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Underground Storage Tank Closure Report
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101

Prepared for
Shell Oil Company
February 12, 1993

DR
4/12/93
002

DEPARTMENT OF ECOLOGY
NWRO/TCP TANK UNIT
Inc # 3431

INTERIM CLEANUP REPORT
SITE CHARACTERIZATION
FINAL CLEANUP REPORT
OTHER _____
AFFECTED MEDIA: SOIL
OTHER _____ GW
INSPECTOR (INIT.) _____ DATE 3-17-93

Prepared by
EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100
Bothell, Washington 98011

Project 0556-019.20

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Independent Action Report Review

Site Name: Texaco Sta Maple Valley
Inc. #: 3431 Date of Report: 2-12-93
County: King Date Report Rec'd: 3-4-93

Reviewed by: J. Hickey
Comments (e.g. free prod., tank info., contaminant migration, PCS treated?):

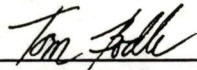
Soils successfully excavated and
treated on site (900 yds³). Monitor-
ing wells are testing OK (there
was some contaminated pit water).

<input type="checkbox"/>	LEAKUP REPORT
<input type="checkbox"/>	ACTERIZATION
<input type="checkbox"/>	ANUP REPORT
<input type="checkbox"/>	
<input type="checkbox"/>	SOIL MEDIA:
<input type="checkbox"/>	GW
<input type="checkbox"/>	DATE (INIT)

SIGNATURE PAGE

The material and data contained in this report were prepared by and under the supervision and direction of:

EMCON Northwest, Inc.



Tom Bodle
Project Geologist



Michael D. Noll, R.G.
Project Manager



David W. Ashcom, P.E.
Director, Hydrocarbon Services

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EXECUTIVE SUMMARY

At the request of Shell Oil Company, EMCON Northwest, Inc., conducted an environmental assessment associated with the removal of the underground gasoline, waste oil, and heating oil storage tanks and associated fuel distribution lines at the former Shell Service Station located at 21641 Maple Valley Highway in Maple Valley, Washington. The purpose of the assessment was to document the existing subsurface soil quality beneath the site with respect to concentrations of petroleum hydrocarbon compounds. The scope of work consisted of: (1) observing the subsurface conditions exposed during the removal of the tanks and distribution lines, (2) collecting soil samples from the excavation walls and floors, (3) completing quantitative analyses on selected soil samples, and (4) interpreting the compiled data. Additional work consisted of installing and sampling three groundwater monitoring wells at the site.

Findings of the assessment include:

- Four gasoline tanks, a waste oil tank, a heating oil tank, and associated distribution lines were removed from the site. Fiberglass gasoline and heating oil tanks and product lines were installed at the site. Three additional gasoline tanks discovered near the north end of the pump islands during soil excavation were also removed from the site.
- The site is underlain by sand and gravel (alluvium) to the maximum depth explored (20 feet).
- Groundwater was encountered in the excavation at approximately 12 feet below ground surface.
- Total petroleum hydrocarbon as gasoline (TPH-G) concentrations in analyzed soil samples ranged from not detected (ND) to 6,400 ppm. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in the analyzed soil samples were not detected (ND) for benzene, and ranged from ND to 9.6 ppm for toluene, ND to 5.1 ppm for ethylbenzene, and ND to 350 ppm for total xylenes. Total petroleum hydrocarbons as oil (TPH-Oil) concentrations ranged from ND to 83 ppm in the waste oil tank excavation.

- Approximately 900 cubic yards (1,350 tons) of soil were removed from the gasoline tank and product line excavations and treated on-site by aeration using a mechanical screening device. Analytical results for samples collected from the treated soil stockpiles indicate compliance with Model Toxics Control Act (MTCA)¹ Method A cleanup levels for TPH-G and BTEX. Approximately 500 cubic yards (750 tons) of treated soil were transported to Coal Creek Landfill for disposal. Approximately 400 cubic yards (600 tons) of clean rock separated from the treated soil were disposed of off-site by Joe Hall Construction Company, Inc.
- Analytical results for soil samples collected at the limits of the gasoline tank and pump islands excavations indicate compliance with MTCA Method A cleanup levels for TPH as gasoline and BTEX.
- Soil sample analytical results from the waste oil tank excavation sidewalls and bottom did not contain TPH-Oil concentrations exceeding MTCA Method A cleanup levels.
- One existing monitoring well (MW-3) was decommissioned and three groundwater monitoring (MW-11, MW-12, and MW-13) were installed at the site.
- Groundwater samples collected from the three new wells in August 1990, were ND for TPH as gasoline and BTEX.

This summary is presented only for introductory purposes and is intended to be used in conjunction with the full text of this report. This report contains a site and project description, soil sampling procedures, analytical chemistry methods and results, and our conclusions.

¹ Chapter 173-340 WAC, "The Model Toxics Control Act Cleanup Regulation; Method A Cleanup Levels." Amended February 1991.

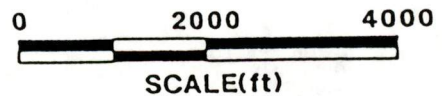
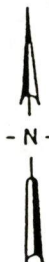
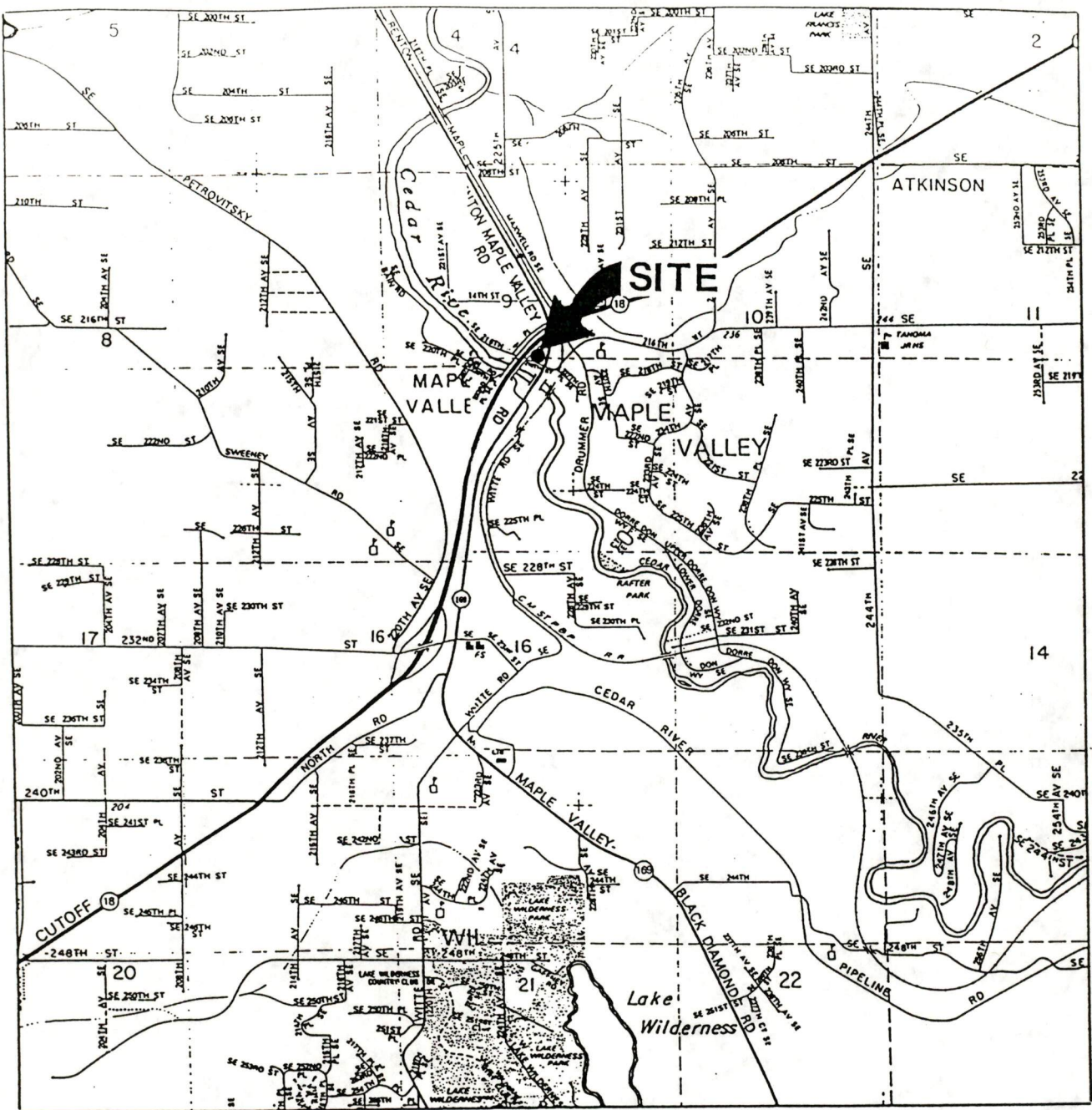
1 INTRODUCTION

1.1 Purpose and Scope of Work

On behalf of Shell Oil Company, EMCON has conducted an environmental site assessment associated with the removal of four underground gasoline storage tanks, one heating oil tank, one waste oil tank, and associated distribution lines at former Shell service station 71315, located at 21641 Maple Valley Highway in Maple Valley, Washington (Figure 1). The station was sold to Texaco Refining and Marketing Inc., in 1990, and is currently an operating Texaco service station. The purpose of our work was to assess the extent and concentrations of petroleum hydrocarbons in soil beneath the site. Following this characterization, approximately 900 cubic yards of gasoline-contaminated soil were treated on-site by aeration. About 500 cubic yards of treated soil were disposed of at Coal Creek Landfill, and about 400 cubic yards of clean rock separated from the treated soil were disposed of off-site by Joe Hall Construction.

Services completed in this scope of work included:

- Observing and documenting subsurface conditions exposed during excavation of the new gasoline tank pit and the excavation and removal of six underground storage tanks and associated product lines
- Decommissioning three additional gasoline underground storage tanks discovered during soil excavation
- Screening excavated soil with a photoionization detector (PID) to assist in the selection of soils for off-site disposal or on-site aeration
- Collecting soil samples from the sidewalls and floors of the excavations and the treated soil stockpile for laboratory analyses
- Backfilling and compacting the excavations with clean material excavated on-site from the new tank excavation and with treated soil
- Decommissioning one on-site monitoring well and installing three new groundwater monitoring wells



Sweet-Edwards
EMCON

DATE 8/90
OWN. KLM
APPR. _____
REVIS. _____
PROJECT NO. W5619.05

Figure 1
SHELL SERVICE STATION # 71315
MAPLE VALLEY, WASHINGTON
SITE VICINITY MAP

- Surveying and collecting samples from the three new monitoring wells
- Preparing a report summarizing our findings and presenting our conclusions

1.2 Site Location and Description

The site is located in the northeast ¼ of the southeast ¼ of Section 9, Township 22 North, Range 6 East. The station is bordered by State Route 169 to the east, a Red Apple Market to the south, a towing service/rental car agency and a pet grooming shop to the west, and a real estate office to the north. According to a Shell Oil Company service station plot plan (1969), a private water well is located 1,000 feet from the site. The Maple Valley Water District currently supplies water to the site facility and surrounding businesses.

