Sweet-Edwards/EMCON, Inc.

18912 North Creek Parkway, Suite 210
Bothell, Washington 98011
(206) 485-5000
FAX (206) 486-9766

October 8, 1990
Project W56-12.04

Mr. Paul Hayes
Shell Oil Company
511 North Brookhurst Street
P.O. Box 4848
Anaheim, California 92803

RE: Site Assessment
Shell Oil Company Service Station #37282
3315 172 Street NE, Arlington, Washington
WIC 246-0434-0307

Dear Mr. Hayes:

On behalf of Shell Oil Company (Shell), Sweet-Edwards/EMCON (SE/E) has prepared this letter-report documenting findings of the Phase I site assessment performed at service station number 37282, 3315 172nd Street NE, Arlington, Washington (Figure 1).

PHASE I

On August 2 and 3, 1990, nine soil borings were advanced at the site (Figure 2). Borings SB-1 through SB-5 were completed using a hollow stem auger drilling rig to a maximum depth of 16.5 feet below ground surface (bgs). Borings HB-6 through HB-9 were advanced to a maximum depth of 6 feet bgs using a hand auger. Soil samples were collected and selected for analysis using the procedures outlined in SE/E's work plan, dated August 2, 1990.

Four borings (SB-1, SB-3, SB-4, and SB-5) were converted to monitoring wells (MW-1, MW-3, MW-4, and MW-5, respectively). Following installation, the wells were checked for floating product and depth to water. Wells were developed by surging and bailing, and sampled using the procedures described in the SE/E work plan.

SUBSURFACE CONDITIONS

The site is paved with asphalt and underlain by olive brown to olive gray, fine to medium silty sand and sand to 16.5 feet bgs. Ground water was encountered at approximately 8 feet bgs during the drilling activities on August 2 and 3, 1990. Based on the interpretation of the ground water elevation data, ground water flow was toward the south on August 9, 1990 (Figure 3).

Summaries of the laboratory testing results for soil and ground water samples submitted for analysis are presented in Tables 1 and 2, respectively. Exploratory Boring Log forms, which include monitoring well installation details, and Laboratory Reports are presented in Attachments 1 and 2, respectively.

If you have questions regarding the site assessment, please do not hesitate to call SE/E.

Sincerely,

Sweet-Edwards/EMCON, Inc.

Mike Noll
Project Geologist

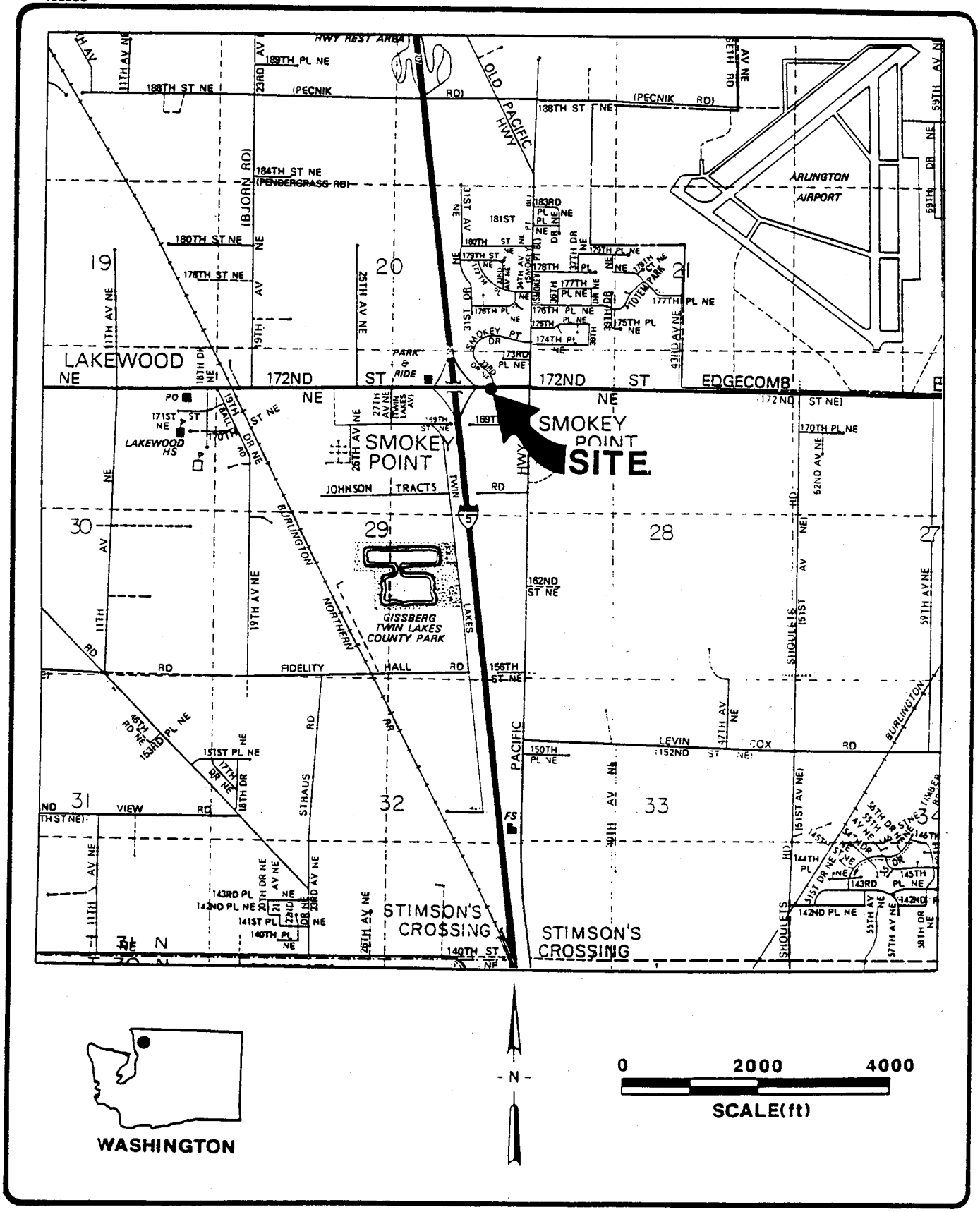
Rob Lindsay
Project Manager

Kevin G. Rattue
Project Director

cc: Jack Shepard; Texaco

Attachment 1: Log of Exploratory Boring Forms
Attachment 2: Laboratory Analysis Reports

