102174 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
102174-01	GMW-06-021411
102174-02	GMW-05-021411
102174-03	GMW-04-021411
102174-04	GMW-03-021511
102174-05	GMW-02-021511
102174-06	GMW-01-021511
102174-07	FB-021511
102174-08	UDCMW-4-021511
102174-09	UDCMW-4D-021511

The 8270D matrix spike compound dibenz(a,h)anthracene failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

Benzo(g,h,i)perylene was detected in the 8270D method blank. The compound was not detected in the method blank, therefore the data were acceptable.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/28/11
 Date Received: 02/16/11
 Project: Sem Materials 090190, F&BI 102174
 Date Extracted: 02/17/11
 Date Analyzed: 02/17/11

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS
 DIESEL AND MOTOR OIL
 USING METHOD NWTPH-Dx**
 Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
GMW-06-021411 102174-01	<50	<250	87
GMW-05-021411 102174-02	50 x	<250	82
GMW-04-021411 102174-03	<50	<250	88
GMW-03-021511 102174-04	<50	<250	87
GMW-02-021511 102174-05	<50	<250	83
GMW-01-021511 102174-06	<50	<250	85
FB-021511 102174-07	<50	<250	89
UDCMW-4-021511 102174-08	210 x	350	88
UDCMW-4D-021511 102174-09	230 x	400	89
Method Blank 01-0290 MB	<50	<250	90

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-06-021411	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-01
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	72.14	50	150
Benzo(a)anthracene-d12	76.9	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	11:17:00	021808.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	11:17:00	021808.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	11:17:00	021808.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	11:17:00	021808.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	11:17:00	021808.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	11:17:00	021808.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	11:17:00	021808.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	11:17:00	021808.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	11:17:00	021808.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	11:17:00	021808.D
Benzo(b)fluoranthene	205-99-2	0.023	0.10	0.0031	ug/L (ppb)	j	02/18/11	11:17:00	021808.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	11:17:00	021808.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	11:17:00	021808.D
Indeno(1,2,3-cd)pyrene	193-39-5	0.027	0.10	0.0056	ug/L (ppb)	j	02/18/11	11:17:00	021808.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	11:17:00	021808.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)	j	02/18/11	11:17:00	021808.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-05-021411	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-02
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81.25	50	150
Benzo(a)anthracene-d12	66.58	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	11:52:00	021809.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	11:52:00	021809.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	11:52:00	021809.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	11:52:00	021809.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	11:52:00	021809.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	11:52:00	021809.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	11:52:00	021809.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	11:52:00	021809.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	11:52:00	021809.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	11:52:00	021809.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	11:52:00	021809.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	11:52:00	021809.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	11:52:00	021809.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	11:52:00	021809.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	11:52:00	021809.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	11:52:00	021809.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-04-021411	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-03
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87.35	50	150
Benzo(a)anthracene-d12	82.09	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	12:27:00	021810.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	12:27:00	021810.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	12:27:00	021810.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	12:27:00	021810.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	12:27:00	021810.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	12:27:00	021810.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	12:27:00	021810.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	12:27:00	021810.D
Benzo(a)anthracene	56-55-3	0.020	0.10	0.0042	ug/L (ppb)	j	02/18/11	12:27:00	021810.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	12:27:00	021810.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	12:27:00	021810.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	12:27:00	021810.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	12:27:00	021810.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	12:27:00	021810.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	12:27:00	021810.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	12:27:00	021810.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-03-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-04
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87.86	50	150
Benzo(a)anthracene-d12	83.9	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	13:01:00	021811.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	13:01:00	021811.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	13:01:00	021811.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	13:01:00	021811.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	13:01:00	021811.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	13:01:00	021811.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	13:01:00	021811.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	13:01:00	021811.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	13:01:00	021811.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	13:01:00	021811.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	13:01:00	021811.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	13:01:00	021811.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	13:01:00	021811.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	13:01:00	021811.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	13:01:00	021811.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	13:01:00	021811.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-02-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-05
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86.77	50	150
Benzo(a)anthracene-d12	81.98	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	13:36:00	021812.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	13:36:00	021812.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	13:36:00	021812.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	13:36:00	021812.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	13:36:00	021812.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	13:36:00	021812.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	13:36:00	021812.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	13:36:00	021812.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	13:36:00	021812.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	13:36:00	021812.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	13:36:00	021812.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	13:36:00	021812.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	13:36:00	021812.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	13:36:00	021812.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	13:36:00	021812.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	13:36:00	021812.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-01-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-06
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87.1	50	150
Benzo(a)anthracene-d12	88.43	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	14:11:00	021813.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	14:11:00	021813.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	14:11:00	021813.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	14:11:00	021813.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	14:11:00	021813.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	14:11:00	021813.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	14:11:00	021813.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	14:11:00	021813.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	14:11:00	021813.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	14:11:00	021813.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	14:11:00	021813.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	14:11:00	021813.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	14:11:00	021813.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	14:11:00	021813.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	14:11:00	021813.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	14:11:00	021813.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: FB-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-07
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94.33	50	150
Benzo(a)anthracene-d12	96.88	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	17:28:00	021818.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	17:28:00	021818.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	17:28:00	021818.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	17:28:00	021818.D
Phenanthrene	85-01-8	0.021	0.10	0.0028	ug/L (ppb)	j	02/18/11	17:28:00	021818.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	17:28:00	021818.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	17:28:00	021818.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	17:28:00	021818.D
Benzo(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	17:28:00	021818.D
Chrysene	218-01-9	0.021	0.10	0.0047	ug/L (ppb)	j	02/18/11	17:28:00	021818.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	17:28:00	021818.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	17:28:00	021818.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	17:28:00	021818.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	17:28:00	021818.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	17:28:00	021818.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	17:28:00	021818.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-08
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94.38	50	150
Benzo(a)anthracene-d12	99.22	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	18:02:00	021819.D
Acenaphthylene	208-96-8	ND	0.10	0.0064	ug/L (ppb)		02/18/11	18:02:00	021819.D
Acenaphthene	83-32-9	ND	0.10	0.0031	ug/L (ppb)		02/18/11	18:02:00	021819.D
Fluorene	86-73-7	ND	0.10	0.015	ug/L (ppb)		02/18/11	18:02:00	021819.D
Phenanthrene	85-01-8	ND	0.10	0.0028	ug/L (ppb)		02/18/11	18:02:00	021819.D
Anthracene	120-12-7	ND	0.10	0.0059	ug/L (ppb)		02/18/11	18:02:00	021819.D
Fluoranthene	206-44-0	ND	0.10	0.0034	ug/L (ppb)		02/18/11	18:02:00	021819.D
Pyrene	129-00-0	ND	0.10	0.0036	ug/L (ppb)		02/18/11	18:02:00	021819.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	18:02:00	021819.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	18:02:00	021819.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	18:02:00	021819.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	18:02:00	021819.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	18:02:00	021819.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	18:02:00	021819.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	18:02:00	021819.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	18:02:00	021819.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4D-021511	Client: Aspect Consulting
Date Received: 02/16/11	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 102174-09
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93.24	50	150
Benzo(a)anthracene-d12	93.61	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	10:29:00	021807.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		02/18/11	10:29:00	021807.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		02/18/11	10:29:00	021807.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		02/18/11	10:29:00	021807.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		02/18/11	10:29:00	021807.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		02/18/11	10:29:00	021807.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		02/18/11	10:29:00	021807.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	10:29:00	021807.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	10:29:00	021807.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	10:29:00	021807.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(g,h,i)perylene	191-24-2	ND	0.10	0.0073	ug/L (ppb)		02/18/11	10:29:00	021807.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: Method Blank	Client: Aspect Consulting
Date Received: NA	Project: Sem Materials 090190, F&BI 102174
Date Extracted: 02/17/11	Lab ID: 01289 mb
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97.87	50	150
Benzo(a)anthracene-d12	98.84	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	ND	0.10	0.0026	ug/L (ppb)		02/18/11	10:29:00	021807.D
Acenaphthylene	208-96-8	ND	0.10	0.0031	ug/L (ppb)		02/18/11	10:29:00	021807.D
Acenaphthene	83-32-9	ND	0.10	0.0048	ug/L (ppb)		02/18/11	10:29:00	021807.D
Fluorene	86-73-7	ND	0.10	0.004	ug/L (ppb)		02/18/11	10:29:00	021807.D
Phenanthrene	85-01-8	ND	0.10	0.0049	ug/L (ppb)		02/18/11	10:29:00	021807.D
Anthracene	120-12-7	ND	0.10	0.0049	ug/L (ppb)		02/18/11	10:29:00	021807.D
Fluoranthene	206-44-0	ND	0.10	0.0033	ug/L (ppb)		02/18/11	10:29:00	021807.D
Pyrene	129-00-0	ND	0.10	0.0037	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benz(a)anthracene	56-55-3	ND	0.10	0.0042	ug/L (ppb)		02/18/11	10:29:00	021807.D
Chrysene	218-01-9	ND	0.10	0.0047	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(b)fluoranthene	205-99-2	ND	0.10	0.0031	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(k)fluoranthene	207-08-9	ND	0.10	0.0036	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(a)pyrene	50-32-8	ND	0.10	0.0041	ug/L (ppb)		02/18/11	10:29:00	021807.D
Indeno(1,2,3-cd)pyrene	193-39-5	ND	0.10	0.0056	ug/L (ppb)		02/18/11	10:29:00	021807.D
Dibenz(a,h)anthracene	53-70-3	ND	0.10	0.008	ug/L (ppb)		02/18/11	10:29:00	021807.D
Benzo(g,h,i)perylene	191-24-2	0.022	0.10	0.0052	ug/L (ppb)	lc j	02/18/11	10:29:00	021807.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/28/11

Date Received: 02/16/11

Project: Sem Materials 090190, F&BI 102174

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 102174-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	80	87	52-149	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	93	94	58-134	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/28/11

Date Received: 02/16/11

Project: Sem Materials 090190, F&BI 102174

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 102174-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	<0.1	73	82	64-96	12
Acenaphthylene	ug/L (ppb)	5	<0.1	73	83	65-98	13
Acenaphthene	ug/L (ppb)	5	<0.1	74	84	65-96	13
Fluorene	ug/L (ppb)	5	<0.1	73	84	73-100	14
Phenanthrene	ug/L (ppb)	5	<0.1	75	83	70-91	10
Anthracene	ug/L (ppb)	5	<0.1	71	81	60-91	13
Fluoranthene	ug/L (ppb)	5	<0.1	69	79	69-99	14
Pyrene	ug/L (ppb)	5	<0.1	70	79	68-99	12
Benz(a)anthracene	ug/L (ppb)	5	<0.1	68	77	61-91	12
Chrysene	ug/L (ppb)	5	<0.1	70	80	65-94	13
Benzo(b)fluoranthene	ug/L (ppb)	5	<0.1	72	80	63-92	11
Benzo(k)fluoranthene	ug/L (ppb)	5	<0.1	67	76	54-92	13
Benzo(a)pyrene	ug/L (ppb)	5	<0.1	65	74	61-86	13
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	<0.1	41	46	1-105	11
Dibenz(a,h)anthracene	ug/L (ppb)	5	<0.1	36 vo	36 vo	50-150	0
Benzo(g,h,i)perylene	ug/L (ppb)	5	<0.1	36 vo	39 vo	50-150	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	88	90	64-100	2
Acenaphthylene	ug/L (ppb)	5	89	91	67-104	2
Acenaphthene	ug/L (ppb)	5	90	94	65-103	4
Fluorene	ug/L (ppb)	5	90	92	64-106	2
Phenanthrene	ug/L (ppb)	5	88	93	66-106	6
Anthracene	ug/L (ppb)	5	85	89	67-112	5
Fluoranthene	ug/L (ppb)	5	84	88	69-116	5
Pyrene	ug/L (ppb)	5	84	88	68-115	5
Benz(a)anthracene	ug/L (ppb)	5	84	87	59-100	4
Chrysene	ug/L (ppb)	5	84	91	66-103	8
Benzo(b)fluoranthene	ug/L (ppb)	5	93	102	59-114	9
Benzo(k)fluoranthene	ug/L (ppb)	5	85	96	55-111	12
Benzo(a)pyrene	ug/L (ppb)	5	86	93	54-111	8
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	95	106	35-124	11
Dibenz(a,h)anthracene	ug/L (ppb)	5	83	94	35-116	12
Benzo(g,h,i)perylene	ug/L (ppb)	5	79	92	39-114	15

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc – The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j – The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

May 2011

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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May 26, 2011