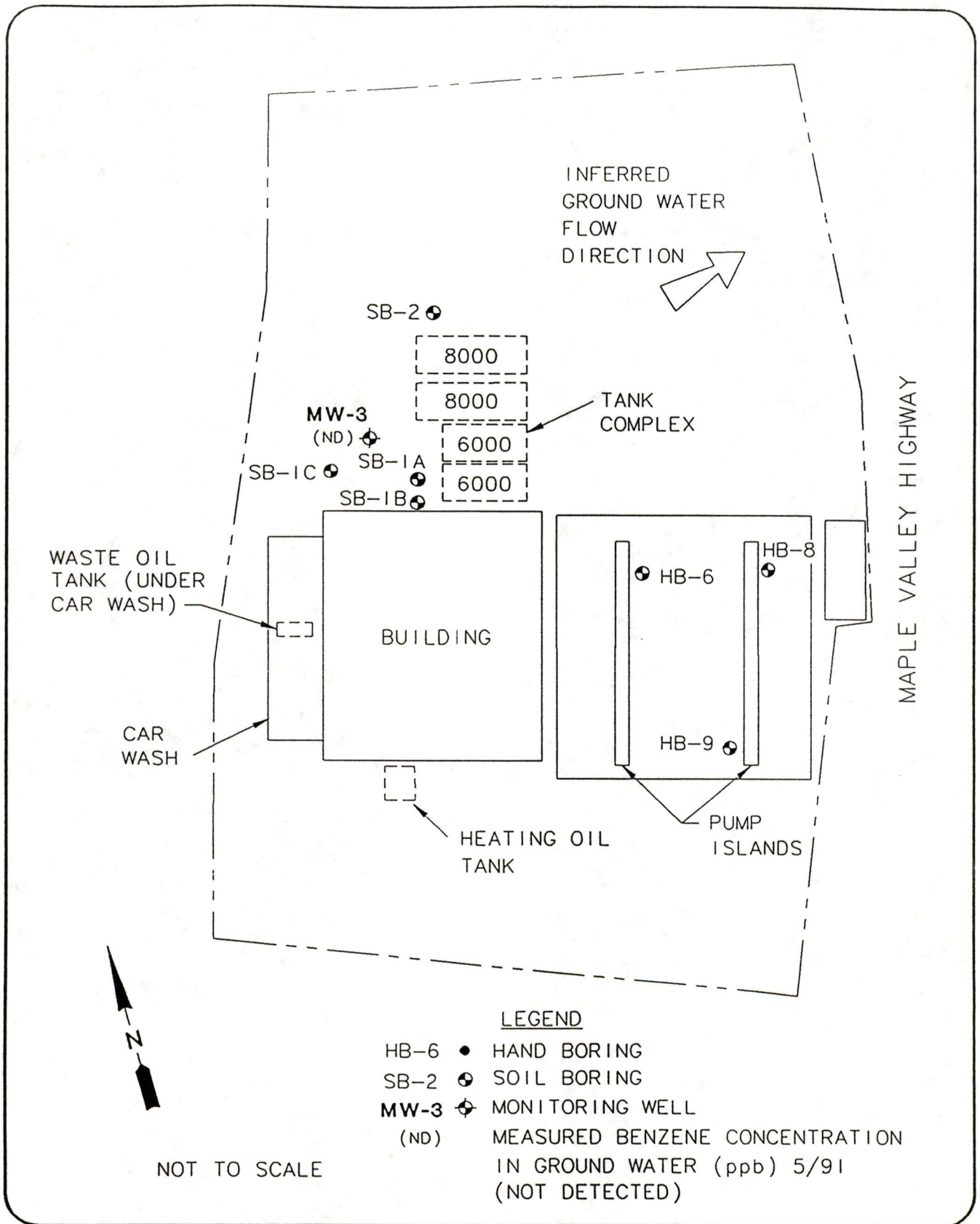
1.3 Site History

According to the 1969 Shell plot plan, two 6,000-gallon and two 8,000-gallon gasoline tanks, one 500-gallon heating oil tank, and one 550-gallon waste oil tank were installed at the site when the station was constructed in 1969. Tanknology Corporation International of Houston, Texas, tested the gasoline tanks and product lines to CRF 40 Parts 280 and 281 Specification on August 5, 1990, the heating oil tank and lines on October 6, 1990, and the waste oil tank on November 15, 1990. All tanks and lines were certified tight by Tanknology Corporation International on their test dates.

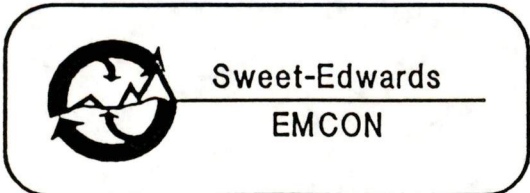
1.4 Previous Work

Sweet-Edwards/EMCON, Inc., conducted an environmental site assessment at the property during July and August of 1990, as documented in EMCON's October 10, 1990, report to Shell Oil Company. Six soil borings were advanced to a maximum depth of 11.5 feet below ground surface (Figure 2). Soil samples were collected and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds by EPA Methods 5030/8020 and for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Methods 5030/8015 Modified. All results were below MTCA Method A cleanup levels.

One additional soil boring was advanced to 21 feet below ground surface and completed as a monitoring well (MW-3). A groundwater sample was collected from MW-3 on August 9, 1990, and analyzed for BTEX and TPH-G by EPA Methods 5030/602/8015 Modified, for TPH as diesel (TPH-D) by EPA Methods 3550/8015 Modified, and for total lead by EPA Method 7421. The



- LEGEND**
- HB-6 ● HAND BORING
 - SB-2 ⊙ SOIL BORING
 - MW-3 ⊕ MONITORING WELL
 - (ND) MEASURED BENZENE CONCENTRATION IN GROUND WATER (ppb) 5/91 (NOT DETECTED)



DATE 10/90
DWN. KLM
APPR. MDM
PROJECT NO.
W5619.05

Figure 2
FORMER SHELL SERVICE STATION
21641 MAPLE VALLEY HIGHWAY
MAPLE VALLEY, WASHINGTON
SITE MAP

results were below method detection limits.

EMCON presented the results of semiannual site groundwater sampling, conducted on May 8, 1991, in a report to Shell Oil Company, dated August 6, 1991. A groundwater sample was collected from MW-3 and analyzed for BTEX and TPH as gasoline. Groundwater results were below method detection limits.

2 FIELD OBSERVATIONS

The existing underground storage tanks and product lines were excavated and replaced with new double-walled fiberglass tanks and lines by Joe Hall Construction Company, Inc., of Fife, Washington, during June and July of 1992. Joe Hall Construction coordinated the disposal of the underground storage tanks. The former locations of all tanks are shown on Figure 3.

For descriptive purposes, the areas of soil excavation completed during this scope of work are divided into the gasoline and heating oil tanks excavation, the discovered gasoline tanks excavation, the gasoline pump island area excavation, and the waste oil tank excavation. A site map is included as Figure 3.

2.1 Underground Storage Tank Removal

The four known gasoline underground storage tanks and the heating oil underground storage tank were removed by Joe Hall Construction on June 3, 1992. The waste oil tank was removed by Joe Hall Construction on June 22, 1992. Two 675-gallon and a 1,000-gallon gasoline underground storage tank were discovered on the north side of the pump islands during excavation of the new gasoline tank area (Figure 3). The discovered tanks were rinsed and pumped by Northwest Enviroservice and removed from the site by Joe Hall Construction in June 1992. Table 1 includes descriptions of removed tanks.

Prior to removal, dry ice was placed into each tank to displace potentially explosive vapors. An EMCON geologist was present to observe and record tank and soil conditions, field-screen soil with a photoionization detector (PID), and collect soil samples from beneath and adjacent to the removed tanks for laboratory analyses. Soil sample locations are shown on Figure 3.

Upon removal, each tank was visually inspected for holes, corrosion, or surface staining. No holes were observed in any of the removed tanks. Slight to moderate corrosion was noted on the surfaces of the three discovered gasoline underground storage tanks.

Table 1

**Description of Underground Storage Tanks
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101**

Tank Number	Capacity (gallons)	Contents	Construction Material	Date Installed
1	8,000	Gasoline	Steel	1969
2	8,000	Gasoline	Steel	1969
3	5,000	Gasoline	Steel	1969
4	5,000	Gasoline	Steel	1969
5	550	Waste Oil	Fiberglass	1969
6	500	Heating Oil	Steel	1969
1A	675	Unknown	Steel	Unknown
2A	1,000	Unknown	Steel	Unknown
3A	675	Unknown	Steel	Unknown

2.2 Gasoline and Heating Oil Tank Excavation

A petroleum-like odor and a sheen floating on water inside the northern-most tank turbine access box was noted by Joe Hall Construction personnel on June 2, 1992. Joe Hall Construction excavated a test pit at the northeast corner of the gasoline tank complex on June 2, 1992, and collected a soil sample at nine feet below grade (TP-9).

The four gasoline tanks and the heating oil tank were excavated and removed by Joe Hall Construction on June 3, 1992. A small amount of brown floating product was noted on the groundwater beneath the west end of the southern-most gasoline tank. A sample of the product (Product 1-13) was collected and analyzed for TPH as gasoline, BTEX, hydrocarbon identification, and total lead. The remaining product was removed using absorbent pads. Depth to groundwater in the excavation was about 12 feet below grade.

Soil samples were collected from the excavation bottom and sidewalls on June 4, 1992 (Figure 3). Samples were not collected from the south sidewall of the excavation because the soil was a loose sandy gravel and was sloughing out from under the station building and attached sidewalk. Clean backfill was placed against the south excavation wall along the station building to prevent undermining the building foundation. No bottom soil samples were collected from beneath the northern gasoline tanks because the northern excavation sidewall collapsed during excavation, mixing sidewall soil into the excavation bottom. The new tank excavation was later extended to the north and down to the water table, and all soil adjacent to and beneath the old gasoline tanks was excavated and stockpiled for later on-site treatment (see Section 2.8).

The new gasoline tank pit was excavated north of the station building between June 5 and 11, 1992, by Joe Hall Construction using a Case 170C trackhoe. The excavation measured approximately 50 feet north to south, 100 feet east to west, and 14 feet deep. Soil samples were collected from the excavation for laboratory analyses at the locations shown on Figure 3. Three 10,000-gallon and one 12,000-gallon double-walled fiberglass tanks were installed in the excavation and bedded in pea gravel in June 1992. A 550-gallon, double-walled, fiberglass heating oil tank was placed back in the heating oil tank excavation and bedded with pea gravel.

Groundwater accumulated at the bottom of the excavation at a depth of approximately 12 feet. A temporary water line to the pet grooming shop failed on June 7, 1992, which resulted in flooding the new tank excavation. The line was isolated the same day and repaired on June 8, 1992. The volume of water spilled into the new tank excavation was about 10,000 gallons. The water level

in the excavation receded during the next one to two days, and it was not necessary to dewater the new tank pit prior to installing the tanks.