133396

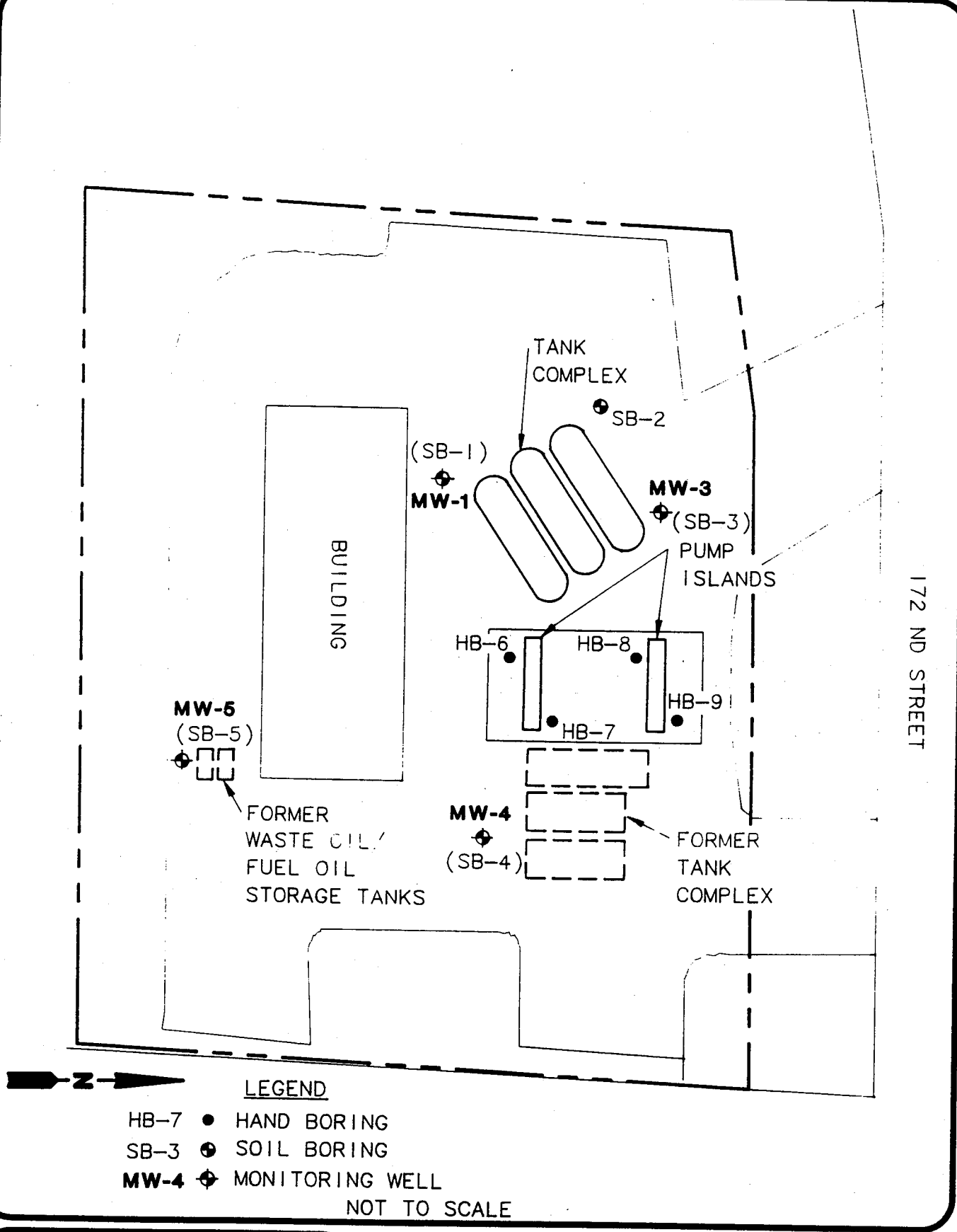


Sweet-Edwards EMCON

DATE 8/90
DWN. KLM
APPR.
REVIS.
PROJECT NO. W5612.01

Figure 1
SHELL SERVICE STATION #37282
ARLINGTON, WASHINGTON

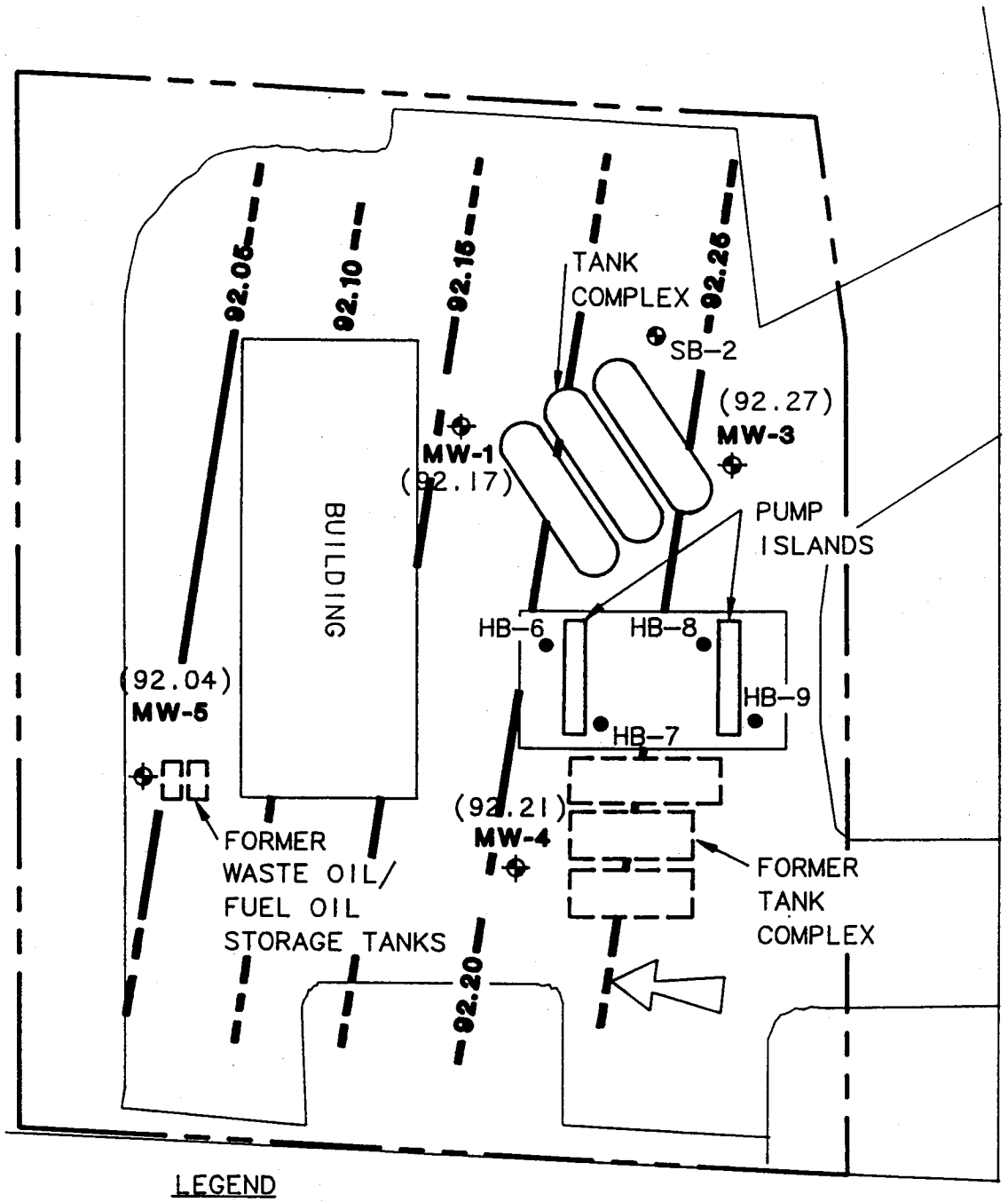
SITE VICINITY MAP



Sweet-Edwards
EMCON

DATE 10/5/90
DWN. KLM
APPR. MDN
PROJECT NO.
W5612-02

Figure 2
SHELL OIL COMPANY
3315 172ND STREET N.E.
ARLINGTON, WASHINGTON
PHASE I AS BUILT



LEGEND

HB-7 ● HAND BORING — 92.10 — GROUND WATER ELEVATION (FEET)

SB-2 ⊕ SOIL BORING

MW-4⊕ MONITORING WELL

(92.04) MEASURED WATER LEVEL (FEET)

GROUND WATER FLOW DIRECTION EVALUATED FROM DATA COLLECTED 8-9-90

INFERRED GROUND WATER FLOW DIRECTION

NOT TO SCALE

Sweet-Edwards
EMCON

DATE 10/5/90
DWN. KLM
APPR. MDN
PROJECT NO. W5612-02

Figure 3
SHELL OIL COMPANY
3315 172ND STREET N.E.
ARLINGTON, WASHINGTON
PIEZOMETRIC SURFACE

Table 1

Soil Sample Chemical Analyses
3315 172nd Street NE, Arlington, Washington
WIC 246-0434-0307

Sample Location	Sample Depth*	Sample Number	BTEX Compounds[a]					Total Petroleum Hydrocarbons[b]			
			Benzene	Toluene	Ethyl-Benzene	Xylenes m,p	Xylenes o	Gasoline	Diesel #1	Diesel #2	Method 418.1
SB- 1	5	12-SB1-5	--	--	--	--	--	ND	ND	ND	--
SB- 2	5	12-SB2-5	--	--	--	--	--	ND	ND	ND	--
SB- 3	5	12-SB3-5	--	--	--	--	--	ND	ND	ND	--
SB- 4	5	12-SB4-5	--	--	--	--	--	ND	ND	ND	--
SB- 5	5	12-SB5-5	--	--	--	--	--	--	--	--	ND
HB- 6	5	12-HB6-5	ND	300	85	570	400	ND	ND	ND	--