Chip Goodhue, Project Manager
Aspect Consulting
179 Madrone Lane North
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on May 12, 2011 from the Sem Materials 090190, F&BI 105158 project. There are 15 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: data@aspectconsulting.com, Jeremy Shaha
ASP0526R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 12, 2011 by Friedman & Bruya, Inc. from the Aspect Consulting Sem Materials 090190, F&BI 105158 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
105158-01	GMW-06-051011
105158-02	GMW-05-051011
105158-03	GMW-04-051011
105158-04	GMW-03-051011
105158-05	GMW-02-051011
105158-06	GMW-01-051011
105158-07	UDCMW-4-051011
105158-08	UDCMW-4D-051011
105158-09	Field Blank-051011

Several 8270D matrix spike compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/11
 Date Received: 05/12/11
 Project: Sem Materials 090190, F&BI 105158
 Date Extracted: 05/13/11
 Date Analyzed: 05/13/11

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
 FOR TOTAL PETROLEUM HYDROCARBONS AS
 DIESEL AND MOTOR OIL
 USING METHOD NWTPH-Dx**
 Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 47-140)
GMW-06-051011 105158-01	<50	<250	85
GMW-05-051011 105158-02	64	<250	99
GMW-04-051011 105158-03	<50	<250	97
GMW-03-051011 105158-04	<50	<250	96
GMW-02-051011 105158-05	81	<250	85
GMW-01-051011 105158-06	<50	<250	80
UDCMW-4-051011 105158-07	74	<250	88
UDCMW-4D-051011 105158-08	79	<250	90
Field Blank-051011 105158-09	<50	<250	81
Method Blank 01-873 MB	<50	<250	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-06-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-01
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	50	150
Benzo(a)anthracene-d12	82	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/14/11	2:21:00	051321.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/14/11	2:21:00	051321.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/14/11	2:21:00	051321.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/14/11	2:21:00	051321.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/14/11	2:21:00	051321.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/14/11	2:21:00	051321.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/14/11	2:21:00	051321.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/14/11	2:21:00	051321.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	2:21:00	051321.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/14/11	2:21:00	051321.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	2:21:00	051321.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/14/11	2:21:00	051321.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/14/11	2:21:00	051321.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/14/11	2:21:00	051321.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/14/11	2:21:00	051321.D
Benzo(g,h,i)perylene	191-24-2	0.024	0.10	0.0073	ug/L (ppb)	j	05/14/11	2:21:00	051321.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-05-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-02
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	50	150
Benzo(a)anthracene-d12	77	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	20:30:00	051311.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	20:30:00	051311.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/13/11	20:30:00	051311.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	20:30:00	051311.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	20:30:00	051311.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	20:30:00	051311.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	20:30:00	051311.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	20:30:00	051311.D
Benz(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	20:30:00	051311.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	20:30:00	051311.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	20:30:00	051311.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	20:30:00	051311.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	20:30:00	051311.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	20:30:00	051311.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	20:30:00	051311.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	20:30:00	051311.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-04-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-03
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	82	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	21:05:00	051312.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	21:05:00	051312.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/13/11	21:05:00	051312.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	21:05:00	051312.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	21:05:00	051312.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	21:05:00	051312.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	21:05:00	051312.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	21:05:00	051312.D
Benz(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	21:05:00	051312.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	21:05:00	051312.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	21:05:00	051312.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	21:05:00	051312.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	21:05:00	051312.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	21:05:00	051312.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	21:05:00	051312.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	21:05:00	051312.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-03-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-04
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	21:40:00	051313.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	21:40:00	051313.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/13/11	21:40:00	051313.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	21:40:00	051313.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	21:40:00	051313.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	21:40:00	051313.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	21:40:00	051313.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	21:40:00	051313.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	21:40:00	051313.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	21:40:00	051313.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	21:40:00	051313.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	21:40:00	051313.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	21:40:00	051313.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	21:40:00	051313.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	21:40:00	051313.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	21:40:00	051313.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-02-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-05
Matrix: Water	Instrument: GCMS6

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Surrogates:			% Recovery:		Lower Limit:				Upper Limit:
Anthracene-d10			100		50				150
Benzo(a)anthracene-d12			93		50				129
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	22:16:00	051314.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	22:16:00	051314.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/13/11	22:16:00	051314.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	22:16:00	051314.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	22:16:00	051314.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	22:16:00	051314.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	22:16:00	051314.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	22:16:00	051314.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	22:16:00	051314.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	22:16:00	051314.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	22:16:00	051314.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	22:16:00	051314.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	22:16:00	051314.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	22:16:00	051314.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	22:16:00	051314.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	22:16:00	051314.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: GMW-01-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-06
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	94	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	22:50:00	051315.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	22:50:00	051315.D
Acenaphthene	83-32-9	0.040	0.10	0.0031	ug/L (ppb)	j	05/13/11	22:50:00	051315.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	22:50:00	051315.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	22:50:00	051315.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	22:50:00	051315.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	22:50:00	051315.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	22:50:00	051315.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	22:50:00	051315.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	22:50:00	051315.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	22:50:00	051315.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	22:50:00	051315.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	22:50:00	051315.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	22:50:00	051315.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	22:50:00	051315.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	22:50:00	051315.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-07
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98.49	50	150
Benzo(a)anthracene-d12	93.53	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/23/11	12:33:00	052305.D
2-Methylnaphthalene	91-57-6	<0.1	0.10	0.0018	ug/L (ppb)		05/23/11	12:33:00	052305.D
1-Methylnaphthalene	90-12-0	<0.1	0.10	0.0034	ug/L (ppb)		05/23/11	12:33:00	052305.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/23/11	12:33:00	052305.D
Acenaphthene	83-32-9	0.021	0.10	0.0031	ug/L (ppb)	j	05/23/11	12:33:00	052305.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/23/11	12:33:00	052305.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/23/11	12:33:00	052305.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/23/11	12:33:00	052305.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/23/11	12:33:00	052305.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/23/11	12:33:00	052305.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/23/11	12:33:00	052305.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/23/11	12:33:00	052305.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/23/11	12:33:00	052305.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/23/11	12:33:00	052305.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/23/11	12:33:00	052305.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/23/11	12:33:00	052305.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/23/11	12:33:00	052305.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/23/11	12:33:00	052305.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID: UDCMW-4D-051011	Client: Aspect Consulting
Date Received: 05/12/11	Project: Sem Materials 090190, F&BI 105158
Date Extracted: 05/13/11	Lab ID: 105158-08
Matrix: Water	Instrument: GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	78	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/14/11	1:11:00	051319.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/14/11	1:11:00	051319.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/14/11	1:11:00	051319.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/14/11	1:11:00	051319.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/14/11	1:11:00	051319.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/14/11	1:11:00	051319.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/14/11	1:11:00	051319.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/14/11	1:11:00	051319.D
Benz(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	1:11:00	051319.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/14/11	1:11:00	051319.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	1:11:00	051319.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/14/11	1:11:00	051319.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/14/11	1:11:00	051319.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/14/11	1:11:00	051319.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/14/11	1:11:00	051319.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/14/11	1:11:00	051319.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Field Blank-051011	Client:	Aspect Consulting
Date Received:	05/12/11	Project:	Sem Materials 090190, F&BI 105158
Date Extracted:	05/13/11	Lab ID:	105158-09
Matrix:	Water	Instrument:	GCMS6

Surrogates:		% Recovery:		Lower Limit:		Upper Limit:			
Anthracene-d10		99		50		150			
Benzo(a)anthracene-d12		88		50		129			
Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/14/11	1:46:00	051320.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/14/11	1:46:00	051320.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/14/11	1:46:00	051320.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/14/11	1:46:00	051320.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/14/11	1:46:00	051320.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/14/11	1:46:00	051320.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/14/11	1:46:00	051320.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/14/11	1:46:00	051320.D
Benzo(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	1:46:00	051320.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/14/11	1:46:00	051320.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/14/11	1:46:00	051320.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/14/11	1:46:00	051320.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/14/11	1:46:00	051320.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/14/11	1:46:00	051320.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/14/11	1:46:00	051320.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/14/11	1:46:00	051320.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	Sem Materials 090190, F&BI 105158
Date Extracted:	05/13/11	Lab ID:	01-872 mb
Matrix:	Water	Instrument:	GCMS6

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	89	50	150
Benzo(a)anthracene-d12	86	50	129

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time	Data File
Naphthalene	91-20-3	<0.1	0.10	0.0022	ug/L (ppb)		05/13/11	19:55:00	051310.D
Acenaphthylene	208-96-8	<0.1	0.10	0.0064	ug/L (ppb)		05/13/11	19:55:00	051310.D
Acenaphthene	83-32-9	<0.1	0.10	0.0031	ug/L (ppb)		05/13/11	19:55:00	051310.D
Fluorene	86-73-7	<0.1	0.10	0.015	ug/L (ppb)		05/13/11	19:55:00	051310.D
Phenanthrene	85-01-8	<0.1	0.10	0.0028	ug/L (ppb)		05/13/11	19:55:00	051310.D
Anthracene	120-12-7	<0.1	0.10	0.0059	ug/L (ppb)		05/13/11	19:55:00	051310.D
Fluoranthene	206-44-0	<0.1	0.10	0.0034	ug/L (ppb)		05/13/11	19:55:00	051310.D
Pyrene	129-00-0	<0.1	0.10	0.0036	ug/L (ppb)		05/13/11	19:55:00	051310.D
Benz(a)anthracene	56-55-3	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	19:55:00	051310.D
Chrysene	218-01-9	<0.1	0.10	0.0024	ug/L (ppb)		05/13/11	19:55:00	051310.D
Benzo(b)fluoranthene	205-99-2	<0.1	0.10	0.0038	ug/L (ppb)		05/13/11	19:55:00	051310.D
Benzo(k)fluoranthene	207-08-9	<0.1	0.10	0.0051	ug/L (ppb)		05/13/11	19:55:00	051310.D
Benzo(a)pyrene	50-32-8	<0.1	0.10	0.004	ug/L (ppb)		05/13/11	19:55:00	051310.D
Indeno(1,2,3-cd)pyrene	193-39-5	<0.1	0.10	0.0062	ug/L (ppb)		05/13/11	19:55:00	051310.D
Dibenz(a,h)anthracene	53-70-3	<0.1	0.10	0.0072	ug/L (ppb)		05/13/11	19:55:00	051310.D
Benzo(g,h,i)perylene	191-24-2	<0.1	0.10	0.0073	ug/L (ppb)		05/13/11	19:55:00	051310.D

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/11

Date Received: 05/12/11

Project: Sem Materials 090190, F&BI 105158

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-Dx**

Laboratory Code: 105158-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	98	89	64-141	10

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	82	90	61-133	9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 05/26/11

Date Received: 05/12/11

Project: Sem Materials 090190, F&BI 105158

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES
FOR PNA'S BY EPA METHOD 8270D SIM**

Laboratory Code: 105158-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	<0.1	95	96	64-96	1
Acenaphthylene	ug/L (ppb)	1	<0.1	94	96	65-98	2
Acenaphthene	ug/L (ppb)	1	<0.1	93	97 vo	65-96	4
Fluorene	ug/L (ppb)	1	<0.1	91	93	73-100	2
Phenanthrene	ug/L (ppb)	1	<0.1	92 vo	95 vo	70-91	3
Anthracene	ug/L (ppb)	1	<0.1	92 vo	95 vo	60-91	3
Fluoranthene	ug/L (ppb)	1	<0.1	100 vo	102 vo	69-99	2
Pyrene	ug/L (ppb)	1	<0.1	92	94	68-99	2
Benz(a)anthracene	ug/L (ppb)	1	<0.1	84	85	61-91	1
Chrysene	ug/L (ppb)	1	<0.1	97 vo	98 vo	65-94	1
Benzo(b)fluoranthene	ug/L (ppb)	1	<0.1	77	82	63-92	6
Benzo(k)fluoranthene	ug/L (ppb)	1	<0.1	93 vo	96 vo	54-92	3
Benzo(a)pyrene	ug/L (ppb)	1	<0.1	78	81	61-86	4
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	<0.1	39	43	10-105	10
Dibenz(a,h)anthracene	ug/L (ppb)	1	<0.1	45 vo	47 vo	50-150	4
Benzo(g,h,i)perylene	ug/L (ppb)	1	<0.1	45 vo	48 vo	50-150	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	86	89	64-100	3
Acenaphthylene	ug/L (ppb)	1	83	87	67-104	5
Acenaphthene	ug/L (ppb)	1	84	87	65-103	4
Fluorene	ug/L (ppb)	1	89	86	64-106	3
Phenanthrene	ug/L (ppb)	1	83	85	66-106	2
Anthracene	ug/L (ppb)	1	82	84	67-112	2
Fluoranthene	ug/L (ppb)	1	89	91	69-116	2
Pyrene	ug/L (ppb)	1	83	86	68-115	4
Benz(a)anthracene	ug/L (ppb)	1	76	79	59-100	4
Chrysene	ug/L (ppb)	1	83	87	66-103	5
Benzo(b)fluoranthene	ug/L (ppb)	1	78	82	59-114	5
Benzo(k)fluoranthene	ug/L (ppb)	1	86	87	55-111	1
Benzo(a)pyrene	ug/L (ppb)	1	76	78	54-111	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	80	82	35-124	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	81	83	35-116	2
Benzo(g,h,i)perylene	ug/L (ppb)	1	82	84	39-114	2