2.3 Discovered Gasoline Tanks Excavation

Two 675-gallon and one 1,000-gallon underground storage tanks were excavated and removed on June 11, 1992, by Joe Hall Construction using a Case 170C trackhoe. The discovered gasoline tanks excavation was extended to approximately 14 feet below ground surface and expanded to the limits indicated on Figure 3. Soil samples were collected from the excavation bottom and sidewalls. Groundwater was encountered in the excavation at 12 feet below ground surface.

2.4 Pump Islands Area Excavation

Soil was excavated in the area of the pump islands with a Case 580K backhoe between June 16 and 18, 1992. The pump island canopy was temporarily removed and the pump islands, drive slabs, and canopy footings were removed and replaced. The pump island excavation extended from the new tank pit and discovered gasoline tanks excavations on the north to the south end of the pump islands (Figure 3). The average depth of the pump island excavation was 7 feet below ground surface. The excavation was backfilled with clean fill. Soil sample locations are shown on Figure 3. Double-walled fiberglass product lines were installed in trenches and bedded in pea gravel in July 1992.

2.5 Waste Oil Tank Excavation

The 550-gallon waste oil tank was excavated with a Case 580K backhoe and removed by Joe Hall Construction on June 22, 1992. The waste oil tank excavation was extended to a maximum depth of 10 feet below ground surface. Soil samples collected from the waste oil tank excavation bottom and sidewalls are shown on Figure 3.

2.6 Site Soil Conditions

Soil encountered at the site generally consisted of brown gravelly sand with cobbles and boulders. The maximum depth explored at the site was approximately 20 feet.

2.7 Site Groundwater Conditions

Groundwater was observed at the bottom of the new tank excavation (about 12 feet below ground surface). The static groundwater level in monitoring wells installed at the site is approximately 12 feet below ground surface. The direction of groundwater flow, based on August 17, 1992, groundwater sampling data, is toward the southwest (Figure 4).

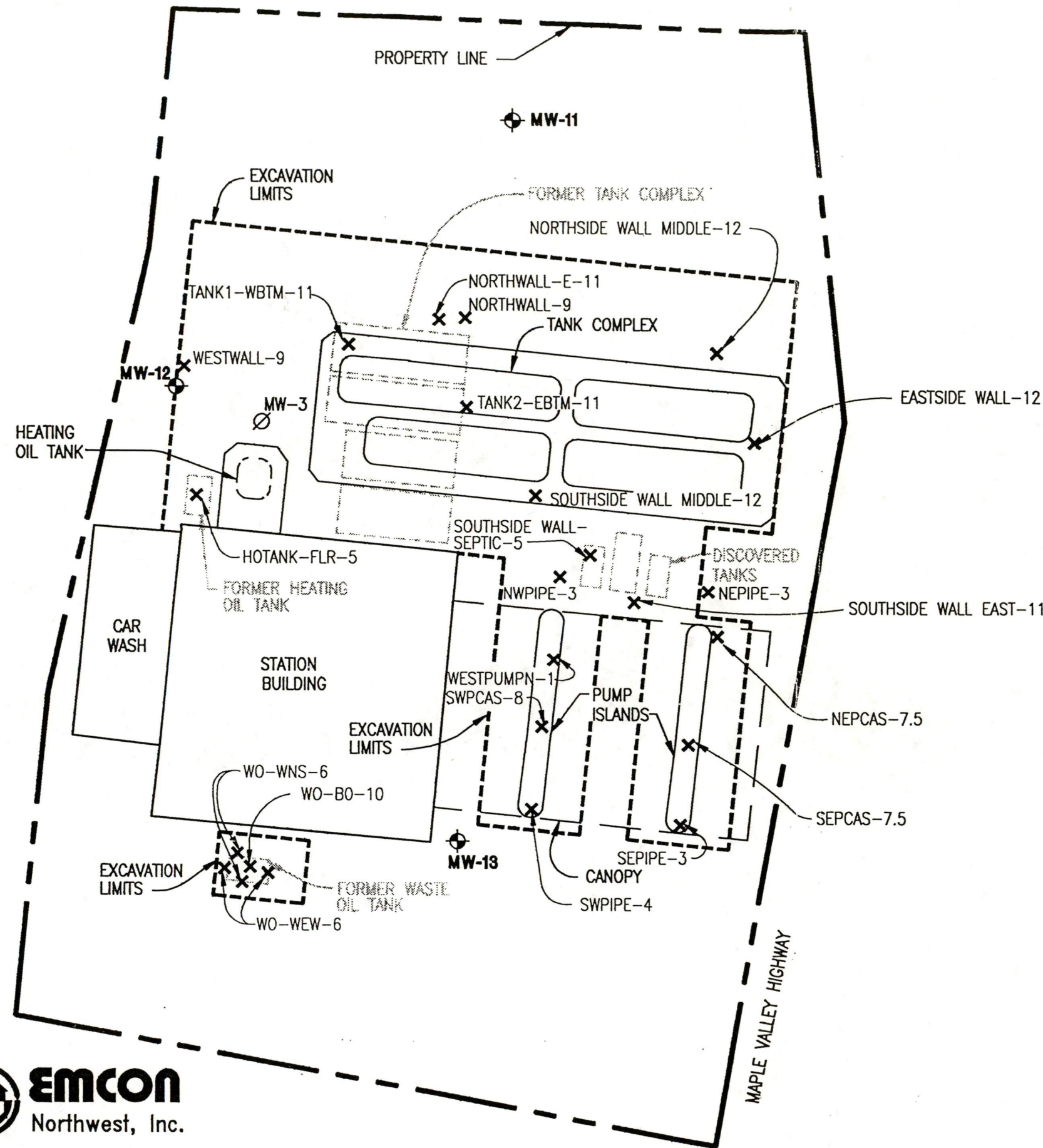
2.8 Excavated Soil Remediation and Disposal

Approximately 900 cubic yards (1,350 tons) of gasoline-impacted soil were excavated and removed from the site. About 400 cubic yards (600 tons) of clean rock separated from the gasoline-impacted soil were disposed of off-site by Joe Hall Construction. Approximately 500 cubic yards (750 tons) of gasoline-impacted soil were remediated on-site by aeration to below MTCA Method A cleanup levels using a mechanical screener and disposed of off-site at the Coal Creek Landfill in King County, Washington.

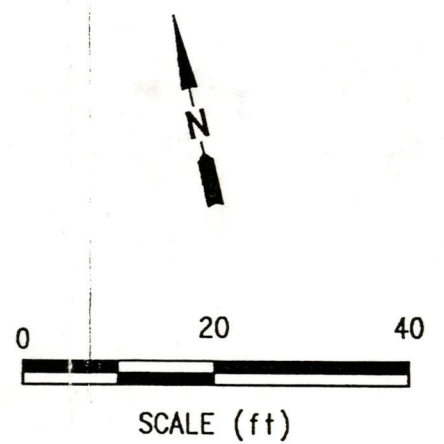
2.9 Monitoring Well Abandonment and Replacement

Monitoring well MW-3 was decommissioned by over-excavation by Joe Hall Construction personnel prior to the arrival of EMCON personnel on June 2, 1992. Monitoring well MW-3 was located at the southwest corner of the former gasoline tank complex close to the current location of monitoring well MW-12. New monitoring wells MW-11, MW-12, and MW-13 were installed at the site by Cascade Drilling, Inc., of Woodinville, Washington, on August 6 and 11, 1992, using air rotary drilling equipment. The wells extend to approximately 20 feet below ground surface and consist of 4-inch-diameter schedule 40 PVC well casing and screen. Well locations are shown on Figure 4. Boring logs and well installation details are included in Appendix A.

The three new wells were surveyed to the nearest 0.01 foot of vertical elevation and to the nearest 1 foot for horizontal position by an EMCON geologist on August 14, 1992. Each well screen was also developed by surging and bailing on August 7 and 14, 1992. Collected purge water was temporarily stored in a properly labelled drum pending analysis results. Samples of the purge water were submitted for laboratory analyses on August 7 and 14, 1992.

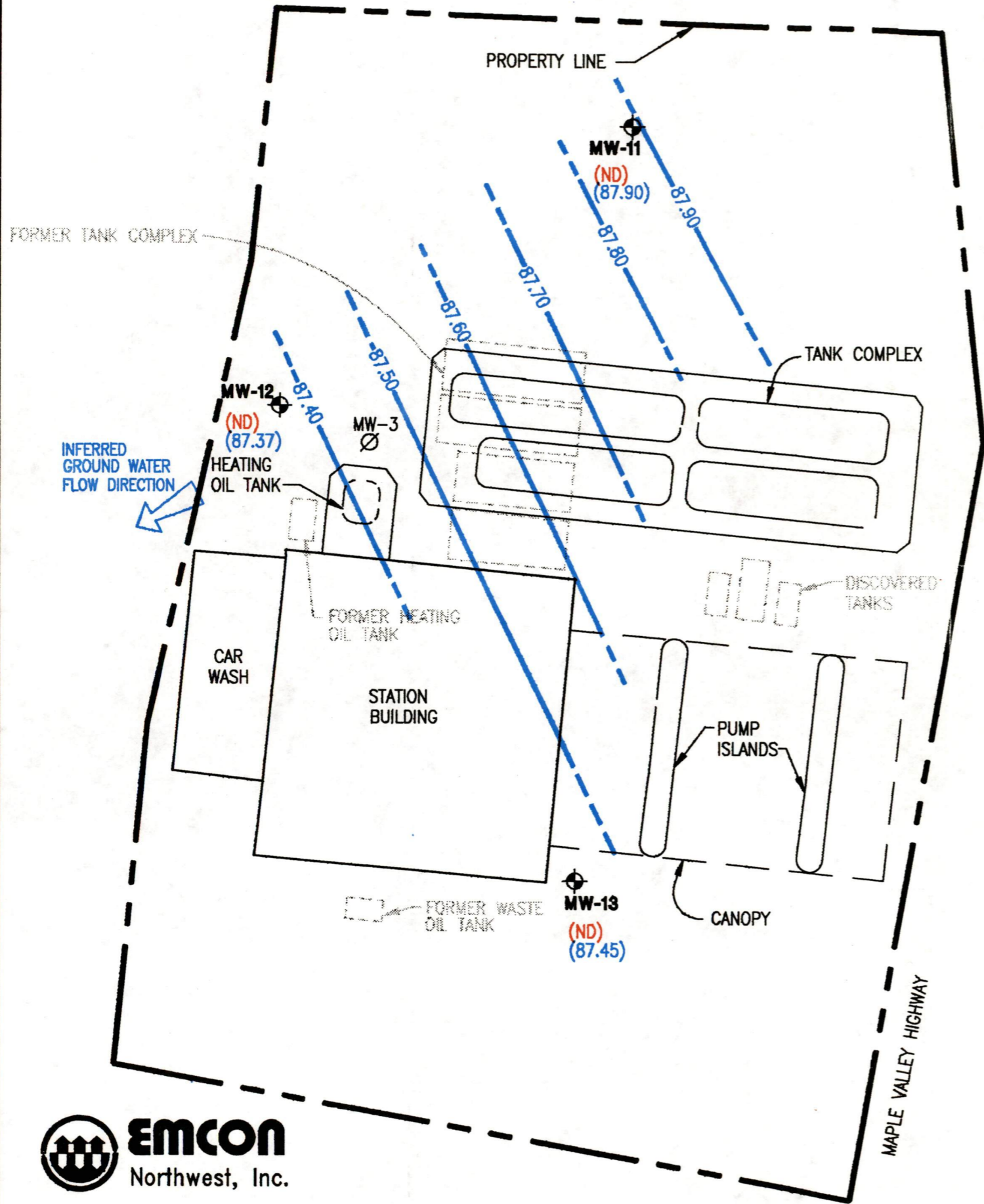


- LEGEND**
- MW-11 Approximate Location of 4-inch Diameter Monitoring Well
 - MW-3 Decommissioned Well
 - SWPIPE-4 Approximate Soil Sample Location
 - Limit of Excavation