HB- 7	5	12-HB7-5	ND	ND	ND	ND	ND	ND	ND	ND	--
HB- 8	5	12-HB8-5	ND	ND	ND	ND	ND	ND	ND	ND	--
HB- 9	5	12-HB9-5	--	--	--	--	--	ND	ND	ND	--

NOTES:

* Depth is reported in feet below ground surface.

a Results for analyses of soil samples for BTEX were obtained using EPA Method 8020 (Purge and Trap) and reported in ng/g (ppb).

b Results for analyses of soil samples for total petroleum hydrocarbons were obtained using modified EPA Method 8015 (GC/FID) and reported in mg/Kg (ppm).

ND No detection.

-- Not analyzed.

Table 2

Ground Water Sample Chemical Analyses
3315 172nd Street NE, Arlington, Washington
WIC 246-0434-0307

Sample Location	Sample Number	BTEX Compounds[a]					Total Petroleum Hydrocarbons[b]		
		Benzene	Toluene	Ethyl Benzene	Xylenes m,p	Xylenes o	Gasoline	Diesel #1	Diesel #2
MW- 1	ARL-0890-04	ND	ND	ND	ND	ND	--	--	--
MW- 3	ARL-0890-01	ND	ND	ND	ND	ND	--	--	--
MW- 4	ARL-0890-02	ND	ND	ND	ND	ND	--	--	--
MW- 5	ARL-0890-03	ND	50	ND	ND	ND	--	--	--
Field Blank	ARL-0890-05	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank	Trip Blank	ND	ND	ND	ND	ND	--	--	--

NOTES:

a Results for analyses of ground water samples for BTEX were obtained using EPA Method 602 (Purge and Trap) and reported as ng/ml (ppb).

b Results for analyses of ground water samples for total petroleum hydrocarbons were obtained using Modified EPA Method 8015 (GC/FID) and reported as mg/L (ppm).

ND No detection.

-- Not analyzed.