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 – More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - Analyte present in the blank and the sample.
- fc – The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - Analysis performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j – The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

APPENDIX F

Soil Boring and Monitoring Well GPS and Survey Data

GPS Data

<u>Date/Time of data collected</u>	<u>Location Name</u>	<u>Instrument Used</u>	<u>Location</u>
10-DEC-08 4:34:00PM	GEO-BTMW-01	Handheld GPS	N47 41 52.0 W117 21 44.6
10-DEC-08 4:32:17PM	GEO-BTMW-02	Handheld GPS	N47 41 52.8 W117 21 43.4
10-DEC-08 4:36:53PM	GEO-BTMW-06	Handheld GPS	N47 41 48.4 W117 21 46.2
10-DEC-08 4:24:26PM	GEO-DCMW-4	Handheld GPS	N47 41 54.2 W117 21 32.2
10-DEC-08 4:45:10PM	GGP01	Handheld GPS	N47 41 51.4 W117 21 43.5
10-DEC-08 4:46:56PM	GGP02	Handheld GPS	N47 41 50.9 W117 21 43.3
10-DEC-08 4:48:26PM	GGP03	Handheld GPS	N47 41 50.0 W117 21 40.2
10-DEC-08 4:50:18PM	GGP04	Handheld GPS	N47 41 50.0 W117 21 39.5
10-DEC-08 4:51:27PM	GGP05	Handheld GPS	N47 41 50.5 W117 21 39.3
10-DEC-08 4:55:20PM	GGP06	Handheld GPS	N47 41 51.0 W117 21 38.0
10-DEC-08 4:55:50PM	GGP07	Handheld GPS	N47 41 50.7 W117 21 37.4
10-DEC-08 4:56:29PM	GGP08	Handheld GPS	N47 41 50.2 W117 21 37.8
10-DEC-08 4:53:58PM	GGP09	Handheld GPS	N47 41 51.2 W117 21 37.2
10-DEC-08 5:01:36PM	GGP10	Handheld GPS	N47 41 51.3 W117 21 36.0
10-DEC-08 4:57:15PM	GGP11	Handheld GPS	N47 41 50.8 W117 21 36.4
10-DEC-08 5:02:10PM	GGP12B	Handheld GPS	N47 41 51.7 W117 21 36.3
10-DEC-08 5:00:34PM	GGP13	Handheld GPS	N47 41 51.3 W117 21 34.3
10-DEC-08 4:59:23PM	GGP14	Handheld GPS	N47 41 50.2 W117 21 33.2
10-DEC-08 5:02:59PM	GGP15	Handheld GPS	N47 41 52.1 W117 21 35.8
10-DEC-08 5:21:05PM	GGP16	Handheld GPS	N47 41 52.4 W117 21 39.1
10-DEC-08 5:18:42PM	GGP17	Handheld GPS	N47 41 52.5 W117 21 37.8
10-DEC-08 5:20:30PM	GGP18	Handheld GPS	N47 41 52.1 W117 21 38.6
Data Not Recorded	GGP19	Handheld GPS	47°41'52.70"N 117°21'40.59"W
09-DEC-08 5:43:31PM	GGP-20	Handheld GPS	N47 41 53.2 W117 21 41.2
09-DEC-08 5:45:37PM	GGP-21B	Handheld GPS	N47 41 53.3 W117 21 39.7
09-DEC-08 5:49:33PM	GGP-22	Handheld GPS	N47 41 53.3 W117 21 36.7
09-DEC-08 5:51:32PM	GGP-23	Handheld GPS	N47 41 53.2 W117 21 35.6
09-DEC-08 5:52:28PM	GGP-24	Handheld GPS	N47 41 53.2 W117 21 35.2
09-DEC-08 5:55:15PM	GGP25	Handheld GPS	N47 41 53.3 W117 21 33.1
10-DEC-08 4:50:49PM	GGP26	Handheld GPS	N47 41 50.1 W117 21 39.5
10-DEC-08 4:52:05PM	GGP27	Handheld GPS	N47 41 51.1 W117 21 38.7
10-DEC-08 4:52:42PM	GGP28	Handheld GPS	N47 41 51.3 W117 21 37.9
10-DEC-08 4:53:29PM	GGP29	Handheld GPS	N47 41 51.2 W117 21 36.8
10-DEC-08 5:25:30PM	GGP30	Handheld GPS	N47 41 50.8 W117 21 37.1
09-DEC-08 4:59:52PM	GMW-01	Handheld GPS	N47 41 54.2 W117 21 33.4
09-DEC-08 5:02:23PM	GMW-02	Handheld GPS	N47 41 54.1 W117 21 34.5
09-DEC-08 5:05:26PM	GMW-03	Handheld GPS	N47 41 54.2 W117 21 35.9
09-DEC-08 5:06:49PM	GMW-04	Handheld GPS	N47 41 54.1 W117 21 37.9
09-DEC-08 5:39:10PM	GMW-05	Handheld GPS	N47 41 54.4 W117 21 40.3
10-DEC-08 4:44:14PM	GMW-06	Handheld GPS	N47 41 52.3 W117 21 42.5

NAD 83, NAD 88 Datum

**Survey Control Data
Benthin and Associates**

**GROUNDWATER MONITORING WELL SITES
GOLDER - SEM MATERIALS**

WELL - AEC400	AEC-400	0.67' DIA. STEEL CASING 3.13' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10009.69	10783.64	2040.02	
TOP - PVC	V			2039.40	
RIM - STEEL	V			2039.62	
GROUND-CONC	V			2036.87	
WELL - BAS397	GMW-1	0.55' DIA. STEEL CASING 3.10' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10020.46	10703.60	2039.78	
PVCYELLOCAP	V			2039.39	
RIM - STEEL	V			2039.27	
GROUND-CONC	V			2036.65	
WELL - BAS398	GMW-2	0.55' DIA. STEEL CASING 2.90' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10022.06	10628.93	2041.73	
PVCYELLOCAP	V			2041.33	
RIM - STEEL	V			2041.22	
GROUND-CONC	V			2038.85	
WELL - BAF257	GMW-3	0.55' DIA. STEEL CASING 2.65' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10021.86	10527.12	2040.54	
PVCYELLOCAP	V			2040.18	
RIM - STEEL	V			2040.04	
GROUND-CONC	V			2037.89	
WELL - BAF258	GMW-4	0.55' DIA. STEEL CASING 2.79' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10017.12	10391.15	2041.79	
PVCYELLOCAP	V			2041.45	
RIM - STEEL	V			2041.29	
GROUND-CONC	V			2038.99	

**Survey Control Data
Benthin and Associates**

**GROUNDWATER MONITORING WELL SITES
GOLDER - SEM MATERIALS**

WELL - BAF259	GMW-5	0.55' DIA. STEEL CASING 3.00' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	10039.49	10243.90	2042.87	
PVCYELLOCAP	V			2042.47	
RIM - STEEL	V			2042.37	
GROUND-CONC	V			2039.87	

WELL	GMW-6	0.82' DIA. STEEL CASING FLUSH WITH CONCRETE			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	9833.78	10081.59	2036.03	
PVCYELLOCAP	V			2035.68	
RIM - STEEL	V			2036.03	
GROUND-CONC	V			2036.03	

WELL - APC042	MW-2	0.45' DIA. STEEL CASING 3.14' TALL TOP-BOTTOM			
DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
CASE - TOP	H&V	9882.40	10013.08	2037.41	
TOP - PVC	V			2037.10	
RIM - STEEL	V			2036.88	
GROUND-CONC	V			2034.27	

GEOPROBE LOCATIONS

DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
GGP-09	H&V	9701.12	10434.88	2036.15	
GGP-12	H&V	9762.59	10509.83	2036.54	
GGP-13	H&V	9743.86	10627.34	2035.91	
GGP-21	H&V	9953.81	10322.60	2035.58	
GGP-25	H&V	9928.99	10725.56	2036.89	

CONTROL POINTS

DATE VISITED:	12/8/2008	NORTH	EAST	ELEV.	NAVD88
BASE #100	H&V	10000.00	10000.00	2040.00	A
CONTROL #101	H&V	10042.35	10667.77	2037.92	B
CONTROL #151	H&V	9605.01	10523.25	2034.40	C

APPENDIX G

Phase II Remedial Investigation Data Validation Reports

August 2010

Data Validation Report

**Remedial Investigation/Feasibility Study
The SemMaterials L.P. Facility
Spokane, Washington**

August 2010 Groundwater Sampling

Prepared for:

Aspect Consulting, Inc.
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November 3, 2010

ACRONYMS

%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
DFTPP	decafluorotriphenylphosphine
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
F&BI	Friedman & Bruya, Inc.
GC/FID	gas chromatography/flame ionization detector
GC/MS	gas chromatography/mass spectrometer
ICAL	initial calibration
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
µg/L	micrograms per liter
mg/L	milligrams per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
PAHs	polycyclic aromatic hydrocarbons
PQL	practical quantitation limit
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
RF	response factor
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
TPH	total petroleum hydrocarbon

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for groundwater samples collected during August 2010 for the referenced project. The laboratory report validated herein was submitted by Friedman & Bruya, Inc. (F&BI) and assigned F&BI's project number 008152.

A level III data validation was performed on this laboratory report. The validation followed the procedures specified in USEPA CLP National Functional Guidelines (EPA 2008) with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Golder Associates, Inc., July 2008) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Qualified data, data qualifiers, qualification reasons, and qualifier definitions are presented in **Section III - Data Validation Summary**.

Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	Laboratory Sample ID	Sample Collection Date	Matrix	Analysis	
				PAHs	TPH-Diesel Extended
GWM-06-081110	008152-01	8/11/2010	Water	X	X
GWM-05-081110	008152-02	8/11/2010	Water	X	X
GWM-04-081110	008152-03	8/11/2010	Water	X	X
GWM-03-081110	008152-04	8/11/2010	Water	X	X
GWM-02-081110	008152-05	8/11/2010	Water	X	X
GWM-01-081110	008152-06	8/11/2010	Water	X	X
FB-081110	008152-07	8/11/2010	FB	X	X
UDCWM-4-081210	008152-08	8/12/2010	Water	X	X
UDCWM-4D-081210	008152-09	8/12/2010	Water	X	X

Notes:

1. X - The analysis was requested and performed on the sample.
2. PAHs – Polycyclic aromatic hydrocarbons
3. TPH – Total petroleum hydrocarbon
4. FB – Field blank

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Polycyclic Aromatic Hydrocarbons	SW846 Method 8270D SIM	Friedman & Bruya, Inc. (F&BI) Seattle, Washington
Diesel and Motor Oil Range TPH	NWTPH-Dx	

Notes:

1. SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Third Edition, December 1996.
2. NWTPH - *Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602, Washington State Department of Ecology, June 1997

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. Samples were received intact and in good condition at the laboratory. No anomalies were found in relation to sample preservation, transport, and handling.

2. PAHs by GC/MS (SW846 Method 8270D-SIM)

2.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analysis was performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if average response factor (RF) is chosen as the quantitation option, the percent relative standard deviation (%RSD) value of the average RF should be $\leq 15\%$, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) should be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the coefficient of determination (r^2) should be ≥ 0.99 , and (4) the average RFs should be ≥ 0.05 (0.01 for poor responders) for all target and surrogate compounds. The initial calibrations met the method requirements.

2.4 Calibration Verification

Continuing calibration verification analyses were performed at the required frequency (the beginning of each 12-hour analysis period prior to the analysis of method blank and samples), the percent difference (%D) values were within $\pm 20\%$, and the RFs were ≥ 0.05 (≥ 0.01 for poor responders) for all target and surrogate compounds. Calibration verification analyses were performed at the required frequency. The %D values met the criteria.