DATE 1/93
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 0556019.06

Figure 3
 FORMER SHELL STATION #71315
 21641 MAPLE VALLEY HIGHWAY
 MAPLE VALLEY, WASHINGTON
SITE PLAN - SOIL SAMPLE LOCATIONS



LEGEND

MW-11 ⊕ Approximate Location of 4-inch Diameter Monitoring Well

MW-3 ∅ Decommissioned Well

(ND) Not Detected

(87.90) Ground Water Elevation (feet) Measured August 17, 1992

— 87.80 — Ground Water Elevation (feet)

0 20 40

SCALE (ft)



DATE 1/93
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 PROJECT NO.
 0556019.06

Figure 4
 FORMER SHELL STATION
 21641 MAPLE VALLEY HIGHWAY
 MAPLE VALLEY, WASHINGTON
SITE PLAN - GROUND WATER DATA

2.10 Groundwater Sampling

Groundwater samples were collected from MW-11, MW-12, and MW-13 on August 17, 1992. Three pore volumes were purged from each well prior to collecting samples. Groundwater samples were collected using 1.5-inch-diameter disposable bailers. Collected samples were placed into properly labeled containers, stored in an iced cooler, and transported under standard chain-of-custody procedures to North Creek Analytical, Inc., in Bothell, Washington, for analysis.

2.11 Groundwater Elevations and Parameters

Prior to sampling, depth to groundwater was measured in each well and each well was checked for the presence of free-floating product using a bailer. No floating product or sheen was detected in any well at the site on August 17, 1992.

Measured depth to water ranged from 11.83 feet in MW-11 to 13.19 feet in MW-12 (Table 2). Depth-to-water and survey information were used to calculate relative groundwater elevations at each well. The relative groundwater elevations ranged from 87.90 feet at MW-11 to 87.37 feet at MW-12. The inferred groundwater flow direction, based on relative groundwater elevation data, was toward the southwest on August 17, 1992 (Figure 4).

Groundwater parameters (pH, specific conductance, and temperature) were measured in the field after the extraction of each pore volume using a Corning CheckMate meter. Groundwater samples were not collected until measured parameters stabilized to within 10 percent of the previous measurements. The final (stabilized) pH ranged from 6.30 at MW-11 to 6.07 at MW-12. Specific conductance ranged from 70.2 $\mu\text{mhos/cm}$ at MW-11 to 152.5 $\mu\text{mhos/cm}$ at MW-12. Temperature ranged from 18.8°C at MW-11 to 14.9°C at MW-12. Groundwater parameter measurements are included in Table 2.

Table 2

**Groundwater Depth and Parameters
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101**

Sample Location	Sample Date	Elevation	Measured Depth to Water (ft)	Groundwater Elevation (ft)	pH	Specific Conductance ($\mu\text{mhos/cm}$)	Temperature ($^{\circ}\text{C}$)
MW-11	08/17/92	99.73	11.83	87.90	6.31	70.2	18.8
MW-12	08/17/92	100.56	13.19	87.37	6.07	152.5	14.9
MW-13	08/17/92	100.37	12.92	87.45	6.20	132.9	15.6
MW-3	05/08/91	100.63	12.60	88.03	5.50	165	10
MW-3	08/09/90	100.63	13.32	87.31	6.15	148	15

NOTE: Specific conductance measured at 25°C.

3 LABORATORY ANALYSES

3.1 Soil Sample Laboratory Analyses

A total of seven discrete soil samples were collected from the gasoline and heating oil tank excavation, five discrete soil samples were collected from the discovered gasoline tanks excavation, nine discrete soil samples were collected from the pump islands area excavation, and three discrete soil samples were collected from the waste oil tank excavation. An additional 19 soil samples from the treated soil stockpile and three composite soil samples from the new monitoring well soil cuttings were collected for analysis.

All soil samples except those collected from the waste oil tank excavation were analyzed for BTEX by EPA Methods 5030/8020 and TPH as gasoline by Method WTPH-G. Two soil samples collected from the waste oil tank excavation (WO-WNS-6 and WO-WEW-6) were analyzed for TPH as oil by EPA Method 418.1. One soil sample each collected from the gasoline tank excavation (South Sidewall Septic-5), the test pit excavated by Joe Hall Construction (TP-9), the heating oil tank excavation (HOTANK-FLR-5), and the waste oil tank excavation (WO-B-10) were analyzed for gasoline, diesel, and oil by Method WTPH-HCID (hydrocarbon identification). Seven soil samples collected from the gasoline and heating oil tank excavation and one soil sample collected from the discovered gasoline tank excavation were analyzed for total lead by EPA Method 7420. One soil sample each from the gasoline tank excavation and waste oil tank excavation were analyzed for toxicity characteristics leaching procedure (TCLP) metals by EPA Methods 1311/6010/7000. One soil sample from the waste oil tank excavation was analyzed for volatile organics by EPA Methods 8240/8260, semi-volatile organics by EPA Method 8270, and polychlorinated biphenyls (PCBs) by EPA Method 8080. North Creek Analytical of Bothell, Washington, conducted the analyses.

3.2 Groundwater Sample Laboratory Analyses

All groundwater samples, including well development water samples, a sample collected from the tank excavation, a duplicate sample collected from MW-12 (labelled MW-14), and a field blank of laboratory distilled water, were analyzed

for BTEX by EPA Methods 5030/8020 and TPH as gasoline by Method WTPH-G. The groundwater sample collected from the new gasoline tank excavation (Pitwater) was analyzed for total lead by EPA Method 7421 and for total recoverable oil and grease by EPA Method 413.2 (I.R.). The groundwater sample collected from MW-13 was analyzed for TPH-oil by Method WTPH 418.1 Modified. North Creek Analytical of Bothell, Washington, conducted the analyses.

3.3 Soil Sample Analytical Results

Laboratory data indicate that the eight soil samples collected from the gasoline tank and heating oil tank excavation and the waste oil tank excavation and analyzed by Method WTPH-HCID did not contain detectable concentrations of hydrocarbons as gasoline, diesel, or oil. Soil removed from the gasoline tank excavation and pump island excavation contained detectable concentrations of toluene, ethylbenzene, total xylenes, and TPH as gasoline. Soil removed from the gasoline and heating oil tank excavation contained detectable concentrations of total lead that were below MTCA Method A cleanup levels.

Soil removed from the waste oil tank excavation did not contain detectable concentrations of volatile organics, PCBs, TCLP metals, or semivolatile organics. Soil removed from the waste oil tank excavation contained detectable concentrations of total recoverable hydrocarbons that were below MTCA Method A cleanup levels.

Treated soil stockpile samples collected on June 5, 1992, contained TPH as gasoline concentrations that exceeded the MTCA Method A cleanup level. All soil was retreated (3PASS-1 through 3PASS-5), and all results were below MTCA Method A cleanup levels. Soil treated and sampled on June 8 and 15, 1992, and on July 2, 1992, were below MTCA Method A cleanup levels. Composite soil samples from the soil borings that were converted to groundwater monitoring wells MW-11, MW-12, and MW-13 did not contain detectable concentrations of BTEX or TPH as gasoline. Soil sample analytical results are summarized in Table 3. Copies of the laboratory reports and chain-of-custody forms are included in Appendix B.

3.4 Groundwater Sample Analytical Results

Analytical results for product sample Product 1-13 collected from the gasoline tank excavation indicates the removed product was leaded gasoline. Laboratory results indicate that groundwater samples collected on August 17, 1992, from monitoring wells MW-11, MW-12, and MW-13 did not contain detectable concentrations of BTEX or TPH-G. Prior to development of these wells,

Table 3

Soil Sample Analytical Results
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101

Page 1 of 3

Sample Date	Sample Number	Sample Depth (feet)	BTEX Compounds (ppm) ¹				Total Petroleum Hydrocarbons (ppm) ²			Hydrocarbon Identification ³ HCID (ppm)			Total Lead (ppm)	PID ⁴ (ppm)
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline	Diesel	Oil	Gasoline	Diesel	Oil		
MTCA⁶ Cleanup Levels			0.5	40	20	20	100	200	200	--	--	--	1,000	--
Gasoline and Heating Oil Tank Excavation														
06/02/92	TP-9	9	ND	ND	ND	ND	1.1	--	--	ND	ND	ND	ND	1,132
06/04/92	WESTWALL-9	9	ND	ND	ND	ND	ND	--	--	--	--	--	13	0
06/04/92	NORTHWALL-9	9	ND	ND	ND	ND	ND	--	--	--	--	--	56	4
06/04/92	NORTHWALL-E-11	11	ND	ND	ND	ND	1.9	--	--	--	--	--	14	200
06/04/92	TANK1-WBTM-11	11	ND	ND	ND	0.24	41	--	--	--	--	--	13	400
06/04/92	TANK2-EBTM-11	11	ND	0.96	2.0	140	2,300	--	--	--	--	--	19	5,000
06/04/92	HOTANK-FLR-5	5	ND	ND	ND	ND	ND	--	--	ND	ND	ND	42	10
Discovered Gasoline Tank Excavation														
06/11/92	NORTH SIDEWALL MIDDLE-12 & EAST-12	12	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/11/92	SOUTH SIDEWALL MIDDLE-12	12	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/11/92	SOUTH SIDEWALL EAST-11	11	ND	ND	ND	ND	ND	--	--	--	--	--	12	0
06/11/92	EAST SIDEWALL-12	12	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/11/92	SOUTH SIDEWALL & SEPTIC-5	5	ND	ND	ND	ND	ND	--	--	ND	ND	ND	--	0
Pump Island Excavation														
06/16/92	WEST PUMPN-1	1	ND	9.6	5.1	350	6,400	--	--	--	--	--	--	1,000
06/17/92	PMCAS-10	10	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/17/92	SWPCAS-8	8	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/17/92	NWPIPE-3	3	ND	ND	ND	ND	ND	--	--	--	--	--	--	0
06/17/92	NEPIPE-3	3	ND	ND	ND	ND	ND	--	--	--	--	--	--	0

Soil Sample Analytical Results
 Former Shell Service Station 71315
 21641 Maple Valley Highway
 Maple Valley, Washington 98036
 WIC 246-5068-0101