Attachment 1

Log of Exploratory Boring Forms

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	SB-1
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	100.00'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	15.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/3/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
SB-1	0.9	3 4 5	▽	5 10 15 20				0 - 0.5 foot: ASPHALT. (AS) 0.5 - 7 feet: SILTY SAND (SM), light olive brown, fine to medium, some non-plastic fines, loose, moist. Some roots; some strong brown oxidized zones. 7 - 15 feet: SAND (SP), olive gray, fine to medium, trace fines, loose, moist to 9 feet, wet at 9 feet. (ALLUVIUM) Bottom of boring at 15 feet. Well Completion Details - MW-1: 0.25 - 5 feet: 4-inch diameter schedule 40 PVC riser pipe 5 - 15 feet: 4-inch diameter schedule 40 PVC screen with 0.020-inch machined slots 0 - 1 feet: concrete 1 - 3 feet: bentonite chips 3 - 15 feet: 8x12 Colorado silica sand

REMARKS

1) SB = split barrel samples collected using a modified Dames & Moore 2.5" ID core barrel driven with a 300# hammer. 2) REFERENCE ELEVATION represents top of PVC casing relative to a site datum. 3) Blow counts do not represent Standard Penetration Test results. 4) MW-1 installed in SB-1. 5) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	SB- 2
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	
DRILL METHOD	H.S. Auger	TOTAL DEPTH	8.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
SB- 1	0.6	3 3 5	▽	5 10 15 20				0 - 0.5 foot: ASPHALT. (AS) 0.5 - 2.5 feet: SILTY SAND with gravel (SM), olive brown, fine to coarse, some low plasticity fines, few fine to coarse gravel (subrounded, to 2-inch diameter) trace cobbles and boulders at 2 to 2.5 feet, medium dense, dry to moist. 2.5 - 3 feet: SANDY SILT (ML), dark yellowish brown, non-plastic, some fine sand, soft to firm, dry to moist. Scattered wood and charcoal fragments. 3 - 8 feet: SAND (SP), olive brown to light olive brown, fine to medium, few coarse sand and fine gravel (subrounded, to 1/2-inch diameter), loose, dry to moist to 7 feet, wet at 7 feet. (ALLUVIUM) Bottom of boring at 8 feet.

REMARKS

1) SB = split barrel samples collected using a modified Dames & Moore 2.5" ID core barrel driven with a 300# hammer. 2) Borehole backfilled with bentonite chips and sealed with concrete. 3) Blow counts do not represent Standard Penetration Test results. 4) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	SB-3
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	98.32'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	16.50'
LOGGED BY	Mike Noll	DATE COMPLETED	8/3/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	LITHOLOGIC DESCRIPTION
			0 - 0.5 foot: ASPHALT. (AS)
	1.9		0.5 - 4.5 feet: SILTY SAND (SM), brown to 3 feet, yellowish brown from 3 to 4.5 feet, fine to medium, some non-plastic fines, loose, moist becoming dry to moist. Abundant roots and wood fragments at 0.5 to 3 feet.
SB-1	0.3	3 7 8	4.5 - 11 feet: SAND (SP), olive to olive gray, fine to medium, trace fines, loose, moist to 7.5 feet, wet at 7.5 feet. (ALLUVIUM)
			11 - 16.5 feet: SAND (SW), olive gray, fine to coarse, trace fines, trace fine gravel, loose, wet. (ALLUVIUM)
SB-2	—	6 7 14	— no sample recovered Bottom of boring at 16.5 feet.

GROUND WATER LEVELS ▽

DEPTH IN FT. 5 10 15 20

LITHOLOGIC COLUMN / WELL DETAILS

Well Completion Details - MW-3:
0.25 - 5 feet: 4-inch diameter schedule 40 PVC riser pipe
5 - 15 feet: 4-inch diameter schedule 40 PVC screen with 0.020-inch machined slots
0 - 1 feet: concrete
1 - 3 feet: bentonite chips
3 - 16.5 feet: 8x12 Colorado silica sand

REMARKS

1) SB = split barrel samples collected using a modified Dames & Moore 2.5" ID core barrel driven with a 300# hammer. 2) REFERENCE ELEVATION represents top of PVC casing relative to a site datum. 3) Blow counts do not represent Standard Penetration Test results. 4) MW-3 installed in SB-3. 5) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	SB-4
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	99.53'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	15.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/3/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
SB-1	0.9	2 4 5	▽	5 10 15 20				0 - 0.5 foot: ASPHALT. (AS) 0.5 - 2 feet: SILTY SAND with gravel (SM), olive, fine to coarse, some non-plastic fines, few to some fine to coarse gravel (subrounded, to 3-inch diameter), loose, dry. (FILL) 2 - 4.5 feet: SILTY SAND (SM), yellowish brown, fine to medium, some fines, loose, dry to moist. 4.5 - 12 feet: SAND (SP), olive to olive brown, fine to medium, trace fines, loose, dry to 8 feet, wet at 8 feet. Some roots and strong brown oxidized zones. (ALLUVIUM) 12 - 15 feet: SAND (SW), olive to olive gray, fine to coarse, trace fines, trace fine gravel, loose, wet. (ALLUVIUM) Bottom of boring at 15 feet. Well Completion Details - MW-4: 0.2 - 5 feet: 4-inch diameter schedule 40 PVC riser pipe 5 - 15 feet: 4-inch diameter schedule 40 PVC screen with 0.020-inch machined slots 0 - 1 feet: concrete 1 - 3 feet: bentonite chips 3 - 15 feet: 8x12 Colorado silica sand

REMARKS

1) SB = split barrel samples collected using a modified Dames & Moore 2.5" ID core barrel driven with a 300# hammer. 2) REFERENCE ELEVATION represents top of PVC casing relative to a site datum. 3) Blow counts do not represent Standard Penetration Test results. 4) MW-4 installed in SB-4. 5) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	SB-5
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	100.37'
DRILL METHOD	H.S. Auger	TOTAL DEPTH	15.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
SB-1	2.5	2 3 3	▽	5 10 15 20				0 - 0.5 foot: ASPHALT. (AS) 0.5 - 4 feet: SILTY SAND with gravel (SM), olive to olive gray, fine to medium, some non-plastic fines, few to some coarse sand and fine to coarse gravel (subrounded, to 3-inch diameter), loose to medium dense, dry to moist. 4 - 15 feet: SILTY SAND (SM), yellowish brown to dark yellowish brown, fine to medium, some non-plastic fines, loose, dry to moist to 7 feet, wet at 7 feet. Abundant wood fragments at 5 to 6 feet. (ALLUVIUM) Bottom of boring at 15 feet. Well Completion Details - MW-3: 0.25 - 5 feet: 4-inch diameter schedule 40 PVC riser pipe 5 - 15 feet: 4-inch diameter schedule 40 PVC screen with 0.020-inch machined slots 0 - 1 feet: concrete 1 - 2.5 feet: bentonite chips 2.5 - 15 feet: 8x12 Colorado silica sand