2.5 Blanks

Method Blank: Method blanks were prepared analyzed at the required frequency. Target compounds were not detected at or above the method detection limits (MDLs) in the

method blank, except that phenanthrene was detected at a level (0.023 µg/L) greater than the MDL but less than the practical quantitation limit (PQL). Phenanthrene was not detected at or above the MDLs in field samples except for the field blank sample FB-081110 at 0.021 µg/L. This result was qualified (U) as a non-detect at the PQL (0.1 µg/L).

Field Blank: Sample FB-081110 was a field blank. Phenanthrene (0.021 µg/L) and benzo(a)pyrene (0.023 µg/L) were detected in this sample. The phenanthrene detected was qualified as a non-detect based on the method blank results (see above). Benzo(a)pyrene was also detected in sample GMW-01-081110 at 0.023 µg/L; this result was qualified as a non-detect at the PQL (0.1 µg/L).

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCS duplicate (LCSD) analyses were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were within the laboratory control criteria.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the methods. %R values met the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-081110. All %R and RPD values met the laboratory control criteria, except for the following:

Parent Sample	Analyte	%R		Control Limit	RPD	Control Limit	Data Qualifier
		MS	MSD				
GMW-01-081110	Indeno(1,2,3-cd)pyrene	30%	30%	50-150%	0%	20%	UJ
	Dibenz(a,h)anthracene	28%	27%		4%		UJ
	Benzo(g,h,i)perylene	29%	28%		4%		UJ

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ±0.5 minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to +100% of the associated standard.

2.10 Laboratory Quantitation Limits

The PQLs were specified at 0.01 µg/L for benzo(g,h,i)perylene, naphthalene, and all carcinogenic PAHs, and at 0.1 µg/L for the remaining PAHs. The laboratory reported PQLs at 0.1 µg/L for all target PAHs, and non-detects were evaluated down to the MDLs (ranging from 0.0026 to 0.008 µg/L). The reported PQLs were supported with proper initial calibration

concentrations for all target compounds. Reported MDLs were supported with the MDL study presented in the laboratory report. Since PAHs were not detected in all field samples (except the benzo(a)pyrene detection in GMW-01-081110 discussed in Section 2.5), the project-expected detection limits were considered achieved.

2.11 Field Duplicates

Samples UDCWM-4-081210 and UDCWM-4D-081210 were field duplicates. Target PAHs were not detected at or above the MDLs in either sample; the field precision was within the acceptance criteria.

2.12 Overall Assessment of PAHs Data Usability

PAHs data are of known quality and acceptable for use as qualified.

3. TPH-Diesel and Lube Oil by GC/FID (Method NWTPH-Dx)

3.1 Holding Time

Water samples should be extracted within seven days of collection; extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using individual petroleum product reference standards to ensure the proper identification and quantitation of petroleum hydrocarbons in samples, (2) the calibration curve includes a sufficiently low standard to provide the necessary reporting limits, and (3) the linear working range of the instrument be defined.

The ICAL met the method requirements. The linearity of the ICAL curve was verified with %RSD of RFs (%RSD \leq 20%, according to EPA SW 846 Method 8000), and was acceptable for both TPH-Diesel and TPH-Motor Oil.

3.3 Calibration Verification

The method requires that (1) a mid-range check standard be analyzed prior to and after each analytical batch, and (2) the percent drift value be within $\pm 15\%$ of the true value. All calibration verification analyses met the method requirements.

3.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. Target compounds were not detected at or above the PQLs in the method blank.

Field Blank: Sample FB-081110 was a field blank. Target compounds were not detected at or above the PQLs in this sample.

3.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control criteria.

3.6 Laboratory Control Samples (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

3.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-081110. All %R and RPD values met the laboratory control criteria.

3.8 Reporting Limits

The reported PQLs were supported with adequate ICAL concentrations and achieved the quantitation limit goals identified in the QAPP.

3.9 Field Duplicates

Samples UDCWM-4-081210 and UDCWM-4D-081210 were field duplicates. Sample results, RPD (or concentration difference) values, and data qualification are presented as follows:

Compounds	PQL (µg/L)	Sample ID & Result (µg/L)		RPD (%)	Concentration Difference (µg/L)	Data Qualifier
		UDCWM-4-081210	UDCWM-4D-081210			
Diesel	50	190	210	-	20	None
Lube Oil	250	<250	260	-	260	

The laboratory precision criterion ($\leq 20\%$) was applied to evaluating the RPD values for field duplicate results greater than five times the PQL (5xPQL). For results less than 5xPQL, an advisory criterion of 2xPQL was applied to evaluating the concentration difference values. The field duplicate results met the field precision criteria.

3.10 Overall Assessment of TPH-Diesel Extended Data Usability

TPH-Diesel Extended data are of known quality and acceptable for use.

III. DATA VALIDATION SUMMARY

1. DATA QUALIFICATION

Qualified data and assigned qualifiers are summarized as follows:

Sample ID	Analyte	Data Qualifier	Reason	Report Section
GMW-01-081110	Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene	UJ	The MS/MSD %R values were less than the lower control limits.	2.8

Data affected by associated blanks are qualified and results adjusted as follows:

Sample ID	Analyte	Original Result	Adjusted Result	Unit	Report Section
FB-081110	Phenanthrene	0.021 J	0.1 U	µg/L	2.5 MB
GMW-01-081110	Benzo(a)pyrene	0.023 J	0.1 U	µg/L	2.5 FB

2. DATA QUALIFIER DEFINITION

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration is an estimated value.
U	The analyte is considered not detected at the reported value for the sample.
UJ	The analyte is not detected above the sample quantitation limit, and the reported quantitation limit is an estimated value.

IV. REFERENCES

USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, EPA-540-R-08-01.

USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

Analytical Methods for Petroleum Hydrocarbons, ECY 97-602, Washington State Department of Ecology, June 1997.

Quality Assurance Project Plan for Remedial Investigation/Feasibility Study at the SemMaterials L.P. Facility, Spokane, Washington. Golder Associates, Inc. July 2008.

November 2010

Data Validation Report

**Remedial Investigation/Feasibility Study
The SemMaterials L.P. Facility
Spokane, Washington**

November 2010 Groundwater Sampling

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January 19, 2011

ACRONYMS

%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
DFTPP	decafluorotriphenylphosphine
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
F&BI	Friedman & Bruya, Inc.
GC/FID	gas chromatography/flame ionization detector
GC/MS	gas chromatography/mass spectrometer
ICAL	initial calibration
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
µg/L	micrograms per liter
mg/L	milligrams per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
PAHs	polycyclic aromatic hydrocarbons
PQL	practical quantitation limit
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
RF	response factor
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
TPH	total petroleum hydrocarbon

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for groundwater samples collected during November 2010 for the referenced project. The laboratory report validated herein was submitted by Friedman & Bruya, Inc. (F&BI) and assigned F&BI's project number 011128.

A level III data validation was performed on this laboratory report. The validation followed the procedures specified in USEPA CLP National Functional Guidelines (EPA 2008) with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Golder Associates, Inc., July 2008) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Qualified data, data qualifiers, qualification reasons, and qualifier definitions are presented in **Section III - Data Validation Summary**.

Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	Laboratory Sample ID	Sample Collection Date	Matrix	Analysis	
				PAHs	TPH-Dx
GMW-06-110810	011128-01	11/08/10	Water	X	X
GMW-05-110810	011128-02	11/08/10	Water	X	X
GMW-02-110910	011128-03	11/09/10	Water	X	X
GMW-04-110910	011128-04	11/09/10	Water	X	X
GMW-01-110910	011128-05	11/09/10	Water	X	X
FB-110910	011128-06	11/09/10	Water	X	X
UDCMW-4-110910	011128-07	11/09/10	FB	X	X
UDCMW-4D-110910	011128-08	11/09/10	Water	X	X
GMW-03-110910	011128-09	11/09/10	Water	X	X

Notes:

1. X - The analysis was requested and performed on the sample.
2. PAHs – Polycyclic aromatic hydrocarbons
3. TPH-Dx – Diesel and motor oil range total petroleum hydrocarbon (TPH)
4. FB – Field blank

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Polycyclic Aromatic Hydrocarbons	SW846 Method 8270D SIM	Friedman & Bruya, Inc. (F&BI) Seattle, Washington
Diesel and Motor Oil Range TPH	NWTPH-Dx	

Notes:

1. SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Third Edition, December 1996.
2. NWTPH - *Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602, Washington State Department of Ecology, June 1997

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. Samples were received intact and in good condition at the laboratory. No anomalies were found in relation to sample preservation, transport, and handling.

2. PAHs by GC/MS (SW846 Method 8270D-SIM)

2.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analysis was performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if average response factor (RF) is chosen as the quantitation option, the percent relative standard deviation (%RSD) value of the average RF should be $\leq 15\%$, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) should be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the coefficient of determination (r^2) should be ≥ 0.99 , and (4) the average RFs should be ≥ 0.05 (0.01 for poor responders) for all target and surrogate compounds. The initial calibrations met the method requirements.

2.4 Calibration Verification

Continuing calibration verification analyses were performed at the required frequency (the beginning of each 12-hour analysis period prior to the analysis of method blank and samples), the percent difference (%D) values were within $\pm 20\%$, and the RFs were ≥ 0.05 (≥ 0.01 for poor responders) for all target and surrogate

compounds. Calibration verification analyses were performed at the required frequency. The %D values met the criteria.

2.5 Blanks

Method Blank: Method blanks were prepared analyzed at the required frequency. Target compounds were not detected at or above the method detection limits (MDLs) in the method blank.

Field Blank: Sample FB-110910 was a field blank. Target compounds were not detected at or above the MDLs in the method blank.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCS duplicate (LCSD) analyses were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were within the laboratory control criteria.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the methods. %R values met the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-110910. All %R values met the laboratory control criteria, except for the following:

Parent Sample	Analyte	%R		Control Limit	Data Qualifier
		MS	MSD		
GMW-01-110910	Indeno(1,2,3-cd)pyrene	36%	40%	50-150%	UJ
	Dibenz(a,h)anthracene	33%	35%		UJ
	Benzo(g,h,i)perylene	34%	38%		UJ

All RPD values for the MS/MSD were within the control criteria except that for benzo(k)fluoranthene (25%). This compound was not detected in the parent sample GMW-01-110910; the higher variability had no adverse effects on data quality. No data qualifying action was taken on this basis.

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Laboratory Quantitation Limits

The PQLs were specified at $0.01 \mu\text{g/L}$ for benzo(g,h,i)perylene, naphthalene, and all carcinogenic PAHs, and at $0.1 \mu\text{g/L}$ for the remaining PAHs in the QAPP. The laboratory reported PQLs at $0.1 \mu\text{g/L}$ for all target PAHs, and non-detects were evaluated down to the MDLs (ranging from 0.0026 to $0.008 \mu\text{g/L}$). The reported PQLs were supported with proper initial calibration concentrations for all target compounds. Reported MDLs were supported with the MDL study presented in the laboratory report. Since PAHs were not detected in all field samples, the project-expected detection limits were considered achieved.

2.11 Field Duplicates

Samples UDCWM-4-110910 and UDCWM-4D-110910 were field duplicates. Target PAHs were not detected at or above the MDLs in either sample; the field precision was within the acceptance criteria.

2.12 Overall Assessment of PAHs Data Usability

PAHs data are of known quality and acceptable for use as qualified.

3. TPH-Diesel and Motor Oil by GC/FID (Method NWTPH-Dx)

3.1 Holding Time

Water samples should be extracted within seven days of collection; extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using individual petroleum product reference standards to ensure the proper identification and quantitation of petroleum hydrocarbons in samples, (2) the calibration curve

includes a sufficiently low standard to provide the necessary reporting limits, and (3) the linear working range of the instrument be defined.

The ICAL met the method requirements. The linearity of the ICAL curve was verified with %RSD of RFs (%RSD \leq 20%, according to EPA SW 846 Method 8000), and was acceptable for both TPH-Diesel and TPH-Motor Oil.

3.3 Calibration Verification

The method requires that (1) a mid-range check standard be analyzed prior to and after each analytical batch, and (2) the percent drift value be within $\pm 15\%$ of the true value. All calibration verification analyses met the method requirements.

3.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. Target compounds were not detected at or above the practical quantitation limits (PQLs) in the method blank.

Field Blank: Sample FB-110910 was a field blank. Target compounds were not detected at or above the PQLs in this sample.

3.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control criteria.

3.6 Laboratory Control Samples (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

3.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-110910. All %R and RPD values met the laboratory control criteria.