Table 3

Sample Date	Sample Number	Sample Depth (feet)	BTEX Compounds (ppm) ¹				Total Petroleum Hydrocarbons (ppm) ²	Hydrocarbon Identification ³			Total Lead (ppm)	PID ⁴ (ppm)
			Ethyl- Total	Benzene	Toluene	Xylenes		Gasoline	Diesel	Oil		
MTCA Cleanup Levels												
06/17/92	SEPIPE-3	3	ND	ND	ND	ND	ND	--	--	--	1,000	--
06/18/92	SWPIPE-4	4	ND	ND	ND	ND	ND	--	--	--	--	0
06/18/92	SEPCAS-7.5	7.5	ND	ND	ND	ND	ND	--	--	--	--	0
06/18/92	NEPCAS-7.5	7.5	ND	ND	ND	ND	ND	--	--	--	--	0
Waste Oil Tank Excavation												
06/22/92	WO-WNS-6	6	--	--	--	--	83	--	--	--	--	5
06/22/92	WO-WEW-6	6	--	--	--	--	40	--	--	--	--	3
06/22/92	WO-B-10	10	--	--	--	--	--	--	--	--	--	0
Soil Borings												
08/06/92	MW-11 COMP	0-22	ND	ND	ND	ND	ND	--	--	--	--	--
08/06/92	MW-12 COMP	0-20	ND	ND	ND	ND	ND	--	--	--	--	--
08/11/92	S-12-13 (cuttings, borings MW-12 and MW-13)	0-20	ND	ND	ND	ND	ND	--	--	--	--	--
Treated Soil Stockpile												
06/05/92	SCREENSOIL1	0-12	ND	ND	ND	ND	0.18	91	--	--	--	460
06/05/92	SCREENSOIL2	0-12	ND	ND	ND	ND	2.1	170	--	--	--	245
06/05/92	SCREENSOIL3	0-12	ND	ND	ND	ND	0.57	160	--	--	--	1,350
06/05/92	SCREENSOIL4	0-12	ND	ND	ND	ND	0.87	130	--	--	--	1,550
06/05/92	SCREENSOIL5	0-12	ND	ND	ND	ND	0.11	91	--	--	--	770
06/05/92	RESCREEN1	0-12	ND	0.88	0.43	7.2	130	--	--	--	--	634
06/05/92	RESCREEN2	0-12	ND	1.2	0.53	8.6	140	--	--	--	--	483
06/05/92	RESCREEN3	0-12	ND	2.1	0.95	17	230	--	--	--	--	500
06/08/92	3PASS-1	0-12	ND	ND	ND	0.62	53	--	--	--	--	--
06/08/92	3PASS-2	0-12	ND	0.12	ND	1.0	63	--	--	--	--	--

Table 3

Soil Sample Analytical Results
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101

Page 3 of 3

Sample Date	Sample Number	Sample Depth (feet)	BTEX Compounds (ppm) ¹				Total Petroleum Hydrocarbons (ppm) ²			Hydrocarbon Identification ³ HCID (ppm)			Total Lead (ppm)	PID ⁴ (ppm)
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline	Diesel	Oil	Gasoline	Diesel	Oil		
MTCA ⁶ Cleanup Levels			0.5	40	20	20	100	200	200	--	--	--	1,000	--
06/08/92	3PASS-3	0-12	ND	ND	ND	0.73	55	--	--	--	--	--	--	--
06/08/92	3PASS-4	0-12	ND	ND	ND	0.51	47	--	--	--	--	--	--	--
06/08/92	3PASS-5	0-12	ND	ND	ND	0.76	61	--	--	--	--	--	--	--
06/15/92	STKPILE1	0-12	ND	ND	ND	ND	3.8	--	--	--	--	--	--	50
06/15/92	STKPILE2	0-12	ND	ND	ND	ND	3.4	--	--	--	--	--	--	50
06/15/92	STKPILE3	0-12	ND	ND	ND	ND	3.5	--	--	--	--	--	--	50
07/02/92	READSCREEN-1	0-12	ND	ND	ND	ND	ND	--	--	--	--	--	--	2.8
07/02/92	READSCREEN-2	0-12	ND	ND	ND	ND	ND	--	--	--	--	--	--	2.8
07/02/92	READSCREEN-3	0-12	ND	ND	ND	ND	2.1	--	--	--	--	--	--	2.8

NOTES: ND = Not detected
 - = Not analyzed

Shading indicates values exceeded MTCA Method A Cleanup Levels

¹ Results for analyses of soil samples for benzene, toluene, ethylbenzene, and total xylenes (BTEX) were obtained using EPA Methods 5030/8020 and reported in parts per billion (ppb), shown here in ppm

² Results for analyses of soil samples for total petroleum hydrocarbons (TPH) were obtained using EPA Methods 5030/8015 Modified and EPA Method 418.1 (IR) and reported in parts per million (ppm)

³ Results for analyses of soil samples for hydrocarbon identification (HCID) methods were obtained using Method WTPH-HCID and reported in mg/l (ppm)

⁴ Photoionization detector (PID) readings were obtained in the field at the time of sample collection and are reported in ppm

⁵ Chapter 173-340 WAC, "The Model Toxics Control Act Cleanup Regulations, Method A Cleanup Limits." Amended February 1991.

Caution on misusing Method A tables. Method A tables have been developed for specific purposes. They are intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. The tables may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in these tables should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in these tables do not necessarily trigger requirements for cleanup action under this chapter.

detectable concentrations of toluene that were below MTCA Method A cleanup levels were found in groundwater removed from MW-11; and detectable concentrations of toluene, ethylbenzene, total xylenes, and TPH as gasoline that were below MTCA Method A cleanup levels were found in groundwater removed from MW-12. The groundwater sample collected from the gasoline tank excavation (Pitwater) contained concentrations of BTEX, TPH-G, total lead, and recoverable oil and grease exceeding MTCA Method A cleanup levels. Water sample analytical results are summarized in Table 4. Copies of the laboratory reports and chain-of-custody forms are included in Appendix B.

Table 4

Groundwater Sample Analytical Results
Former Shell Service Station 71315
21641 Maple Valley Highway
Maple Valley, Washington 98036
WIC 246-5068-0101

Sample Date	Sample Location	Sample Number	BTEX Compounds (ppb) ¹				Total Petroleum Hydrocarbons (ppm) ²			Total Lead ³ (ppb)
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline	Diesel	Oil	
MTCA ⁴ Cleanup Levels			5	40	30	20	1	1	1	5
08/17/92	MW-11	MW-11	ND	ND	ND	ND	ND	--	--	--
08/17/92	MW-12	MW-12	ND	ND	ND	ND	ND	--	--	--
08/17/92	MW-13	MW-13	ND	ND	ND	ND	ND	--	ND	--
08/17/92	MW-12(dup)	MW-14	ND	ND	ND	ND	ND	--	--	--
08/17/92	Field Blank	Field Blank	ND	ND	ND	ND	ND	--	--	--
08/14/92	MW-12	MW-12 (PURGE)	ND	0.74	1.2	17	0.220	--	--	--
08/14/92	MW-13	MW-13 (PURGE)	ND	ND	ND	ND	ND	--	--	--
08/07/92	MW-11	MW-11 PURGE	ND	0.78	ND	ND	ND	--	--	--
06/05/92	EXCAVATION	PITWATER	100	740	140	1,100	6.2	--	2.3	8.9
05/08/91	MW-3	MW-3	ND	ND	ND	ND	ND	--	--	--
08/09/90	MW-3	MW-3	ND	ND	ND	ND	ND	ND	--	ND

NOTES: ND = Not detected
 -- = Not analyzed
 dup = Duplicate Sample
 Shading indicates values exceeded MTCA Method A Cleanup Levels

¹ Results for analyses of groundwater samples for benzene, toluene, ethylbenzene, and total xylenes (BTEX) were obtained using EPA Methods 5030/8020 and reported in parts per billion (ppb).

² Results for analyses of groundwater samples for total petroleum hydrocarbons (TPH) were obtained using Methods WTPH-G for gasoline and WTPH-D extended for diesel and oil and reported in parts per million (ppm)

³ Results for analyses of groundwater samples for total lead were obtained using EPA Method 7421 and reported in ppb.

⁴ Chapter 173-340 WAC, "The Model Toxics Control Act Cleanup Regulations, Method A Cleanup Limits." Amended February 1991. Caution on misusing Method A tables. Method A tables have been developed for specific purposes. They are intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. The tables may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in these tables should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in these tables do not necessarily trigger requirements for cleanup action under this chapter.

4 CONCLUSIONS

Four known gasoline underground storage tanks, three discovered gasoline underground storage tanks, a heating oil tank, a waste oil tank, and associated product distribution lines were removed from the site by Joe Hall Construction in June 1992. Two 10,000-gallon and one 12,000-gallon gasoline tanks, one 10,000-gallon diesel tank, and one 550-gallon heating oil tank and associated product distribution lines were installed at the site. All installed underground storage tanks and product lines are of double-walled fiberglass construction.

Soil encountered at the site generally consisted of sandy gravel with boulders and cobbles to the maximum depth explored (20 feet below ground surface). Laboratory data and field measurements indicate that elevated hydrocarbon concentrations occurred in the sandy gravel near the east end of the old gasoline tanks, at the north end of the discovered gasoline tanks, and beneath the gasoline product lines. Groundwater was encountered at 12 to 13 feet below grade.

Laboratory results indicate that TPH as gasoline and total xylenes concentrations exceeding MTCA Method A cleanup levels were present in soil samples collected from the east wall of the gasoline tank excavation and near the west pump island. All petroleum-impacted soil was excavated and treated on-site. Soil samples from soil borings drilled at the site did not contain detectable concentrations of BTEX or TPH as gasoline. Soil samples collected from the bottom and sidewalls of the waste oil and heating oil tank excavations did not contain detectable concentrations of BTEX, TPH as gasoline, TPH-IR concentrations (EPA Method 418.1), PCBs, or TCLP metals above MTCA Method A cleanup levels.

Approximately 900 cubic yards of petroleum-impacted soil were excavated and treated at the site by aeration. Approximately 500 cubic yards of treated soil that tested below MTCA Method A cleanup levels were disposed of at Coal Creek Landfill in King County, Washington. Approximately 400 cubic yards of gravel and cobbles separated from the treated soil were exported as fill by Joe Hall Construction.

One existing groundwater monitoring well (MW-3) was decommissioned and three groundwater monitoring wells were installed at the site. Groundwater samples were collected from three new wells and analyzed for BTEX and TPH as gasoline. All results were below MTCA Method A cleanup levels. The

inferred groundwater flow direction beneath the site in August 1992 was toward the southwest.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of an environmental assessment is to reasonably evaluate the potential for or actual impact of past practices on a given site area. In performing an environmental assessment, it is understood that a balance must be struck between a reasonable inquiry into the environmental issues and an exhaustive analysis of each conceivable issue of potential concern. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to exclude the presence of hazardous materials at a given site. If hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such materials on the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where subsurface work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

Except where there is express concern of our client, or where specific environmental contaminants have been previously reported by others, naturally occurring toxic substances, potential environmental contaminants inside buildings, or contaminant concentrations that are not of current environmental concern may not be reflected in this document.