REMARKS

1) SB = split barrel samples collected using a modified Dames & Moore 2.5" ID core barrel driven with a 300# hammer. 2) REFERENCE ELEVATION represents top of PVC casing relative to a site datum. 3) Blow counts do not represent Standard Penetration Test results. 4) MW-5 installed in SB-5. 5) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	HB-6
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	
DRILL METHOD	Hand Auger	TOTAL DEPTH	6.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
								0 - 0.5 foot: CONCRETE. (CON)
	31							0.5 - 5 feet: SILTY SAND (SM), gray to 2 feet, yellowish brown from 2 to 5 feet, fine to medium, few to some fines, trace coarse sand and fine gravel, loose, dry to moist. Some roots at 2 to 5 feet. Strong gasoline odor at 0.5 to 2 feet.
HS-1	655			5				5 - 6 feet: SAND (SP), olive to olive gray, some yellowish brown staining, fine to medium, few fines, trace coarse sand and fine gravel, loose, dry to moist. Strong gasoline odor.
								Bottom of boring at 6 feet.
				10				
				15				
				20				

REMARKS

1) HS = hand sample collected using a 2" OD core barrel driven manually with a 5# hammer. 2) Borehole backfilled with bentonite chips and sealed with concrete. 3) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	HB-7
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	
DRILL METHOD	Hand Auger	TOTAL DEPTH	6.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
	854							0 - 1 foot: CONCRETE (CON) with SANDY GRAVEL (GP) subgrade. 1 - 2 feet: SAND with gravel (SW), olive to olive gray, fine to coarse, some fine to medium gravel, trace fines, loose, moist. Strong gasoline odor. Scattered roots. 2 - 4 feet: SILTY SAND with gravel (SM), olive to 3 feet, yellowish brown to olive yellow at 3 to 4 feet, fine to medium, some fines, few to some fine gravel. 4 - 6 feet: SAND (SP), olive to olive yellow, fine to medium, trace fines and coarse sand, loose, moist. Some gasoline odor. (ALLUVIUM)
HS-1	87.5			5				
				10				Bottom of boring at 6 feet.
				15				
				20				

REMARKS

1) HS = hand sample collected using a 2" OD core barrel driven manually with a 5# hammer. 2) Borehole backfilled with bentonite chips and sealed with concrete. 3) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	HB- 8
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	
DRILL METHOD	Hand Auger	TOTAL DEPTH	6.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
HS- 1	111			5				0 - 0.5 foot: CONCRETE. (CON) 0.5 - 2.5 feet: SILTY SAND with gravel (SM), olive to olive gray, fine to medium, some non-plastic fines, few to some coarse sand and fine to medium gravel (subrounded, to 2-inch diameter), loose, dry to moist. (FILL) 2.5 - 3 feet: SILT with sand (ML), dark yellowish brown, low plasticity, trace to few fine sand, firm, moist. Some wood fragments. (TOPSOIL) 3 - 4.5 feet: SILTY SAND (SM), yellowish brown to light olive yellow, fine to medium, few fines, loose, moist. 4.5 - 6 feet: SAND (SP), olive to olive yellow, fine to medium, trace fines, loose, dry. Strong gasoline odor. (ALLUVIUM) Bottom of boring at 6 feet.
				10				
				15				
				20				

REMARKS

1) HS = hand sample collected using a 2" OD core barrel driven manually with a 5# hammer. 2) Borehole backfilled with bentonite chips and sealed with concrete. 3) PID = Model 580B photoionization detector.

LOG OF EXPLORATORY BORING

PROJECT NAME	Shell/Texaco	BORING NO.	HB- 9
LOCATION	Arlington, Washington	PAGE	1 OF 1
DRILLED BY	Pacific Testing Lab	REFERENCE ELEV.	
DRILL METHOD	Hand Auger	TOTAL DEPTH	6.00'
LOGGED BY	Mike Noll	DATE COMPLETED	8/2/90

SAMPLING METHOD and NUMBER	PID (ppm)	BLOWS per 6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
HS- 1	0.6			5				0 - 0.5 foot: CONCRETE (CON). Electrical wires beneath concrete. 0.5 - 1.5 feet: SILTY SAND with gravel (SM), olive gray, fine to medium, some non-plastic fines, few to some coarse sand and fine gravel, loose, dry to moist. 1.5 - 3 feet: SILTY SAND (SM), yellowish brown to olive yellow, fine to medium, few to some fines, loose to medium dense, dry to moist. Some roots. 3 - 6 feet: SAND (SP), olive to olive yellow, fine to medium, trace fines, trace coarse sand and fine gravel, loose, dry to moist. (ALLUVIUM) Bottom of boring at 6 feet.
				10				
				15				
				20				

REMARKS

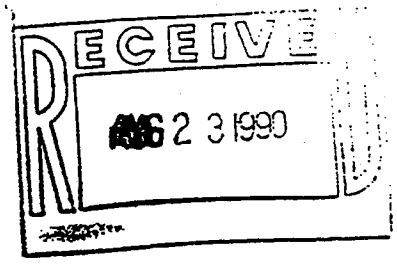
1) HS = hand sample collected using a 2" OD core barrel driven manually with a 5# hammer. 2) Borehole backfilled with bentonite chips and sealed with concrete. 3) PID = Model 580B photoionization detector.