3.8 Reporting Limits

The reported PQLs were supported with adequate ICAL concentrations and achieved the quantitation limit goals identified in the QAPP.

3.9 Field Duplicates

Samples UDCWM-4-110910 and UDCWM-4D-110910 were field duplicates. Target PAHs were not detected at or above the MDLs in either sample; the field precision was within the acceptance criteria.

3.10 Overall Assessment of TPH-Diesel Extended Data Usability

TPH-Diesel Extended data are of known quality and acceptable for use.

III. DATA VALIDATION SUMMARY

1. DATA QUALIFICATION

Qualified data and assigned qualifiers are summarized as follows:

Sample ID	Analyte	Data Qualifier	Reason	Report Section
GMW-01-081110	Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene	UJ	The MS/MSD %R values were less than the lower control limits.	2.8

2. DATA QUALIFIER DEFINITION

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration is an estimated value.
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IV. REFERENCES

USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, EPA-540-R-08-01.

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Analytical Methods for Petroleum Hydrocarbons, ECY 97-602, Washington State Department of Ecology, June 1997.

Quality Assurance Project Plan for Remedial Investigation/Feasibility Study at the SemMaterials L.P. Facility, Spokane, Washington. Golder Associates, Inc. July 2008.

February 2011

Data Validation Report

**Remedial Investigation/Feasibility Study
The SemMaterials L.P. Facility
Spokane, Washington**

February 2011 Groundwater Sampling

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May 26, 2011

ACRONYMS

%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
DFTPP	decafluorotriphenylphosphine
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PAHs	polycyclic aromatic hydrocarbons
PQL	practical quantitation limit
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
RF	response factor
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
TPH	total petroleum hydrocarbon

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for groundwater samples collected during February 2011 for the referenced project. The laboratory report validated herein was submitted by Friedman & Bruya, Inc. (F&BI) and assigned F&BI's project number 102174.

A level III data validation was performed on this laboratory report. The validation followed the procedures specified in USEPA CLP National Functional Guidelines (EPA 2008) with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Golder Associates, Inc., July 2008) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Qualified data, data qualifiers, qualification reasons, and qualifier definitions are presented in **Section III - Data Validation Summary**.

Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	Laboratory Sample ID	Sample Collection Date	Matrix	Analysis	
				PAHs	TPH-Dx
GMW-06-021411	102174-01	02/14/11	Water	X	X
GMW-05-021411	102174-02	02/14/11	Water	X	X
GMW-04-021411	102174-03	02/14/11	Water	X	X
GMW-03-021511	102174-04	02/15/11	Water	X	X
GMW-02-021511	102174-05	02/15/11	Water	X	X
GMW-01-021511	102174-06	02/15/11	Water	X	X
FB-021511	102174-07	02/15/11	FB	X	X
UDCMW-4-021511	102174-08	02/15/11	Water	X	X
UDCMW-4D-021511	102174-09	02/15/11	Water	X	X

Notes:

1. X - The analysis was requested and performed on the sample.
2. PAHs – Polycyclic aromatic hydrocarbons
3. TPH-Dx – Diesel and motor oil range total petroleum hydrocarbon (TPH)
4. FB – Field blank

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Polycyclic Aromatic Hydrocarbons	SW846 Method 8270D SIM	Friedman & Bruya, Inc. (F&BI) Seattle, Washington
Diesel and Motor Oil Range TPH	NWTPH-Dx	

Notes:

1. SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Third Edition, December 1996.
2. NWTPH - *Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602, Washington State Department of Ecology, June 1997

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. Samples were received intact and in good condition at the laboratory. No anomalies were found in relation to sample preservation, transport, and handling.

2. PAHs by GC/MS (SW846 Method 8270D-SIM)

2.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analysis was performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if average response factor (RF) is chosen as the quantitation option, the percent relative standard deviation (%RSD) value of the average RF should be $\leq 15\%$, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) should be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the coefficient of determination (r^2) should be ≥ 0.99 , and (4) the average RFs should be ≥ 0.05 (0.01 for poor responders) for all target and surrogate compounds. The initial calibrations met the method requirements.

2.4 Calibration Verification

Continuing calibration verification analyses were performed at the required frequency (the beginning of each 12-hour analysis period prior to the analysis of method blank and samples), the percent difference (%D) values were within $\pm 20\%$, and the RFs were ≥ 0.05 (≥ 0.01 for poor responders) for all target and surrogate

compounds. Calibration verification analyses were performed at the required frequency. The %D values met the criteria.

2.5 Blanks

Method Blank: Method blanks were prepared analyzed at the required frequency. Target compounds were not detected at or above the method detection limits (MDLs) in the method blank, except benzo(g,h,i)perylene. This compound was detected at 0.022 µg/L in the method blank, but not detected in any of the field samples. No data qualifying action was required.

Field Blank: Sample FB-021511 was a field blank. Chrysene and phenanthrene were both detected at 0.021 µg/L, but were not detected in any of the field samples. Data qualifying was not required.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCS duplicate (LCSD) analyses were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were within the laboratory control criteria.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the methods. %R values met the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-021511. All %R values met the laboratory control criteria, except for the following:

Parent Sample	Analyte	%R		Control Limit	Data Qualifier
		MS	MSD		
GMW-01-021511	Benzo(g,h,i)perylene	36%	39%	50-150%	UJ
	Dibenz(a,h)anthracene	36%	36%		

All RPD values for the MS/MSD were within the control criteria.

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ±0.5 minute window of the associated standard in all samples.

All internal standard intensity met the method requirement of –50% to +100% of the associated standard.

2.10 Laboratory Quantitation Limits

The reporting limits (RLs) were specified at 0.01 µg/L for benzo(g,h,i)perylene, naphthalene, and all carcinogenic PAHs, and at 0.1 µg/L for the remaining PAHs in the QAPP. The laboratory reported PQLs at 0.1 µg/L for all target PAHs, and non-detects were evaluated down to the MDLs (ranging from 0.0026 to 0.008 µg/L). The reported RLs were supported with proper initial calibration concentrations for all target compounds. Reported MDLs were supported with the MDL study presented in the laboratory report. Since PAHs were not detected in all field samples, the project-expected detection limits were considered achieved.

2.11 Field Duplicates

Samples UDCWM-4-021511 and UDCWM-4D-021511 were field duplicates. Target PAHs were not detected at or above the MDLs in either sample; the field precision was within the acceptance criteria.

2.12 Overall Assessment of PAHs Data Usability

PAHs data are of known quality and acceptable for use as qualified.

3. TPH-Diesel and Motor Oil by GC/FID (Method NWTPH-Dx)

3.1 Holding Time

Water samples should be extracted within seven days of collection; extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using individual petroleum product reference standards to ensure the proper identification and quantitation of petroleum hydrocarbons in samples, (2) the calibration curve includes a sufficiently low standard to provide the necessary reporting limits, and (3) the linear working range of the instrument be defined.

The ICAL met the method requirements. The linearity of the ICAL curve was verified with %RSD of RFs (%RSD \leq 20%, according to EPA SW 846 Method 8000), and was acceptable for both TPH-Diesel and TPH-Motor Oil.

3.3 Calibration Verification

The method requires that (1) a mid-range check standard be analyzed prior to and after each analytical batch, and (2) the percent drift value be within $\pm 15\%$ of the true value. All calibration verification analyses met the method requirements.

3.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. Target compounds were not detected at or above the RLs in the method blank.

Field Blank: Sample FB-021511 was a field blank. Target compounds were not detected at or above the RLs in this sample.

3.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control criteria.

3.6 Laboratory Control Samples (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

3.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-021511. All %R and RPD values met the laboratory control criteria.

3.8 Reporting Limits

The reported PQLs were supported with adequate ICAL concentrations and achieved the quantitation limit goals identified in the QAPP.

3.9 Field Duplicates

Samples UDCWM-4-021511 and UDCWM-4D-021511 were field duplicates. The RPD values were within 20% for both diesel and motor oil range TPH as presented below:

Analyte	Unit	RL	UDCMW-4-021511	UDCMW-4D-021511	RPD
TPH-Diesel	µg/L	50	210	230	9%
TPH-Lube Oil	µg/L	250	350	400	13%

3.10 Overall Assessment of TPH-Diesel Extended Data Usability

TPH-Diesel Extended data are of known quality and acceptable for use.

III. DATA VALIDATION SUMMARY

1. DATA QUALIFICATION

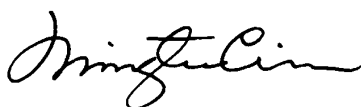
Qualified data and assigned qualifiers are summarized as follows:

Sample ID	Analyte	Data Qualifier	Reason	Report Section
GMW-01-021511	Benzo(g,h,i)perylene Dibenz(a,h)anthracene	UJ	The MS/MSD %R values were less than the lower control limits.	2.8

2. DATA QUALIFIER DEFINITION

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration is an estimated value.
U	The analyte is considered not detected at the reported value for the sample.
UJ	The analyte is not detected above the sample quantitation limit, and the reported quantitation limit is an estimated value.

Approved by: _____



Mingta Lin

Date: 05/26/2011

IV. REFERENCES

USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, EPA-540-R-08-01.

USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

Analytical Methods for Petroleum Hydrocarbons, ECY 97-602, Washington State Department of Ecology, June 1997.

Quality Assurance Project Plan for Remedial Investigation/Feasibility Study at the SemMaterials L.P. Facility, Spokane, Washington. Golder Associates, Inc. July 2008.

May 2011

Data Validation Report

**Remedial Investigation/Feasibility Study
The SemMaterials L.P. Facility
Spokane, Washington**

May 2011 Groundwater Sampling

Prepared for:

Aspect Consulting, Inc.
179 Madrone Lane N
Bainbridge Island, WA 98110

Prepared by:

Pyron Environmental, Inc.
3530 32nd Way NW
Olympia, WA 98502

June 29, 2011

ACRONYMS

%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
DFTPP	decafluorotriphenylphosphine
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
F&BI	Friedman & Bruya, Inc.
GC/FID	gas chromatography/flame ionization detector
GC/MS	gas chromatography/mass spectrometer
ICAL	initial calibration
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
µg/L	micrograms per liter
mg/L	milligrams per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
PAHs	polycyclic aromatic hydrocarbons
PQL	practical quantitation limit
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
RF	response factor
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
TPH	total petroleum hydrocarbon

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for groundwater samples collected during May 2011 for the referenced project. The laboratory report validated herein was submitted by Friedman & Bruya, Inc. (F&BI) and assigned F&BI's project number 105158.

A level III data validation was performed on this laboratory report. The validation followed the procedures specified in USEPA CLP National Functional Guidelines (EPA 2008) with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Golder Associates, Inc., July 2008) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Qualified data, data qualifiers, qualification reasons, and qualifier definitions are presented in **Section III - Data Validation Summary**.

Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	Laboratory Sample ID	Sample Collection Date	Matrix	Analysis	
				PAHs	TPH-Dx
GMW-06-051011	105158-01	05/10/11	Water	X	X
GMW-05-051011	105158-02	05/10/11	Water	X	X
GMW-04-051011	105158-03	05/10/11	Water	X	X
GMW-03-051011	105158-04	05/10/11	Water	X	X
GMW-02-051011	105158-05	05/10/11	Water	X	X
GMW-01-051011	105158-06	05/10/11	Water	X	X
UDCMW-4-051011	105158-07	05/10/11	Water	X	X
UDCMW-4D-051011	105158-08	05/10/11	Water	X	X
FB-051011	105158-09	05/10/11	FB	X	X

Notes:

1. X - The analysis was requested and performed on the sample.
2. PAHs – Polycyclic aromatic hydrocarbons
3. TPH-Dx – Diesel and motor oil range total petroleum hydrocarbon (TPH)
4. FB – Field blank

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Polycyclic Aromatic Hydrocarbons	SW846 Method 8270D SIM	Friedman & Bruya, Inc. (F&BI) Seattle, Washington
Diesel and Motor Oil Range TPH	NWTPH-Dx	

Notes:

1. SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846, Third Edition, December 1996.
2. NWTPH - *Analytical Methods for Petroleum Hydrocarbons*, ECY 97-602, Washington State Department of Ecology, June 1997

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. Samples were received intact and in good condition at the laboratory. No anomalies were found in relation to sample preservation, transport, and handling.

2. PAHs by GC/MS (SW846 Method 8270D-SIM)

2.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analysis was performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if average response factor (RF) is chosen as the quantitation option, the percent relative standard deviation (%RSD) value of the average RF should be $\leq 15\%$, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) should be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the coefficient of determination (r^2) should be ≥ 0.99 , and (4) the average RFs should be ≥ 0.05 (0.01 for poor responders) for all target and surrogate compounds. The initial calibrations met the method requirements.