Appendix A

**FIELD METHODS, SAMPLING PROCEDURES,
AND BORING LOGS**

FIELD METHODS AND SAMPLING PROCEDURES

This appendix documents the procedures EMCON used to perform the field investigation described in this report. The discussion includes information on the following subjects:

- Soil sampling procedures
- Sample jars, sample handling, and chain-of-custody procedures
- Field screening tests
- Monitoring well installations
- Field equipment decontamination procedures

Boring logs are included at the end of this appendix.

A.1 Soil Sampling Procedures

A.1.1 Excavations

Soil samples collected during the field investigation were obtained from the backhoe bucket or directly from the excavation using a stainless steel spoon. Samples taken from the backhoe bucket were collected from the least disturbed and most representative soils. Typically, these soils have accumulated directly behind the backhoe bucket teeth. Samples taken directly from an excavation or test pit were collected from undisturbed soils near the base of a sidewall, base of the excavation, or approximately 1 foot above the water table. Prior to collecting a soil sample from an excavation, approximately 6 inches of soil were scraped away to expose undisturbed soil for collection.

One or two laboratory-prepared glass containers were collected for laboratory analyses. Soil used for field screening was collected in a sealable plastic bag for PID measurements.

A.1.2 Sample Jars, Sample Handling, and Chain-of-Custody

Each soil sample was submitted in a separate laboratory-prepared glass container. Sample jars were obtained specifically for use on this project, and consisted of glass jars with teflon lid inserts. Samples were collected, properly labelled, placed immediately into a chilled cooler, and transported to North Creek Analytical Services, Inc., of Bothell, Washington, for analyses. Chain-of-custody records were maintained, recording sample number, sample date, type of preservative (if any), and handling procedures.

A.1.3 Soil Sample Field Screening

Soil samples were screened for the presence of organic vapors with a portable photoionization detector (PID) at the time of collection. An OVM Model 580B calibrated to 100 ppm isobutylene was used to obtain the measurements. Samples were placed in clean, sealable plastic bags and allowed to stand for approximately 15 minutes prior to taking a measurement. The PID probe was inserted into the corner of the plastic bag, the bag was re-sealed, and the highest PID reading was recorded. These measurements are provided in Table 3.

A.2 Field Equipment Decontamination Procedures

All sampling equipment was decontaminated after each use with a detergent wash, followed by a double distilled water rinse.

A.3 Monitoring Well Installation

On August 6 and 11, 1992, Cascade Drilling of Woodinville, Washington, installed three groundwater monitoring wells (MW-11, MW-12, MW-13) with an air-rotary drilling rig. The wells were drilled using a 7 7/8-inch-diameter button bit and steel casing was driven to keep the soil borings open. MW-11 and MW-12 were installed in the gasoline tank area; MW-13 was installed in the pump island area. All three wells were drilled to approximately 20 feet below ground surface. Soil cuttings were obtained from the cyclone and classified according to the Unified Soil Classification System by an EMCON geologist. Soil samples from the well borings were not collected for analyses. A composite soil sample was collected from the drill cuttings for waste disposal characterization.

The wells were constructed with 4-inch-diameter, Schedule 40, PVC well casing and screen (0.020-inch machine slots) and screened from approximately 10 to 20 feet below ground surface. The annular space between the borehole and well casing was backfilled with No. 8-12 Colorado silica sand to approximately 2 feet

above the top of the well screen. Sand was added in approximately 2-foot lifts; the steel casing was lifted to allow sand to fall and the process was repeated until the sand was at the desired level. Bentonite chips were placed to within approximately 1-foot lifts. The wells were completed with traffic-rated flush mount well covers set in concrete. Each well was equipped with a locking cap. Boring logs and well construction details are included at the end of this appendix.

LOG OF EXPLORATORY BORING

PROJECT NAME Shell/Maple Valley
 LOCATION 21641 Maple Valley Highway
 DRILLED BY Cascade Drilling
 DRILL METHOD Air-rotary
 LOGGED BY Mike Noll

BORING NO. MW-11
 PAGE 1 OF 2
 REFERENCE ELEV. 99.73'
 TOTAL DEPTH 22.00'
 DATE COMPLETED 08/06/92

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6-INCHES	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				5				<p>0 to 0.2 foot: ASPHALT.</p> <p>0.2 to 0.6 foot: GRAVEL (GP), brown, angular with little fine to coarse sand.</p> <p>0.6 to 17.0 feet: GRAVEL (GP), brown, subrounded, with some fine to coarse sand and little fines.</p>
				10				
			▽ ATD	15				@ 14.0 feet: becomes wet.
				20				<p>17.0 to 22.0 feet: SAND (SP), brown, fine to coarse, subrounded with little fine to coarse gravel and trace fines.</p>

REMARKS

(1) Reference elevation = top of PVC casing surveyed relative to a site datum. (2) No samples collected. (3) 7/8-inch diameter button drill bit used. (4) ATD = At Time of Drilling.



LOG OF EXPLORATORY BORING

PROJECT NAME Shell/Maple Valley
 LOCATION 21641 Maple Valley Highway
 DRILLED BY Cascade Drilling
 DRILL METHOD Air-rotary
 LOGGED BY Mike Noll

BORING NO. MW-11
 PAGE 2 OF 2
 REFERENCE ELEV. 99.73'
 TOTAL DEPTH 22.00'
 DATE COMPLETED 08/06/92

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6-INCHES	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				25				Total depth drilled = 22.0 feet. WELL COMPLETION DETAILS: 0.3 to 10.0 feet: 4-inch-diameter, flush threaded, schedule 40 PVC blank riser pipe. 10.0 to 20.0 feet: 4-inch-diameter, flush threaded schedule 40 PVC well screen with 0.020-inch machined slots. 20.0 to 20.5 feet: casing end cap. 0 to 2.0 feet: Concrete. 2.0 to 8.0 feet: Bentonite chips hydrated with potable water. 8.0 to 22.0 feet: 8 - 12 Colorado silica sand.
				30				
				35				
				40				

REMARKS

(1) Reference elevation = top of PVC casing surveyed relative to a site datum. (2) No samples collected. (3) 7/8-inch diameter button drill bit used. (4) ATD = At Time of Drilling.



LOG OF EXPLORATORY BORING

PROJECT NAME Shell/Maple Valley
 LOCATION 21641 Maple Valley Highway
 DRILLED BY Cascade Drilling
 DRILL METHOD Air-rotary
 LOGGED BY P. Brooks/M. Noll

BORING NO. MW-12
 PAGE 1 OF 2
 REFERENCE ELEV. 100.56'
 TOTAL DEPTH 21.00'
 DATE COMPLETED 08/06/92

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6-INCHES	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOLOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				0				0 to 0.3 foot: ASPHALT.
				5				0.3 to 0.6 foot: GRAVEL (GP), brown, angular with little fine to coarse sand, moist.
				10				0.6 to 17.0 feet: SAND (SP), fine to coarse, subrounded with little fine to coarse subrounded gravel and few cobbles, moist.
			▽ ATD	15				@ 13.0 feet: becomes wet.
				20				17.0 to 21.0 feet: SAND (SP), fine to coarse, subrounded, with few subrounded gravel, wet.

REMARKS

(1) Reference elevation = top of PVC casing surveyed relative to a site datum. (2) No samples collected. (3) 7/8-inch diameter button drill bit used. (4) ATD = At Time of Drilling.



LOG OF EXPLORATORY BORING

PROJECT NAME Shell/Maple Valley
 LOCATION 21641 Maple Valley Highway
 DRILLED BY Cascade Drilling
 DRILL METHOD Air-rotary
 LOGGED BY Patrick Brooks

BORING NO. MW-13
 PAGE 1 OF 2
 REFERENCE ELEV. 100.37'
 TOTAL DEPTH 20.50'
 DATE COMPLETED 08/11/92

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6-INCHES	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				0				0 to 0.3 foot: ASPHALT.
				5				0.3 to 0.6 foot: GRAVEL (GP), brown, angular with little fine to coarse sand, moist.
				10				0.6 to 15.0 feet: SAND (SP), fine to coarse, with little fine to coarse, subrounded gravel and few cobbles, moist.
			▽ ATD	15				15.0 to 20.5 feet: SAND (SP), fine to coarse, subrounded, subrounded gravel.
				20				

REMARKS

(1) Reference elevation = top of PVC casing surveyed relative to a site datum. (2) No samples collected. (3) 7/8-inch diameter button drill bit used. (4) ATD = At Time of Drilling.



LOG OF EXPLORATORY BORING

PROJECT NAME Shell/Maple Valley
 LOCATION 21641 Maple Valley Highway
 DRILLED BY Cascade Drilling
 DRILL METHOD Air-rotary
 LOGGED BY Patrick Brooks

BORING NO. MW-13
 PAGE 2 OF 2
 REFERENCE ELEV. 100.37'
 TOTAL DEPTH 20.50'
 DATE COMPLETED 08/11/92

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6-INCHES	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-LOGIC COLUMN	WELL DETAILS	LITHOLOGIC DESCRIPTION
				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;">25</div> <div style="margin-bottom: 20px;">30</div> <div style="margin-bottom: 20px;">35</div> <div style="margin-bottom: 20px;">40</div> </div>			<div style="display: flex; align-items: center; justify-content: center;"> <div style="width: 10px; height: 10px; background-color: black; margin-right: 5px;"></div> <div style="width: 10px; height: 10px; background-color: black; margin-right: 5px;"></div> </div>	<p>Total depth drilled = 20.5 feet.</p> <p>WELL COMPLETION DETAILS: 0.3 to 10.0 feet: 4-inch-diameter, flush threaded schedule 40 PVC blank riser pipe. 10.0 to 20.0 feet: 4-inch-diameter, flush threaded schedule 40 PVC well screen with 0.020-inch machined slots. 20.0 to 20.5 feet: casing end cap.</p> <p>0 to 2.0 feet: Concrete. 2.0 to 8.0 feet: Bentonite chips hydrated with potable water. 8.0 to 20.5 feet: 8 - 12 Colorado silica sand.</p>

REMARKS
 (1) Reference elevation = top of PVC casing surveyed relative to a site datum. (2) No samples collected. (3) 7/8-inch diameter button drill bit used. (4) ATD = At Time of Drilling.



Appendix B

LABORATORY REPORTS

EMCON Northwest	Client Project ID: Shell, Maple Valley #W56-19.05	Sampled: Jun 2, 1992
18912 N. Creek Parkway, #210	Matrix Descript: Soil	Received: Jun 2, 1992
Bothell, WA 98011	Analysis Method: EPA 5030/8015/8020	Analyzed: Jun 3, 1992
Attention: Mike Noll	First Sample #: 206-0081	Reported: Jun 3, 1992

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0081	TP-9'	1.1	N.D.	N.D.	N.D.	N.D.	90
BLK060392	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	86

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Tod Becherer
(for)

Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Matrix Descript: Soil Analysis Method: Qualitative GC-FID First Sample #: 206-0081	Sampled: Jun 2, 1992 Received: Jun 2, 1992 Extracted: Jun 3, 1992 Analyzed: Jun 3, 1992 Reported: Jun 3, 1992
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HYDROCARBON IDENTIFICATION (WTPH-HCID)

Sample Number	Sample Description	HCID as Gasoline nC7 - nC12 mg/kg (ppm)	GRO Surrogate Recovery %	HCID as Diesel nC12 - nC24 mg/kg (ppm)	DRO Surrogate Recovery %	HCID Heavy Oil >nC24 mg/kg (ppm)
206-0081	TP-9'	<20	76	<50	47	<100
BLK060392	Method Blank	<20	91	<50	63	<100

WTPH-HCID is a qualitative screen to determine the presence and the type of petroleum products that exist at a site. It is intended to be performed on representative soils from a site when the type of petroleum hydrocarbon contamination is unknown. When the analytical results for gasoline range organics, diesel range organics or heavy oils are shown as "Present", thereby exceeding the reporting limits, the specific quantitation method must be employed.