Attachment 2

Laboratory Analysis Reports

enviros

August 18, 1990



Rob Lindsay, Project Geologist
Sweet-Edwards/EMCON, Inc.
18912 North Creek Parkway, Suite 210
Bothell, WA 98011

Dear Rob:

Please find enclosed the results of the analyses of samples submitted on August 2, 1990 from Project W5612.01/WIC #246-0434-0307, 3315 172nd Street N.E., Arlington, WA.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,

Thomas M. Stapp
Chemist

TMS:so

Enclosures

Enviros Analytical Services (206) 820-7575 fax 820-6337
12277 - 134th Court NE Redmond, Washington 98052

Date of Report: August 18, 1990
Date Submitted: August 2, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd Street N.E., Arlington, WA

**RESULTS OF ANALYSES OF SOIL SAMPLES
FOR GASOLINE, DIESEL #1
& DIESEL #2 BY GC/FID
(Modified EPA METHOD 8015)
Results Reported as mg/kg (ppm)**

Sample Number	Gasoline	Diesel #1	Diesel #2
12-HB6-5	N.D.	N.D.	N.D.
12-HB7-5	N.D.	N.D.	N.D.
12-HB8-5	N.D.	N.D.	N.D.
12-HB9-5	N.D.	N.D.	N.D.
12-SB2-5	N.D.	N.D.	N.D.
Detection Limit:	1	25	25

Date of Report: August 18, 1990
Date Submitted: August 2, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd Street N.E., Arlington, WA

RESULTS OF ANALYSES OF SOIL SAMPLES FOR GASOLINE, DIESEL #1 & DIESEL #2 BY GC/FID (Modified EPA METHOD 8015) Results Reported as mg/kg (ppm)

Quality Assurance

Sample Number	Gasoline	Diesel #1	Diesel #2
Method Blank	N.D.	N.D.	N.D.
8-009-1 (Original)	N.D.	N.D.	N.D.
8-009-1 (Duplicate)	N.D.	N.D.	N.D.
8-009-1 (Matrix Spike) Spiked @ 100 ppm Gasoline Recovery	90%	----	----
Detection Limit:	1	25	25

Date of Report: August 18, 1990
Date Submitted: August 2, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd Street N.E., Arlington, WA

RESULTS OF ANALYSES OF SOIL SAMPLES
FOR BTX AND ETHYLBENZENE
USING PURGE AND TRAP (EPA METHOD 8020)
Results Reported as ng/g (ppb)

Sample Number	Benzene	Toluene	Et-Benzene	Xylene m,p	Xylene o
12-HB6-5	N.D.	300	85	570	400
12-HB7-5	N.D.	N.D.	N.D.	N.D.	N.D.
12-HB8-5	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:	50	50	50	50	50

Date of Report: August 18, 1990
Date Submitted: August 2, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd Street N.E., Arlington, WA

RESULTS OF ANALYSES OF SOIL SAMPLES
FOR BTX AND ETHYLBENZENE
USING PURGE AND TRAP (EPA METHOD 8020)
Results Reported as ng/g (ppb)

Quality Assurance

Sample Number	Benzene	Toluene	Et-Benzene	Xylene m,p	Xylene o
Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.
08005-2 (Original)	N.D.	N.D.	N.D.	N.D.	N.D.
08005-2 (Duplicate)	N.D.	N.D.	N.D.	N.D.	N.D.
08005-2 (Matrix Spike) Spiked @ 20 ppb Recovery	100%	100%	110%	110%	110%
08005-2 (Matrix Spike Duplicate) Spiked @ 20 ppb Recovery	94%	92%	97%	98%	97%
Detection Limits:	50	50	50	50	50

Date of Report: August 18, 1990
Date Submitted: August 2, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd Street N.E., Arlington, WA

RESULTS OF ANALYSES OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS
BY IR (EPA METHOD 418.1)
(Soxhlet Extraction)
Results Reported in mg/kg (ppm)

Sample Number	Total Petroleum Hydrocarbons
12-SB5-5	N.D.

Quality Assurance

Method Blank	N.D.
Detection Limits:	10

Sweet-Edwards / EMCON, Inc.
Kelso, WA (206) 423-3580
Bothell, WA (206) 485-5000

Chain of Custody / Laboratory Analysis Request

E# 08008

WIC 246 - 0434 - 0307

DATE 8-2-90 PAGE 1 OF 1

PROJECT SHELL - ARLINGTON # W5612.01
CLIENT INFO.
CONTACT
ADDRESS 3315 172nd St NE
TELEPHONE#
SAMPLERS NAME Michael D. Noll PHONE# 485-5000
SAMPLERS SIGNATURE Michael D. Noll

SAMPLE I.D.	DATE	TIME	LAB I.D.	TYPE
1. 12-HB6-5	8-2-90	1045		SOIL
2. 12-HB7-5	8-2-90	1140		SOIL
3. 12-HB8-5	8/2/90	1130		SOIL
4. 12-HB9-5	8/2/90	1215		SOIL
5. 12-SB2-5	8/2/90	1330		SOIL
6. 12-SB5-5	8/2/90	1415		SOIL
7.				
8.				

ANALYSIS REQUESTED

BASE/NEU/ACID ORGAN. GC/MS/625/8270	VOLATILE ORGANICS GC/MS/624/8240	HALOGENATED VOLATILE ORGANICS 601/8010	PHENOLICS 604/8040	POLYNUCLEAR AROMATIC 610/8310	TOTAL ORGANIC CARBON (TOC) 415/9060	TOTAL ORGANIC HALIDE (TOX) 9020	EP TOX/TCLP METALS (Circle One)	METALS (TOTAL) (See Special Inst.)	TCLP ORGANICS	GENERAL CHEMISTRY (Specify) pH, COND ALK	NO_3/NO_2, Cl SO_4	Ca, Mg, Na, K	OTHER (Specify) 8015 (EPH)	8020 (BTEX)	418.1 (TPH)				NUMBER OF CONTAINERS
													X	X					1
													X	X					1
													X	X					1
													X						1
													X						1
															X				1

Relinquished By Sweet, Edwards & Assoc.
Signature Michael D. Noll
Printed Name Sweet-Edwards/EMCON
Firm 8-2-90 1455
Date/Time

Received By
Signature Kris Rutan
Printed Name S-E/E
Firm 8/2/90 1455
Date/Time

Relinquished By
Signature Kris Rutan
Printed Name S-E/E
Firm 8/2/90 4:20
Date/Time

Received By
Signature Cynthia Peixoto
Printed Name ENVIROS
Firm 8/2/90 4:20
Date/Time

Relinquished By
Signature
Printed Name
Firm
Date/Time

Received By
Signature
Printed Name
Firm
Date/Time

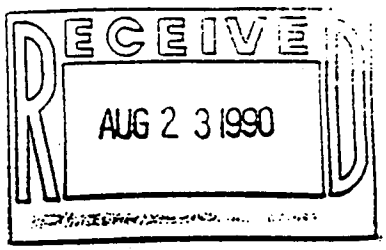
PROJECT INFORMATION
Shipping I.D. No.
VIA
Project

SAMPLE RECEIPT
Total No. of Containers
Chain of Custody Seals
Received in good condition
LAB NO.