2.4 Calibration Verification

Continuing calibration verification analyses were performed at the required frequency (the beginning of each 12-hour analysis period prior to the analysis of method blank and samples), the percent difference (%D) values were within $\pm 20\%$, and the RFs were ≥ 0.05 (≥ 0.01 for poor responders) for all target and surrogate

compounds. Calibration verification analyses were performed at the required frequency. The %D values met the criteria.

2.5 Blanks

Method Blank: Method blanks were prepared analyzed at the required frequency. Target compounds were not detected at or above the method detection limits (MDLs) in the method blank.

Field Blank: Sample FB-051011 was a field blank. Target compounds were not detected at or above the MDLs in this sample.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCS duplicate (LCSD) analyses were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were within the laboratory control criteria.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the methods. %R values met the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-051011. All %R values met the laboratory control criteria, except for the following:

Parent Sample	Analyte	%R		Control Limit	Data Qualifier
		MS	MSD		
GMW-01-051011	Benzo(g,h,i)perylene	45%	47%	50-150%	UJ
	Dibenz(a,h)anthracene	45%	48%		

All RPD values for the MS/MSD were within the control criteria.

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Laboratory Quantitation Limits

The reporting limits (RLs) were specified at 0.01 µg/L for benzo(g,h,i)perylene, naphthalene, and all carcinogenic PAHs, and at 0.1 µg/L for the remaining PAHs in the QAPP. The laboratory reported PQLs at 0.1 µg/L for all target PAHs, and non-detects were evaluated down to the MDLs (ranging from 0.0026 to 0.008 µg/L). The reported RLs were supported with proper initial calibration concentrations for all target compounds. Reported MDLs were supported with the MDL study presented in the laboratory report. Since PAHs were not detected in all field samples, the project-expected detection limits were considered achieved.

2.11 Field Duplicates

Samples UDCWM-4-051011 and UDCWM-4D-051011 were field duplicates. Target PAHs were not detected at or above the MDLs in either sample, except that acenaphthene was detected at 0.021 µg/L in sample UDCWM-4-051011. The detection and the concentration difference between the duplicates was less than was the reporting limit (RL); the field precision was within the acceptance criteria.

2.12 Overall Assessment of PAHs Data Usability

PAHs data are of known quality and acceptable for use as qualified.

3. TPH-Diesel and Motor Oil by GC/FID (Method NWTPH-Dx)

3.1 Holding Time

Water samples should be extracted within seven days of collection; extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using individual petroleum product reference standards to ensure the proper identification and quantitation of petroleum hydrocarbons in samples, (2) the calibration curve includes a sufficiently low standard to provide the necessary reporting limits, and (3) the linear working range of the instrument be defined.

The ICAL met the method requirements. The linearity of the ICAL curve was verified with %RSD of RFs (%RSD ≤ 20%, according to EPA SW 846 Method 8000), and was acceptable for both TPH-Diesel and TPH-Motor Oil.

3.3 Calibration Verification

The method requires that (1) a mid-range check standard be analyzed prior to and after each analytical batch, and (2) the percent drift value be within $\pm 15\%$ of the true value. All calibration verification analyses met the method requirements.

3.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. Target compounds were not detected at or above the RLs in the method blank.

Field Blank: Sample FB-051011 was a field blank. Target compounds were not detected at or above the RLs in this sample.

3.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control criteria.

3.6 Laboratory Control Samples (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

3.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample GMW-01-051011. All %R and RPD values met the laboratory control criteria.

3.8 Reporting Limits

The reported PQLs were supported with adequate ICAL concentrations and achieved the quantitation limit goals identified in the QAPP.

3.9 Field Duplicates

Samples UDCWM-4-051011 and UDCWM-4D-051011 were field duplicates. TPH-Diesel was detected at 74 $\mu\text{g/L}$ and 79 $\mu\text{g/L}$ in the samples respectively. The concentration difference value (5 $\mu\text{g/L}$) was within less than the RL (50 $\mu\text{g/L}$); the field precision was within the acceptance criteria.

3.10 Overall Assessment of TPH-Diesel Extended Data Usability

TPH-Diesel Extended data are of known quality and acceptable for use.

III. DATA VALIDATION SUMMARY

1. DATA QUALIFICATION

Qualified data and assigned qualifiers are summarized as follows:

Sample ID	Analyte	Data Qualifier	Reason	Report Section
GMW-01-051011	Benzo(g,h,i)perylene Dibenz(a,h)anthracene	UJ	The MS/MSD %R values were less than the lower control limits.	2.8

2. DATA QUALIFIER DEFINITION

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration is an estimated value.
U	The analyte is considered not detected at the reported value for the sample.
UJ	The analyte is not detected above the sample quantitation limit, and the reported quantitation limit is an estimated value.

Approved by: _____



Mingta Lin

Date: 06/29/2011

IV. REFERENCES

USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, June 2008, EPA-540-R-08-01.

USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

Analytical Methods for Petroleum Hydrocarbons, ECY 97-602, Washington State Department of Ecology, June 1997.

Quality Assurance Project Plan for Remedial Investigation/Feasibility Study at the SemMaterials L.P. Facility, Spokane, Washington. Golder Associates, Inc. July 2008.

APPENDIX H

Surface Water Runoff Inspection



DAILY REPORT

350 Madison Avenue North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: 12/30/11	PROJECT NO. 090190.006	WEATHER: OVERCAST / RAIN, 42° F
PROJECT NAME: SemMaterials Site		CLIENT: HUSKY ENGERGY
EQUIPMENT USED: N/A		PROJECT LOCATION: SPOKANE

THE FOLLOWING WAS NOTED:

Site was visited after approximately 1/2-inches of rain recorded locally over the prior four days of precipitation (Data Source: Weather Station KSFF approximately 2-miles southeast of site).

Met with Scott Blubaugh, project manager with Western States Asphalt Inc. (tenant) at approximately 10:00 AM. Scott provided general background information related to the site in addition to a sitemap. Per Scott, there is no formal drainage system (inlets, conveyance piping, drywells, etc.) and that surface water runoff generally pools in low lying areas where it infiltrates (if possible) or otherwise evaporates. Scott also identified 3-locations (numbered 1, 2 and 3) which are identified as locations for water quality sampling to satisfy drainage permit requirements.

Upon review of the site, no formal drainage system was observed which coincides with Scott's remarks. Standing water was observed in multiple locations including those identified as sampling locations. Sampling location numbered as 1, 2 and 3 were approximately field located along the mid-north, southeast corner and mid-southern limits of the site, respectively. Photos were taken (attached).

The site is generally impervious (asphalt, concrete) or semi-pervious (asphalt treated gravel, gravel). Small amount of pervious surface (lawn) were observed adjacent to the scale house which are estimated to comprise less than 1% of the surface area.

Drainage patterns are generally radial (outward) with the high point in the site topography near the office building located in the western portion of the site. The majority of surface water runoff collected from prior rainfall events was evident in the general vicinity of identified sample locations.

Sample Location #1; Sample Location #1 is located along the northern limit, immediately east of the main vehicular access to the site in a low lying depression. Tributary area of sample location #1 appears comprise less than 1/6 of the site area and is bounded by the berm to the north, main vehicular access to the west and the railway line to the south (which traverses the site). Significant ponding was observed likely resulting from poorly draining underlying silty soils.

Sample Location #2; Sample Location #2 is located in the southeast corner of the site in the vicinity of two large steel tanks in a low lying depression. Tributary area of Sample Location #2 appears to comprise a significant portion of the site (up to 1/2 of total area) and is bound by the railway to the north, ecology block walls / berm to the east and south and a topographic divide to the west. Ponding appeared to have receded from greater limits which encompasses the majority of the footprint (north, south and east) of the two large steel tanks in the southeast corner of the site. A second significant pool of standing water was observed along the southern limit of the site within the tributary area of Sample Location #2. This pool appears to overflow to the east towards Sample Location #2 when full to capacity.

COPIES TO: File, Client	Aspect Consulting PROJECT MANAGER: Chip Goodhue Jr.
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PROJECT NO.: 090190.006	PROJECT NAME: SemMaterials Site	DATE: Error! Reference source not found.
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Sample Location #3; Sample Location #3 is located near the midpoint of the southern limit of the site in a low lying depression immediately west of the Shop Building. Tributary area of Sample Location #3 appears to comprise more than 1/6 of the site and is bound by topographic divides to the east and west, the railway to the north and an ecology block wall / berm to the south. Standing water was observed at Sample Location #3 at time of observation. Water levels appear to have receded from recent limits. Ground cover in this area is characterized as gravel surfacing.

A final sub-basin on the site is located at the western limit which comprises approximately 1/6 of the site area. Surface water runoff from this tributary area appears to collect and infiltrate relatively quickly at the extreme southwest corner of the site. The majority of ground cover in this sub-basin is semi-pervious gravel surfacing which may contribute to lower runoff in this area when compared to other regions of this site in general. No standing water was observed in low lying areas at the time of visit.

One additional region of note is located in the northeast tank farm region where dual containment of tanks prevents surface water runoff. Ground cover in this area is 100% impervious consisting of concrete and asphalt and is bounded by concrete walls. Small amounts of ponding water was observed in the northeast and southwest limits of this region.

Based upon review of the topography and conditions at the site it does not appear as though precipitation exits the site as surface water runoff. One exception may be along the southern limit where topography favors some pooling in lower lying areas which may receive overflow / runoff from the site.

PROJECT NO.: 090190.006	PROJECT NAME: SemMaterials Site	DATE: Error! Reference source not found.
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Site Photographs



Photo 1 – Sample Location No. 1, View Looking West



Photo 2 - Sample Location No. 1, View Looking East



Photo 3 – East of Sample Location No. 1, View Looking East



Photo 4 - Sample Location No. 2, View Looking Southeast

PROJECT NO.: 090190.006

PROJECT NAME: SemMaterials Site

DATE: Error! Reference source not found.



**Photo 5 – North of Sample Location No. 2,
View Looking Southeast**



**Photo 6 – West of Sample Location No. 2,
View Looking South**



**Photo 7 – West of Sample Location No. 2,
View Looking East**



Photo 8 - Sample Location No. 3, View Looking South

PROJECT NO.: 090190.006

PROJECT NAME: SemMaterials Site

DATE: Error! Reference source not found.



Photo 9 - Sample Location No. 3, View Looking West



**Photo 10 – Southwest Corner of Site,
View Looking Southwest**

APPENDIX I

Asphalt Cap Inspection Photographs



Photograph 1 – View of Northeast Tank Farm along South Exterior Wall (February 2011).



Photograph 2 – View of Northeast Tank Farm looking toward East Wall (February 2011).



Photograph 3 – View of Northeast Tank Farm Interior (February 2011).



Photograph 4 – View of Northeast Tank Farm Interior (May 2011).



Photograph 5 – View of Northeast Tank Farm towards Northeast Wall (May 2011).

APPENDIX J

Simplified Terrestrial Ecological Evaluation

Table 749-1

Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure

Estimate the area of contiguous (connected) <u>undeveloped land</u> on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre).		
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.		5
	<u>Area (acres)</u>	<u>Points</u>
	0.25 or less	4
	0.5	5
	1.0	6
	1.5	7
	2.0	8
	2.5	9
	3.0	10
	3.5	11
	4.0 or more	12
2) Is this an <u>industrial</u> or <u>commercial</u> property? If yes, enter a score of 3. If no, enter a score of 1		3
3) ^a Enter a score in the box to the right for the habitat quality of the site, using the following rating system ^b . High=1, Intermediate=2, Low=3		1*
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. ^c		1*
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.		4
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.		9

*default to high-line 3 and yes-line 4 because evaluation not completed by field biologist.

Notes for Table 749-1

^a It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score of (1) for questions 3 and 4.

^b **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

Low: Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.

High: Area is ecologically significant for one or more of the following reasons: Late-[successional](#) native plant communities present; relatively high species diversity; used by an uncommon or rare species; [priority habitat](#) (as defined by the Washington Department of fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.

Intermediate: Area does not rate as either high or low.