NORTH CREEK ANALYTICAL inc

Tod Bechauer
(for)
Scot Cocanour
Laboratory Director

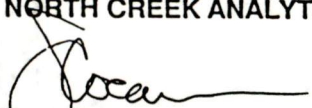
EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Analysis Method: EPA 7420 Analysis for: Lead First Sample #: 206-0081 Matrix: Soil	Sampled: Jun 2, 1992 Received: Jun 2, 1992 Digested: Jun 11, 1992 Analyzed: Jun 12, 1992 Reported: Jun 16, 1992
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METALS ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
206-0081	TP-9'	7.5	N.D.
BLK061292	Method Blank	0.15	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
 Method : EPA 5030/8020
 Sample Matrix : Soil
 Units : mg/kg
 QC Sample #: 205-1352

Analyst : M. Essig
 K. Wilke
 Analyzed: Jun 2, 1992
 Reported: Jun 4, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl benzene Xylenes			
	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.40	0.44	0.52	1.49
Matrix Spike % Recovery:	80	88	104	99
Conc. Matrix Spike Dup.:	0.40	0.44	0.51	1.45
Matrix Spike Duplicate % Recovery:	80	88	102	97
Relative % Difference:	0	0	1.9	2.7

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour (for)
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
Method : EPA 7420
Sample Matrix : Water
Units : mg/L
QC Sample #: BLK061192

Analyst : B. Oaks
Digested: Jun 11, 1992
Analyzed: Jun 12, 1992
Reported: Jun 16, 1992

QUALITY CONTROL DATA REPORT

ANALYTE

Lead

Sample Conc.: 0

Spike Conc.
Added: 0.5

Conc. Matrix
Spike: 0.43

Matrix Spike
% Recovery: 86

Conc. Matrix
Spike Dup.: 0.38

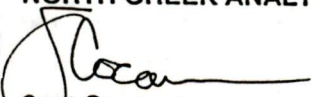
Matrix Spike
Duplicate
% Recovery: 76

Relative
% Difference: 11.0

NORTH CREEK ANALYTICAL inc

% Recovery: $\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$


Scot Cocanour
Laboratory Director



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 6/2/92

Page 1 of 1

Site Address: 21641 Maple Valley Highway
Maple Valley, WA 98036

Analysis Required - LAB: North Creek

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
Proj. No. WSE-19.05
(list on report)

Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments:
Sample collected by contractor

Sampled By:
Printed Name: Joe Hall

<input type="checkbox"/>	TPH (EPA 8015 Mod. Gas)
<input type="checkbox"/>	TPH (EPA 8015 Mod. Diesel)
<input type="checkbox"/>	BTEX (EPA 8020/602)
<input type="checkbox"/>	Volatile Organics (EPA 8240)
<input type="checkbox"/>	Test for Disposal
<input type="checkbox"/>	WTPH - HCID
<input type="checkbox"/>	Total Lead

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input checked="" type="checkbox"/>	5442	15 days <input type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input checked="" type="checkbox"/> See below
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	WTPH - HCID	Total Lead	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
TP-9'	6-2-92	X			2	X		X			X	X	2oz	None	No	Gravelly Sand	WTPH-C ₄ /BTEX 24 by T.A.T.
																206008/	WTPH-HCID 24 by T.A.T. Total Lead 15-day TAT

Relinquished By (signature): <i>Michael D. Noll</i>	Printed name: Michael D. Noll	Date: 6-2-92	Received (signature): <i>J. BERTRAND</i>	Printed name: J. BERTRAND	Date: 6-2-92
Relinquished By (signature): <i>J. BERTRAND</i>	Printed name: J. BERTRAND	Date: 6-2-92	Received (signature): <i>DANA HEINZ</i>	Printed name: DANA HEINZ	Date: 6/2/92
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley Matrix: Soil Analysis for: Total Solids First Sample #: 206-0218	Received: Jun 5, 1992 Reported: Jun 12, 1992
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LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-0218	WESTWALL - 9'	93
206-0219	HOTANK-FLR - 5'	93
206-0220	NORTHWALL - 9'	92
206-0221	TANK 1 - WBTM-11'	94
206-0222	NORTHWALL-E-11'	94
206-0223	TANK 2 - EBTM-11'	94

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

Emcon Northwest	Client Project ID: Shell Maple Valley	Sampled: Jun 4, 1992
18912 North Creek Parkway, #220	Matrix Descript: Soil	Received: Jun 5, 1992
Bothell, WA 98011	Analysis Method: EPA 5030/8015/8020	Analyzed: Jun 16, 1992
Attention: Mike Noll	First Sample #: 206-0218	Reported: Jun 22, 1992

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0218	WESTWALL - 9'	N.D.	N.D.	N.D.	N.D.	N.D.	104
206-0219	HOTANK-FLR - 5'	N.D.	N.D.	N.D.	N.D.	N.D.	103
206-0220	NORTHWALL - 9'	N.D.	N.D.	N.D.	N.D.	N.D.	97
206-0221	TANK 1 - WBTM-11'	41 G-2	N.D.	N.D.	N.D.	0.24	114
206-0222	NORTHWALL-E-11'	1.9 G-2	N.D.	N.D.	N.D.	N.D.	100
206-0223	TANK 2 - EBTM-11'	2,300 G-2	N.D.	0.96	2.0	140	127
BLK061692	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	99

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

Please Note:

The detection limit for Benzene in #206-0223 = 0.20 mg/kg.

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley Matrix Descript: Soil Analysis Method: Qualitative GC-FID First Sample #: 206-0219	Sampled: Jun 4, 1992 Received: Jun 5, 1992 Extracted: Jun 8, 1992 Analyzed: Jun 9, 1992 Reported: Jun 12, 1992
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HYDROCARBON IDENTIFICATION (WTPH-HCID)

Sample Number	Sample Description	HCID as Gasoline nC7 - nC12 mg/kg (ppm)	GRO Surrogate Recovery %	HCID as Diesel nC12 - nC24 mg/kg (ppm)	DRO Surrogate Recovery %	HCID Heavy Oil >nC24 mg/kg (ppm)
206-0219	HOTANK-FLR - 5'	<20	90	<50	32	<100
BLK060892	Method Blank	<20	89	<50	43	<100

WTPH-HCID is a qualitative screen to determine the presence and the type of petroleum products that exist at a site. It is intended to be performed on representative soils from a site when the type of petroleum hydrocarbon contamination is unknown. When the analytical results for gasoline range organics, diesel range organics or heavy oils are shown as "Present", thereby exceeding the reporting limits, the specific quantitation method must be employed.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

Emcon Northwest	Client Project ID: Shell Maple Valley	Sampled: Jun 4, 1992
18912 North Creek Parkway, #220	Matrix Descript: Product	Received: Jun 5, 1992
Bothell, WA 98011	Analysis Method: Qualitative GC-FID	Extracted: Jun 8, 1992
Attention: Mike Noll	First Sample #: 206-0224	Analyzed: Jun 9, 1992
		Reported: Jun 12, 1992

HYDROCARBON IDENTIFICATION (WTPH-HCID)

Sample Number	Sample Description	HCID as Gasoline nC7 - nC12 mg/kg (ppm)	GRO Surrogate Recovery %	HCID as Diesel nC12 - nC24 mg/kg (ppm)	DRO Surrogate Recovery %	HCID Heavy Oil >nC24 mg/kg (ppm)
206-0224	PRODUCT 1-13'	Present	Matrix Interference	Present	Not Available	<100
BLK060892	Method Blank	<20	89	<50	43	<100

WTPH-HCID is a qualitative screen to determine the presence and the type of petroleum products that exist at a site. It is intended to be performed on representative soils from a site when the type of petroleum hydrocarbon contamination is unknown. When the analytical results for gasoline range organics, diesel range organics or heavy oils are shown as "Present", thereby exceeding the reporting limits, the specific quantitation method must be employed.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley Analysis Method: EPA 7420 Analysis for: Lead First Sample #: 206-0218 Matrix: Soil	Sampled: Jun 4, 1992 Received: Jun 5, 1992 Digested: Jun 17, 1992 Analyzed: Jun 18, 1992 Reported: Jun 22, 1992
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METALS ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
206-0218	WESTWALL - 9'	7.5	13
206-0219	HOTANK-FLR - 5'	7.5	42
206-0220	NORTHWALL - 9'	7.5	56
206-0221	TANK 1 - WBTM-11'	7.5	13
206-0222	NORTHWALL-E-11'	7.5	14
206-0223	TANK 2 - EBTM-11'	7.5	19
BLK061792	Method Blank	0.15 mg/L	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scott Cocanour
Laboratory Director

Emcon Northwest	Client Project ID: Shell Maple Valley	Sampled: Jun 4, 1992
18912 North Creek Parkway, #220	Analysis Method: EPA 7420	Received: Jun 5, 1992
Bothell, WA 98011	Analysis for: Lead	Digested: Jun 17, 1992
Attention: Mike Noll	First Sample #: 206-0224	Analyzed: Jun 18, 1992
	Matrix: Product	Reported: Jun 22, 1992

METALS ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
206-0224	PRODUCT 1-13'	7.5	17
BLK061792	Method Blank	0.15 mg/L	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scott Cocanour
Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley Method : EPA 5030/8020 Sample Matrix : Soil Units : mg/kg QC Sample #: 206-0209	Analyst : M. Essig K. Wilke Analyzed: Jun 16, 1992 Reported: Jun 22, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl benzene Xylenes			
	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.35	0.40	0.47	1.33
Matrix Spike % Recovery:	70	80	94	89
Conc. Matrix Spike Dup.:	0.37	0.43	0.51	1.45
Matrix Spike Duplicate % Recovery:	74	86	102	97
Relative % Difference:	5.6	7.2	8.2	8.6

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Emcon Northwest
 18912 North Creek Parkway, #220
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell Maple Valley
 Method : EPA 7420
 Sample Matrix : Water
 Units : mg/L
 QC Sample #: BLK061792

Analyst : B. Oaks
 Digested: Jun 17, 1992
 Analyzed: Jun 18, 1992
 Reported: Jun 22, 1992

QUALITY CONTROL DATA REPORT

ANALYTE

Pb

Sample Conc.: N.D.