SPECIAL INSTRUCTIONS/COMMENTS
Sample 12-HB6-5 had PID readings of 500 to 1000 ppm.
Samples 12-HB7-5 and 12-HB8-5 had PID readings of about 100 ppm.

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator.

S-E/E 400-05



enviros

August 22, 1990

Rob Lindsay, Project Geologist
Sweet-Edwards/EMCON, Inc.
18912 North Creek Parkway, Suite 210
Bothell, WA 98011

Dear Rob:

Please find enclosed the results of the analyses of samples submitted on August 3, 1990 from Project W5612.01/WIC #246-0434-0307, 3315 172nd St. N.E., Arlington, WA 98223.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,

Tom Stapp

Thomas M. Stapp
Chemist

TMS:vl

Enclosures

Enviros Analytical Services (206) 820-7575 fax 820-6337
12277 - 134th Court NE Redmond, Washington 98052

Date of Report: August 22, 1990
Date Submitted: August 3, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd St. N.E., Arlington, WA 98223

RESULTS OF ANALYSES OF SOIL SAMPLES FOR GASOLINE, DIESEL #1 & DIESEL #2 BY GC/FID (Modified EPA METHOD 8015) Results Reported as mg/kg (ppm)

Sample Number	Gasoline	Diesel #1	Diesel #2
12-SB1-5	N.D.	N.D.	N.D.
12-SB3-5	N.D.	N.D.	N.D.
12-SB4-5	N.D.	N.D.	N.D.
Detection Limit:	1	25	25

Date of Report: August 22, 1990
Date Submitted: August 3, 1990
Project: W5612.01
WIC #: 246-0434-0307
Station Address: 3315 172nd St. N.E., Arlington, WA 98223

RESULTS OF ANALYSES OF SOIL SAMPLES FOR GASOLINE, DIESEL #1 & DIESEL #2 BY GC/FID (Modified EPA METHOD 8015) Results Reported as mg/kg (ppm)

Quality Assurance

Sample Number	Gasoline	Diesel #1	Diesel #2
Method Blank	N.D.	N.D.	N.D.
12-SB1-5 (Original)	N.D.	N.D.	N.D.
12-SB1-5 (Duplicate)	N.D.	N.D.	N.D.
12-SB1-5 (Matrix Spike) Spiked @ 100 ppm Gasoline Recovery	77%	----	----
12-SB1-5 (Matrix Spike Duplicate) Spiked @ 100 ppm Gasoline Recovery	82%	----	----
Detection Limit:	1	25	25

Sweet-Edwards / EMCON, Inc.
Kelso, WA (206) 423-3580
Bothell, WA (206) 485-5000
Portland, OR (503) 624-7200

Laboratory Analysis Request

WIC # 246-0434-0307

DATE 8-3-90 PAGE 1 OF 1

PROJECT SHELL-ARLINGTON # W5612.01

CLIENT INFO.

CONTACT

ADDRESS 3315 172nd St NE

TELEPHONE#

SAMPLERS NAME Michael D. Nall PHONE# 485-5000

SAMPLERS SIGNATURE Michael D. Nall

SAMPLE I.D.	DATE	TIME	LAB I.D.	TYPE	BASE/NEU/ACID ORGAN. GC/MS/625/8270	VOLATILE ORGANICS GC/MS/624/8240	HALOGENATED VOLATILE ORGANICS 601/8010	PHENOLICS 604/8040	POLYNUCLEAR AROMATIC 610/8310	TOTAL ORGANIC CARBON (TOC) 415/9060	TOTAL ORGANIC HALIDE (TOX) 9020	EP TOX/TCLP METALS (Circle One)	METALS (TOTAL) (See Special Inst.)	TCLP ORGANICS	pH, COND ALK	NO_3/NO_2, Cl SO_4	Ca, Mg, Na, K	8015 (TPH)						NUMBER OF CONTAINERS
1. 12-SB1-5	8/3/90	1230		Soil														X						1
2. 12-SB3-5	8/3/90	1015		Soil														X						1
3. 12-SB4-5	8/3/90	1430		Soil														X						1
4.																								
5.																								
6.																								
7.																								
8.																								

ANALYSIS REQUESTED — GENERAL CHEMISTRY (Specify) — OTHER (Specify)

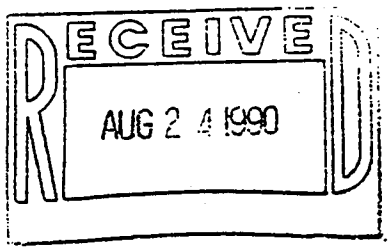
Relinquished By Sweet, Edwards & Assoc.	Relinquished By	Relinquished By	PROJECT INFORMATION	SAMPLE RECEIPT
Signature: Michael D. Nall	Signature	Signature		
Printed Name: Michael D Nall	Printed Name	Printed Name	Shipping I.D. No.	Total No. of Containers
Firm: Sweet-Edwards/EMCON	Firm	Firm	VIA	Chain of Custody Seals
Date/Time: 8/3/90 1715	Date/Time	Date/Time	Project	Received in good condition
Received By: Stephen Loague	Received By	Received By	SPECIAL INSTRUCTIONS/COMMENTS	LAB NO.
Signature: STEPHEN LOAGUE	Signature	Signature		
Printed Name: ENVIROS	Printed Name	Printed Name		
Firm: 8/3/90 1800	Firm	Firm		
Date/Time	Date/Time	Date/Time		

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator.