^c Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use b mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

[\[Area Calculation Aid\]](#) [\[Aerial Photo with Area Designations\]](#) [TEE Table 749-1] [\[Index of Tables\]](#)

[\[Exclusions Main\]](#) [\[TEE Definitions\]](#) [\[Simplified or Site-Specific?\]](#) [\[Simplified Ecological Evaluation\]](#) [\[Site-Specific Ecological Evaluation\]](#) [\[WAC 173-340-7493\]](#)

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APPENDIX K

MTCATPH 11.1 Calculations

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/07/08

Site Name: SemMaterials

Sample Name: GGP-09 (2.5')

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction		
AL_EC>5-6	0	0.00%
AL_EC>6-8	0	0.00%
AL_EC>8-10	50	1.90%
AL_EC>10-12	50	1.90%
AL_EC>12-16	50	1.90%
AL_EC>16-21	50	1.90%
AL_EC>21-34	400	15.19%
AR_EC>8-10	50	1.90%
AR_EC>10-12	50	1.90%
AR_EC>12-16	50	1.90%
AR_EC>16-21	430	16.33%
AR_EC>21-34	1374.1	52.18%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	2.3	0.09%
1-Methyl Naphthalene	20	0.76%
2-Methyl Naphthalene	30	1.14%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	5.7	0.22%
Benzo(b)fluoranthene	3.2	0.12%
Benzo(k)fluoranthene	0.4	0.02%
Benzo(a)pyrene	4	0.15%
Chrysene	13	0.49%
Dibenz(a,h)anthracene	0.4	0.02%
Indeno(1,2,3-cd)pyrene	0.4	0.02%
Sum	2633.5	100.00%

Notes for Data Entry

Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:

Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.42	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.12	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L.

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/7/2008

Site Name: SemMaterials

Sample Name: GGP-09 (2.5')

Measured Soil TPH Concentration, mg/kg: 2,633.500

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	53	4.96E-05	1.12E+00	Fail
	Method C	2,139	1.23E-05	8.63E-02	Fail
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	1,923	1.90E-08	1.04E+00	Fail
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	53.12	2,139.22
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI=1	NO	2.36E+03	4.44E-05	1.00E+00	NO	3.05E+04	1.43E-04	1.00E+00
Total Risk=1E-5	NO	5.31E+02	1.00E-05	2.25E-01	YES	2.14E+03	1.00E-05	7.01E-02
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	5.31E+01	1.00E-06	2.25E-02				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

	HI=1
Most Stringent Criterion	
Protective Ground Water Concentration, ug/L	172.99
Protective Soil Concentration, mg/kg	1923.11

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.73E+02	1.91E-08	1.00E+00	1.92E+03
Total Risk = 1E-5	NO	2.09E+02	1.87E-08	1.16E+00	100% NAPL
Total Risk = 1E-6	NO	2.09E+02	1.87E-08	1.16E+00	100% NAPL
Risk of cPAHs mixture= 1E-5	NO	2.09E+02	1.87E-08	1.16E+00	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 86000 mg/kg TPH.

3.2. Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	2.09E+02	1.87E-08	1.16E+00	100% NAPL

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/06/08

Site Name: SemMaterials

Sample Name: GGP-21B (2)

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis	Ratio
	mg/kg	%
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	1	0.58%
AL_EC >10-12	1	0.58%
AL_EC >12-16	1	0.58%
AL_EC >16-21	1	0.58%
AL_EC >21-34	130	75.12%
AR_EC >8-10	1	0.58%
AR_EC >10-12	1	0.58%
AR_EC >12-16	1	0.58%
AR_EC >16-21	2.6	1.50%
AR_EC >21-34	32	18.49%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0.145	0.08%
1-Methyl Naphthalene	0.145	0.08%
2-Methyl Naphthalene	0.145	0.08%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0.145	0.08%
Benzo(b)fluoranthene	0.145	0.08%
Benzo(k)fluoranthene	0.145	0.08%
Benzo(a)pyrene	0.145	0.08%
Chrysene	0.145	0.08%
Dibenz(a,h)anthracene	0.145	0.08%
Indeno(1,2,3-cd)pyrene	0.145	0.08%
Sum	173.05	100.00%

Notes for Data Entry

Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:

Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.42	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.12	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/6/2008

Site Name: SemMaterials

Sample Name: GGP-21B (2')

Measured Soil TPH Concentration, mg/kg: 173.050

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	82	2.11E-06	2.04E-02	Fail
	Method C	3,300	5.24E-07	1.63E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	1.44E-08	7.36E-02	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	81.94	3,299.98
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI=1	NO	8.47E+03	1.03E-04	1.00E+00	NO	1.06E+05	3.22E-04	1.00E+00
Total Risk=1E-5	NO	8.19E+02	1.00E-05	9.68E-02	YES	3.30E+03	1.00E-05	3.10E-02
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	8.19E+01	1.00E-06	9.68E-03				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

	NA
Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	8.21E+01	1.43E-08	2.86E-01	100% NAPL
Total Risk = 1E-5	YES	8.21E+01	1.43E-08	2.86E-01	100% NAPL
Total Risk = 1E-6	YES	8.21E+01	1.43E-08	2.86E-01	100% NAPL
Risk of cPAHs mixture= 1E-5	YES	8.21E+01	1.43E-08	2.86E-01	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 68000 mg/kg TPH.

3.2. Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	8.21E+01	1.43E-08	2.86E-01	100% NAPL

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/06/08

Site Name: SemMaterials

Sample Name: GGP-21B (7.5')

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis mg/kg	Ratio %
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	50	1.33%
AL_EC >10-12	50	1.33%
AL_EC >12-16	50	1.33%
AL_EC >16-21	50	1.33%
AL_EC >21-34	620	16.53%
AR_EC >8-10	50	1.33%
AR_EC >10-12	50	1.33%
AR_EC >12-16	50	1.33%
AR_EC >16-21	380	10.13%
AR_EC >21-34	2375.9	63.34%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0.325	0.01%
1-Methyl Naphthalene	0.325	0.01%
2-Methyl Naphthalene	0.325	0.01%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	6.2	0.17%
Benzo(b)fluoranthene	4	0.11%
Benzo(k)fluoranthene	3.1	0.08%
Benzo(a)pyrene	2.8	0.07%
Chrysene	6.7	0.18%
Dibenz(a,h)anthracene	0.325	0.01%
Indeno(1,2,3-cd)pyrene	1.3	0.03%
Sum	3751.3	100.00%

Notes for Data Entry Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:
Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: <u>10/6/2008</u>
Site Name: <u>SemMaterials</u>
Sample Name: <u>GGP-21B (7.5')</u>
Measured Soil TPH Concentration, mg/kg: <u>3,751.300</u>

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	89	4.21E-05	1.44E+00	Fail
	Method C	3,593	1.04E-05	1.17E-01	Fail
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	1.26E-08	3.10E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through -7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	89.21	3,592.77
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	NO	2.61E+03	2.92E-05	1.00E+00	NO	3.21E+04	8.92E-05	1.00E+00
Total Risk=1E-5	NO	8.92E+02	1.00E-05	3.42E-01	YES	3.59E+03	1.00E-05	1.12E-01
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	8.92E+01	1.00E-06	3.42E-02				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.26E+02	1.26E-08	3.21E-01	100% NAPL
Total Risk = 1E-5	YES	1.26E+02	1.26E-08	3.21E-01	100% NAPL
Total Risk = 1E-6	YES	1.26E+02	1.26E-08	3.21E-01	100% NAPL
Risk of cPAHs mixture= 1E-5	YES	1.26E+02	1.26E-08	3.21E-01	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 95000 mg/kg TPH.

3.2. Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	1.26E+02	1.26E-08	3.21E-01	100% NAPL

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/06/08

Site Name: SemMaterials

Sample Name: GGP-21B (12')

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis mg/kg	Ratio %
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	21.5	8.40%
AL_EC >10-12	21.5	8.40%
AL_EC >12-16	21.5	8.40%
AL_EC >16-21	21.5	8.40%
AL_EC >21-34	100	39.08%
AR_EC >8-10	11	4.30%
AR_EC >10-12	11	4.30%
AR_EC >12-16	11	4.30%
AR_EC >16-21	11	4.30%
AR_EC >21-34	23	8.99%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0.29	0.11%
1-Methyl Naphthalene	0.29	0.11%
2-Methyl Naphthalene	0.29	0.11%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0.29	0.11%
Benzo(b)fluoranthene	0.29	0.11%
Benzo(k)fluoranthene	0.29	0.11%
Benzo(a)pyrene	0.29	0.11%
Chrysene	0.29	0.11%
Dibenz(a,h)anthracene	0.29	0.11%
Indeno(1,2,3-cd)pyrene	0.29	0.11%
Sum	255.9	100.00%

Notes for Data Entry

Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:

Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.42	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.12	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/6/2008

Site Name: SemMaterials

Sample Name: GGP-21B (12)

Measured Soil TPH Concentration, mg/kg: 255,900

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	61	4.22E-06	6.45E-02	Fail
	Method C	2,440	1.05E-06	4.41E-03	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	11,294	1.59E-08	4.58E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	60.58	2,439.94
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI=1	NO	3.97E+03	6.55E-05	1.00E+00	NO	5.80E+04	2.38E-04	1.00E+00
Total Risk=1E-5	NO	6.06E+02	1.00E-05	1.53E-01	YES	2.44E+03	1.00E-05	4.20E-02
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	6.06E+01	1.00E-06	1.53E-02				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	HI=1
Protective Ground Water Concentration, ug/L	367.17
Protective Soil Concentration, mg/kg	11294.13

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	3.67E+02	1.31E-08	1.00E+00	1.13E+04
Total Risk = 1E-5	NO	3.78E+02	1.30E-08	1.02E+00	100% NAPL
Total Risk = 1E-6	NO	3.78E+02	1.30E-08	1.02E+00	100% NAPL
Risk of cPAHs mixture= 1E-5	NO	3.78E+02	1.30E-08	1.02E+00	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 66000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	3.78E+02	1.30E-08	1.02E+00	100% NAPL

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/06/08

Site Name: SemMaterials

Sample Name: GGP-23 (2.5')

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis mg/kg	Ratio %
Petroleum EC Fraction		
AL_EC>5-6	0	0.00%
AL_EC>6-8	0	0.00%
AL_EC>8-10	50	7.83%
AL_EC>10-12	50	7.83%
AL_EC>12-16	50	7.83%
AL_EC>16-21	50	7.83%
AL_EC>21-34	110	17.23%
AR_EC>8-10	21	3.29%
AR_EC>10-12	21	3.29%
AR_EC>12-16	21	3.29%
AR_EC>16-21	21	3.29%
AR_EC>21-34	240	37.60%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	0.425	0.07%
1-Methyl Naphthalene	0.425	0.07%
2-Methyl Naphthalene	0.425	0.07%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	0.425	0.07%
Benzo(b)fluoranthene	0.425	0.07%
Benzo(k)fluoranthene	0.425	0.07%
Benzo(a)pyrene	0.425	0.07%
Chrysene	0.425	0.07%
Dibenz(a,h)anthracene	0.425	0.07%
Indeno(1,2,3-cd)pyrene	0.425	0.07%
Sum	638.25	100.00%

Notes for Data Entry

Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:

Enter site-specific information here.....

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.42	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.12	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/6/2008

Site Name: SemMaterials

Sample Name: GGP-23 (2.5')

Measured Soil TPH Concentration, mg/kg: 638.250

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	103	6.19E-06	2.24E-01	Fail
	Method C	4,152	1.54E-06	1.65E-02	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	7.88E-09	4.93E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	103.11	4,152.50
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI =1	NO	2.85E+03	2.77E-05	1.00E+00	NO	3.86E+04	9.29E-05	1.00E+00
Total Risk=1E-5	NO	1.03E+03	1.00E-05	3.61E-01	YES	4.15E+03	1.00E-05	1.08E-01
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	1.03E+02	1.00E-06	3.61E-02				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

	NA
Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	2.76E+02	7.31E-09	7.34E-01	100% NAPL
Total Risk = 1E-5	YES	2.76E+02	7.31E-09	7.34E-01	100% NAPL
Total Risk = 1E-6	YES	2.76E+02	7.31E-09	7.34E-01	100% NAPL
Risk of cPAHs mixture= 1E-5	YES	2.76E+02	7.31E-09	7.34E-01	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 75000 mg/kg TPH.