S-E/E 400-(

August 23, 1990

Rob Lindsay, Project Geologist
Sweet-Edwards/EMCON, Inc.
18912 North Creek Parkway, Suite 210
Bothell, WA 98011



Dear Rob:

Please find enclosed the results of the analyses of samples submitted on August 9, 1990 from Project W56-12.01/WIC #246-0434-0307, 3315 - 172nd Street NE, Arlington, WA.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,

Thomas M. Stapp
Chemist

TMS:so

Enclosures

Date of Report: August 23, 1990
Date Submitted: August 9, 1990
Project: W56-12.01
WIC #: 246-0434-0307
Station Address: 3315 - 172nd Street NE, Arlington, WA

RESULTS OF ANALYSES OF WATER SAMPLES
FOR BTX AND ETHYLBENZENE
USING PURGE AND TRAP (EPA METHOD 602)
Results Reported as ng/mL (ppb)

Sample Number	Benzene	Toluene	Et-Benzene	Xylene m,p	Xylene o
ARL-0890-01 MW-3	N.D.	N.D.	N.D.	N.D.	N.D.
ARL-0890-02 MW-4	N.D.	N.D.	N.D.	N.D.	N.D.
ARL-0890-03 MW-5	N.D.	50	N.D.	N.D.	N.D.
ARL-0890-04 MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
ARL-0890-05 Field Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Trip Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Detection Limits:	50	50	50	50	50

Date of Report: August 23, 1990
Date Submitted: August 9, 1990
Project: W56-12.01
WIC #: 246-0434-0307
Station Address: 3315 - 172nd Street NE, Arlington, WA

RESULTS OF ANALYSES OF WATER SAMPLES
FOR BTX AND ETHYLBENZENE
USING PURGE AND TRAP (EPA METHOD 602)
Results Reported as ng/mL (ppb)

Quality Assurance

Sample Number	Benzene	Toluene	Et-Benzene	Xylene m,p	Xylene o
Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.
08088-1 (Original)	N.D.	N.D.	N.D.	N.D.	N.D.
08088-1 (Duplicate)	N.D.	N.D.	N.D.	N.D.	N.D.
08088-1 (Matrix Spike) Spiked @ 20 ppb Recovery	9%	1%	61%	48%	83%
08088-1 (Matrix Spike Duplicate) Spiked @ 20 ppb Recovery	13%	6%	66%	58%	84%
Detection Limits:	50	50	50	50	50

Date of Report: August 23, 1990
Date Submitted: August 9, 1990
Project: W56-12.01
WIC #: 246-0434-0307
Station Address: 3315 - 172nd Street NE, Arlington, WA

**RESULTS OF ANALYSES OF WATER SAMPLES
FOR GASOLINE, DIESEL #1
& DIESEL #2 BY GC/FID
(Modified EPA METHOD 8015)
Results Reported as mg/mL (ppm)**

Sample Number	Gasoline	Diesel #1	Diesel #2
ARL-0890-05 Field Bank	N.D.	N.D.	N.D.
Detection Limit:	0.2	5	5

Date of Report: August 23, 1990
Date Submitted: August 9, 1990
Project: W56-12.01
WIC #: 246-0434-0307
Station Address: 3315 - 172nd Street NE, Arlington, WA

RESULTS OF ANALYSES OF WATER SAMPLES FOR GASOLINE, DIESEL #1 & DIESEL #2 BY GC/FID (Modified EPA METHOD 8015) Results Reported as mg/mL (ppm)

Quality Assurance

Sample Number	Gasoline	Diesel #1	Diesel #2
Method Blank	N.D.	N.D.	N.D.
08-088-3 (Original)	N.D.	8	N.D.
08-088-3 (Duplicate)	N.D.	8	N.D.
Detection Limit:	0.2	5	5

Sweet-Edwards / EMCON, Inc.
Kelso, WA (206) 423-3580
Bothell, WA (206) 485-5000
Portland, OR (503) 624-7200

Chain of Custody / Laboratory Analysis Request

08-0886 replaces 08-0

DATE 8/9/90 PAGE OF

PROJECT Arlington Shell #
CLIENT INFO.
CONTACT Vaun Rollins
ADDRESS
TELEPHONE#
SAMPLERS NAME PHONE#
SAMPLERS SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	TYPE	BASE/NEU/ACID ORGAN. GC/MS/625/8270	VOLATILE ORGANICS GC/MS/624/8240	HALOGENATED VOLATILE ORGANICS 601/8010	PHENOLICS 604/8040	POLYNUCLEAR AROMATIC 610/8310	TOTAL ORGANIC CARBON (TOC) 415/9060	TOTAL ORGANIC HALIDE (TOX) 9020	EP TOX/TCLP METALS (Circle One)	METALS (TOTAL) (See Special Inst.)	TCLP ORGANICS	pH, COND ALK	NO_3/NO_2, Cl SO_4	Ca, Mg, Na, K	BTEX	[illegible]					NUMBER OF CONTAINERS
1. ARL-0890-01	8/9	1120		water														X						
2. ARL-0890-02	"	1115		"														X						
3. ARL-0890-03	"	1235		"														X						
4. ARL-0890-04	"	1340		"														X	X					
5. ARL-0890-05	"	1500		"														X						
6. TRIP BLK 2																		X						
7.																								
8.																								

Relinquished By Sweet, Edwards & Assoc.	Relinquished By	Relinquished By
Signature: Vicki A Cabrales	Signature	Signature
Printed Name: Vicki A Cabrales	Printed Name	Printed Name
Firm: SE/E	Firm	Firm
Date/Time: 8/9/90 4:00	Date/Time	Date/Time
Received By	**Received By**	**Received By**
Signature: John C. Orum	Signature	Signature
Printed Name: JOHN ORUM	Printed Name	Printed Name
Firm: ENVIROS	Firm	Firm
Date/Time: /90 5:00pm	Date/Time	Date/Time

PROJECT INFORMATION
Shipping I.D. No.
VIA
Project

SAMPLE RECEIPT
Total No. of Containers
Chain of Custody Seals
Received in good condition
LAB NO.

SPECIAL INSTRUCTIONS/COMMENTS

DISTRIBUTION: WHITE ... YELLOW ... PINK ...