3.2 Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	2.76E+02	7.31E-09	7.34E-01	100% NAPL

A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750

1. Enter Site Information

Date: 10/07/08
 Site Name: SemMaterials
 Sample Name: GGP-24 (2.5')

2. Enter Soil Concentration Measured

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis mg/kg	Ratio %
Petroleum EC Fraction		
AL_EC >5-6	0	0.00%
AL_EC >6-8	0	0.00%
AL_EC >8-10	55	0.64%
AL_EC >10-12	55	0.64%
AL_EC >12-16	260	3.01%
AL_EC >16-21	320	3.70%
AL_EC >21-34	960	11.11%
AR_EC >8-10	55	0.64%
AR_EC >10-12	55	0.64%
AR_EC >12-16	621	7.19%
AR_EC >16-21	2300	26.62%
AR_EC >21-34	3768	43.61%
Benzene	0	0.00%
Toluene	0	0.00%
Ethylbenzene	0	0.00%
Total Xylenes	0	0.00%
Naphthalene	9.3	0.11%
1-Methyl Naphthalene	63	0.73%
2-Methyl Naphthalene	86	1.00%
n-Hexane	0	0.00%
MTBE	0	0.00%
Ethylene Dibromide (EDB)	0	0.00%
1,2 Dichloroethane (EDC)	0	0.00%
Benzo(a)anthracene	9.5	0.11%
Benzo(b)fluoranthene	2.7	0.03%
Benzo(k)fluoranthene	0.6	0.01%
Benzo(a)pyrene	3.8	0.04%
Chrysene	16	0.19%
Dibenz(a,h)anthracene	0.6	0.01%
Indeno(1,2,3-cd)pyrene	0.6	0.01%
Sum	8641.1	100.00%

3. Enter Site-Specific Hydrogeological Data

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.001	Unitless
Dilution Factor:	20	Unitless

4. Target TPH Ground Water Concentration (if adjusted)

If you adjusted the target TPH ground water concentration, enter adjusted value here: ug/L

Notes for Data Entry Set Default Hydrogeology

Clear All Soil Concentration Data Entry Cells

Restore All Soil Concentration Data cleared previously

REMARK:
 Enter site-specific information here.....

A2 Soil Cleanup Levels: Calculation and Summary of Results. Refer to WAC 173-340-720, 740, 745, 747, 750

Site Information

Date: 10/7/2008

Site Name: SemMaterials

Sample Name: GGP-24 (2.5')

Measured Soil TPH Concentration, mg/kg: 8,641.100

1. Summary of Calculation Results

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	167	5.17E-05	3.86E+00	Fail
	Method C	6,731	1.28E-05	3.07E-01	Fail
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	100% NAPL	7.04E-09	8.13E-01	Pass
	Target TPH GW Conc. @ 500 ug/L	100% NAPL	NA	NA	Pass

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through ~7494).

Warning! Check Residual Saturation (WAC340-747(10)).

2. Results for Protection of Soil Direct Contact Pathway: Human Health

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	167.13	6,731.14
Most Stringent Criterion	Risk of cPAHs mixture= 1E-6	Total Risk=1E-5

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI=1	NO	2.24E+03	1.34E-05	1.00E+00	NO	2.81E+04	4.18E-05	1.00E+00
Total Risk=1E-5	NO	1.67E+03	1.00E-05	7.47E-01	YES	6.73E+03	1.00E-05	2.39E-01
Risk of Benzene= 1E-6	NA	NA	NA	NA	NA			
Risk of cPAHs mixture= 1E-6	YES	1.67E+02	1.00E-06	7.47E-02				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

3. Results for Protection of Ground Water Quality (Leaching Pathway)

3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection

Most Stringent Criterion	NA
Protective Ground Water Concentration, ug/L	NA
Protective Soil Concentration, mg/kg	Soil-to-Ground Water is not a critical pathway!

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	YES	1.24E+02	7.03E-09	8.22E-01	100% NAPL
Total Risk = 1E-5	YES	1.24E+02	7.03E-09	8.22E-01	100% NAPL
Total Risk = 1E-6	YES	1.24E+02	7.03E-09	8.22E-01	100% NAPL
Risk of cPAHs mixture= 1E-5	YES	1.24E+02	7.03E-09	8.22E-01	100% NAPL
Benzene MCL = 5 ug/L	NA	NA	NA	NA	NA
MTBE = 20 ug/L	NA	NA	NA	NA	NA

Note: 100% NAPL is 94000 mg/kg TPH.

3.2. Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 500 ug/L	1.24E+02	7.03E-09	8.22E-01	100% NAPL

APPENDIX L

Evaluation of Remedial Technologies

L.1 Institutional Controls

Institutional controls are measures that allow impacted materials to remain on the Site by controlling access or exposure to those materials. An example of an institutional control for soil is recording a restrictive covenant on the property to provide notification and controls in the event of future excavation, trenching or development in areas of known soil impacts. Other examples include a prohibition on use of groundwater beneath the Site or on land use activities other than industrial uses. Site security measures are also a type of institutional control.

Advantages

- Can be easy to implement without disrupting operations.
- Relatively low cost.

Limitations

- Does not address the destruction or remediation of COPCs.
- May result in restrictions on the property use.

Summary Evaluation

Because of its low cost and ease of implementation, institutional controls can be a valuable component of a remediation strategy; however, it will not achieve RAOs as a stand-alone alternative.

L.2 Monitored Natural Attenuation

COPCs in site soil and groundwater will be slowly removed *in-situ* by natural processes, such as volatilization and biodegradation by native bacteria. This technology involves periodic monitoring of soil, groundwater, and/or air to evaluate remediation progress and ensure continued protectiveness.

Advantages

- COPCs are permanently destroyed over time.
- Easy to implement without disrupting operations.
- Relatively low cost.

Limitations

- Does not eliminate migration of recharge through impacted soils.
- Remediation may take decades or longer.

Summary Evaluation

Because of its low cost and ease of implementation, monitored natural attenuation can be a valuable component of a remediation strategy; however, it is unlikely to achieve RAOs as a stand-alone alternative within a reasonable restoration timeframe.

L.3 Capping

This technology involves maintenance of an existing cap and/or construction of a new cap. The cap can be constructed of asphalt, concrete, low-permeability soils, or low-permeability soils combined with a plastic liner. Capping prevents direct exposure to impacted soils and eliminates migration of recharge through the impacted soils.

Advantages

- Easy to implement without disrupting operations.
- Effective at relatively low cost.

Limitations

- Remediation may take decades or longer.

Summary Evaluation

Because of its low cost and ease of implementation, capping can be a valuable component of a remediation strategy. Capping is usually combined with institutional controls to maintain effectiveness and natural attenuation to achieve RAOs.

L.4 Soil Excavation

This technology involves removing impacted soils and transporting the soil to a permitted disposal facility (e.g., landfill or soil recycler). Removal of shallow soil can be conducted relatively easy with no shoring or excessive handling of clean overburden soils. Given the depth of impacted soil at this Site (170 feet), complete removal would either require shoring or laying back the slopes from the area of impacts and implementation becomes more difficult.

Advantages

- For soil that can be accessed, this is the most certain method of removing COPCs from the Site. However, the soil still remains an issue depending on final disposal option selected; *i.e., this is not a permanent solution.*
- For shallow impacted soils, excavation coupled with off-site disposal is typically the most cost-effective active remedial measure.

Limitations

- Excavation costs increase significantly with depth and proximity to load bearing structures and buildings, particularly when shoring is required.
- Impacted soil beneath buildings and other facilities typically requires the demolition of those structures to access soil.
- Excavation is potentially disruptive, particularly when the removal is not consistent with site development plans.

Summary Evaluation

Soil excavation and off-site disposal is a viable option for the Site once the facilities are removed from the Site. Implementability and cost become an issue as the excavation deepens.

L.5 Enhanced Aerobic Biodegradation

Enhanced aerobic biodegradation is the practice of adding oxygen (an electron acceptor) to groundwater and/or soil to increase the number and vitality of indigenous microorganisms already naturally performing biodegradation of COPCs at the Site. Application is typically accomplished via injection of a liquid compound to provide oxygen to the subsurface. This process is performed in several discrete injection events and does not require continuously-operating equipment on site.

Advantages

- COPCs are permanently destroyed *in-situ*.
- Easy to implement without significantly disrupting operations.
- Can enhance remediation in otherwise inaccessible areas by altering soil or groundwater conditions over a localized area.

Limitations

- Treatment compounds must be dissolved in solution and could flush COPCs through the unsaturated zone into groundwater.
- Although faster than natural attenuation, remediation will likely be limited by the rate at which COPCs desorb from soil and the ability to deliver oxygen into the source regions. Therefore, remediation time with this technology may be a decade or more.

Summary Evaluation

Enhanced aerobic biodegradation is not typically cost-effective for high concentrations of COPCs due to the high volume of treatment compounds that must be delivered. It is most applicable as a polishing technology. Additionally, the potential for flushing COPCs to groundwater makes this technology unsuitable for this Site.

L.6 *In-Situ* Chemical Oxidation using a Dissolved Oxidant

For chemical oxidization, a strong oxidizing chemical (e.g., Fenton's reagent, activated persulfate, permanganate) is injected into the subsurface to react and mineralize (i.e., convert to carbon dioxide and water) organic COPCs. Because of their differing properties and hazards, this technology is divided into solid/liquid oxidants that are dissolved in water before injection and ozone, which is delivered in gaseous form.

Advantages

- COPCs are permanently destroyed *in-situ*.
- Could be implemented without demolition of the existing facilities.

Limitations

- Liquid/solid oxidants that must be applied in solution and could flush COPCs through the unsaturated zone into groundwater.
- The strong oxidants used in this process are hazardous and require specialized equipment and handling to avoid harm to workers.
- Less effective for heavy petroleum constituents due to their low solubility.

Summary Evaluation

Although effective for in-situ treatment of TPH, the amount of TPH in the vadose zone is so large that it would take a very long time to remediate using chemical oxidation. Additionally, the potential for flushing COPCs to groundwater makes this technology unsuitable for this Site.

L.7 *In-Situ* Chemical Oxidation using Ozone

Ozone is a strong oxidizing chemical in gaseous form that could be injected into the subsurface to react and mineralize organic COPCs. It does not have the same issues with flushing COPCs through the vadose zone as chemical oxidation using dissolved oxidants.

Advantages

- COPCs are permanently destroyed *in-situ*.
- Could be implemented without demolition of the existing facilities.
- Ozone could be generated on site and delivered in gaseous form to the vadose zone.

Limitations

- Given the estimated mass of COPCs (1.2 million pounds) and an estimated stoichiometry of 5 pounds of ozone for each pound of COPC, it would take 6 million pounds of ozone to completely remove the COPCs. Even with an ozone generation unit capable of 100 pounds per day, it would take 160 years to remediate the Site.
- Ozone is highly reactive and requires specialized equipment and handling to protect worker safety.
- Migration of ozone from the vadose zone into above ground spaces could present a human health hazard. Therefore, the surface may need to be capped and the system would need to include a soil vapor extraction system combined with treatment to prevent ozone discharge into above ground spaces.

Summary Evaluation

Although effective for in-situ treatment of TPH, the amount of TPH in the vadose zone is so large that it would take a very long time to remediate using chemical oxidation. In addition, there are other operational challenges with injecting large amounts of ozone and human health hazards that make this approach infeasible.

L.8 Soil Solidification

Impacted soil can be stabilized or solidified to limit the mobility of COPCs. Impacted soil is stabilized or solidified by adding amendments *in situ* using large-diameter augers, soil mixing equipment, or jet grouting equipment. The amendments either bind COPCs through chemical processes (stabilization) or create a low-permeability matrix (solidification) through which groundwater no longer flows at an appreciable rate. Soil containing organic COPCs is solidified with cement containing organic binding agents such as organoclay or activated carbon, which improves constituent immobilization.

Solidified materials generally have a very low permeability but it is likely that gradual leaching of COPCs along the margins of the solidified soils may continue. This leaching could provide a low-level but long-term source of impacts to groundwater.

Using *in situ* solidification/stabilization technologies as a component of the Site remedy would result in COPCs remaining on the Site indefinitely, though in a less mobile form.

Advantages

- Will likely stop the downward migration of COPCs due to gravity drainage and/or infiltration.

Limitations

- Would require demolition of existing facilities.
- Will likely reduce the rate of natural bio-remediation due to the reduction in permeability.
- The permanence of solidification and stabilization over the very long term is uncertain. In some cases, solidified soils may gradually erode through physical or chemical degradation processes.
- The gravelly/cobbly nature of the soil will make turning a large diameter auger difficult or impossible and jet grouting may be the only option. Unfortunately, the effective diameter of jet grouting can be difficult to predict and document.
- Soil solidification is general conducted in shallower soils (less than 40 feet deep) and grouting to 170 feet presents uncertainties due to the challenge in maintaining a straight and perfectly vertical hole.

Summary Evaluation

This containment approach is expensive and is generally not utilized at the depths required for this project. It is unlikely that the effectiveness would be significantly greater than a surface cap but the cost would be much higher and implementation has significant uncertainties.