Spike Conc. Added: 0.50

Conc. Matrix Spike: 0.53

Matrix Spike % Recovery: 106

Conc. Matrix Spike Dup.: 0.54

Matrix Spike Duplicate % Recovery: 106

Relative % Difference: 1.9

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 6/5/92

Page 1 of 1

Site Address: 21641 Maple Valley Highway
Maple Valley, WA 98036

Analysis Required - LAB: North Creek

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
Proj. No. W56-19.05
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments:

Sampled By: Michael D. Noll
Printed Name: Michael D. Noll

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input checked="" type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conds.	TPH (EPA 8015 Mod. Gas) <input type="checkbox"/>	TPH (EPA 8015 Mod. Diesel) <input type="checkbox"/>	BTEX (EPA 8020/602) <input type="checkbox"/>	Volatile Organics (EPA 8240) <input type="checkbox"/>	Test for Disposal <input type="checkbox"/>	WTPH-HCID	Total Lead 7420 or 7421	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS	
WESTWALL -9'	6-4-92	X			1	X	X						4 1/2			Soil	2060218	
HOTANK-RE-5'	6-4-92	X			1	X	X				X	X						2060219
NORTHWALL -9'	6-4-92	X			1	X	X					X						2060220
TANK 1-WBTM-11'	6-4-92	X			1	X	X					X						2060221
NORTHWALL-E-11'	6-4-92	X			1	X	X					X						2060222
TANK 2-EDTM-11'	6-4-92	X			1	X	X					X						2060223
PRODUCT 1-13'	6-4-92		X		1						X	X				PURE PRODUCT	2060224	
																DA 6/5/92		

Relinquished By (signature): <i>Michael D. Noll</i>	Printed name: Michael D. Noll	Date: 6-5-92 Time: 0900	Received (signature): <i>[Signature]</i>	Printed name: J BERTRAND	Date: 6-5-92 Time: 0900
Relinquished By (signature): <i>[Signature]</i>	Printed name: J-BERTRAND	Date: 6-5-92 Time: 0930	Received (signature): <i>[Signature]</i>	Printed name: DANA HEW	Date: 6/5/92 Time: 9:30
Relinquished By (signature): _____	Printed name: _____	Date: _____ Time: _____	Received (signature): _____	Printed name: _____	Date: _____ Time: _____

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
Matrix: Soil
Analysis for: Total Solids
First Sample #: 206-0279

Received: Jun 5, 1992
Reported: Jun 19, 1992

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-0279	Screensoil 1	94
206-0280	Screensoil 2	93
206-0281	Screensoil 3	92
206-0282	Screensoil 4	91
206-0283	Screensoil 5	93
206-0284	Rescreen 1	91
206-0285	Rescreen 2	92
206-0286	Rescreen 3	94

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
(for)
Scot Cocanour
Laboratory Director

EMCON Northwest	Client Project ID: Shell, Maple Valley #W56-19.05	Sampled: Jun 5, 1992
18912 N. Creek Parkway, #210	Matrix Descript: Soil	Received: Jun 5, 1992
Bothell, WA 98011	Analysis Method: EPA 5030/8015/8020	Analyzed: Jun 18, 1992
Attention: Mike Noll	First Sample #: 206-0279	Reported: Jun 19, 1992

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0279	Screensoil 1	91 G-2	N.D.	N.D.	N.D.	0.18	127
206-0280	Screensoil 2	170 G-2	N.D.	N.D.	N.D.	2.1	121
206-0281	Screensoil 3	160 G-2	N.D.	N.D.	N.D.	0.57	126
206-0282	Screensoil 4	130 G-2	N.D.	N.D.	N.D.	0.87	117
206-0283	Screensoil 5	91 G-2	N.D.	N.D.	N.D.	0.11	120
BLK061892	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	95

Detection Limits:

1.0 0.050 0.10 0.10 0.10

Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Please Note:

The detection limit for Benzene in #206-0280 and #206-0282 = 0.080 mg/kg.

Scot Cocanour
 Scot Cocanour
 Laboratory Director

HYDROCARBON ANALYSES FOOTNOTES

(1/92)

Code Description

VOLATILE HYDROCARBONS - Gasoline Range Organics

- G 1 The hydrocarbons present in this sample are primarily due to extractable diesel range organics.
- G 2 The hydrocarbons present in this sample are a complex mixture of both gasoline range and diesel range organics.
- G 3 The total hydrocarbon result in this sample is primarily due to a peak(s) eluting in the purgeable hydrocarbon range. Identification and quantitation by EPA 8010, 8021 or 8240 is recommended.

EXTRACTABLE HYDROCARBONS - Diesel Range Organics

- D 1 The hydrocarbons present in this sample are primarily due to volatile gasoline range organics.
- D 2 The hydrocarbons present in this sample are primarily due to very heavy, non-resolvable oil range organics. Quantitation by EPA 418.1 is recommended.
- D 3 The hydrocarbons present in this sample are a complex mixture of volatile gasoline, extractable diesel and non-resolvable oil range organics.
- D 4 The hydrocarbon result shown is an estimated (greater than) value due to high concentration. Reanalysis is being performed to yield a quantitative result.

Oils & Lubricants

[-----]
T.R.P.H. (418.1)

Diesel & Fuel Oils

[-----]
Extractables (3550/8015)

Gasoline

[-----]
Volatiles (5030/8015)

LOW LOW TO MEDIUM MEDIUM MEDIUM TO HIGH VERY HIGH
HYDROCARBON BOILING POINT RANGE

CARBON RANGE:

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 +29

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0284	Sampled: Jun 5, 1992 Received: Jun 5, 1992 Analyzed: Jun 5, 1992 Reported: Jun 8, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0284	Rescreen 1	130	N.D.	0.88	0.43	7.2	136
206-0285	Rescreen 2	140	N.D.	1.2	0.53	8.6	137
206-0286	Rescreen 3	230	N.D.	2.1	0.95	17	138
BLK060592	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	122

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Please Note:

The detection limit for Benzene in #206-0284, -0285 and -0286 = 0.20 mg/kg.



 Scot Cocanour
 Laboratory Director

EMCON Northwest	Client Project ID: Shell, Maple Valley #W56-19.05	Sampled: Jun 5, 1992
18912 N. Creek Parkway, #210	Matrix Descript: Water	Received: Jun 5, 1992
Bothell, WA 98011	Analysis Method: EPA 5030/8015/8020	Analyzed: Jun 5, 1992
Attention: Mike Noll	First Sample #: 206-0287	Reported: Jun 8, 1992

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons $\mu\text{g/L}$ (ppb)	Benzene $\mu\text{g/L}$ (ppb)	Toluene $\mu\text{g/L}$ (ppb)	Ethyl Benzene $\mu\text{g/L}$ (ppb)	Xylenes $\mu\text{g/L}$ (ppb)	Surrogate Recovery %
206-0287	Pitwater	6,200	100	740	140	1,100	125
BLK060592	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	116

Detection Limits:

50

0.50

0.50

0.50

0.50

Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
Matrix Descript: Water
Analysis Method: EPA 413.2 (I.R.)
First Sample #: 206-0287

Sampled: Jun 5, 1992
Received: Jun 5, 1992
Extracted: Jun 8, 1992
Analyzed: Jun 8, 1992
Reported: Jun 8, 1992

TOTAL RECOVERABLE OIL & GREASE

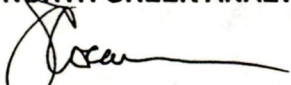
Sample Number	Sample Description	Oil & Grease mg/L (ppm)
206-0287	Pitwater	2.3
BLK060892	Method Blank	N.D.

Detection Limits:

1.0

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Analysis Method: EPA 7421 Analysis for: Lead First Sample #: 206-0287 Matrix: Water	Sampled: Jun 5, 1992 Received: Jun 5, 1992 Digested: Jun 8, 1992 Analyzed: Jun 8, 1992 Reported: Jun 9, 1992
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METALS ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit $\mu\text{g/L}$ (ppb)	Sample Result $\mu\text{g/L}$ (ppb)
206-0287	Pitwater	1.0	8.9
BLK060892	Method Blank	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL Inc

Scot Cocanour
Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Method : EPA 5030/8020 Sample Matrix : Soil Units : mg/kg QC Sample #: BLK060592	Analyst : M. Essig K. Wilke Analyzed: Jun 5, 1992 Reported: Jun 8, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.36	0.48	0.55	1.63
Matrix Spike % Recovery:	72	96	110	109
Conc. Matrix Spike Dup.:	0.36	0.47	0.55	1.63
Matrix Spike Duplicate % Recovery:	72	97	110	109
Relative % Difference:	0	2.1	0	0

NORTH CREEK ANALYTICAL inc

Tom Becherer
 Scot Cocanour
 Laboratory Director


% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Method : EPA 7421 Sample Matrix : Water Units : mg/L QC Sample #: BLK060892	Analyst : F. Shino Analyzed: Jun 8, 1992 Reported: Jun 9, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Lead
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Sample Conc.:	N.D.
Spike Conc. Added:	30
Conc. Matrix Spike:	22
Matrix Spike % Recovery:	73.3
Conc. Matrix Spike Dup.:	27
Matrix Spike Duplicate % Recovery:	90
Relative % Difference:	20.4

NORTH CREEK ANALYTICAL inc

 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
 Method : EPA 413.2 (IR)
 Sample Matrix : Water
 Units : mg/L
 QC Sample #: BLK060892

Analyst : S. Kimball
 Analyzed: Jun 8, 1992
 Reported: Jun 9, 1992

QUALITY CONTROL DATA REPORT

ANALYTE

Oil & Grease

Sample Conc.: N.D.

Spike Conc. Added: 15

Conc. Matrix Spike: 14

Matrix Spike % Recovery: 93

Conc. Matrix Spike Dup.: 14

Matrix Spike Duplicate % Recovery: 93

Relative % Difference: 0

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, Maple Valley #W56-19.05
 Method : EPA 5030/8020
 Sample Matrix : Soil
 Units : mg/kg
 QC Sample #: 206-0926

Analyst : M. Essig
 K. Wilke
 Analyzed: Jun 18, 1992
 Reported: Jun 19, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl benzene Xylenes			
	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.37	0.41	0.49	1.41
Matrix Spike % Recovery:	74	82	98	94
Conc. Matrix Spike Dup.:	0.39	0.45	0.53	1.51
Matrix Spike Duplicate % Recovery:	78	90	106	101
Relative % Difference:	5.3	9.3	7.8	6.8

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, W56-19.05 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0418	Sampled: Jun 8, 1992 Received: Jun 8, 1992 Analyzed: Jun 8, 1992 Reported: Jun 9, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0418	3PASS-1	53 G-2	N.D.	N.D.	N.D.	0.62	131
206-0419	3PASS-2	63 G-2	N.D.	0.12	N.D.	1.0	127
206-0420	3PASS-3	55 G-2	N.D.	N.D.	N.D.	0.73	147
206-0421	3PASS-4	47 G-2	N.D.	N.D.	N.D.	0.51	139
206-0422	3PASS-5	61 G-2	N.D.	N.D.	N.D.	0.76	146
BLK060892	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	116

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

Please Note:

The detection limit for Benzene in #206-0418 and #206-0419 = 0.080 mg/kg.

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell Maple Valley, W56-19.05
 Method : EPA 5030/8020
 Sample Matrix : Soil
 Units : mg/kg
 QC Sample #: 205-1496

Analyst : M. Essig
 K. Wilke
 Analyzed: Jun 8, 1992
 Reported: Jun 9, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.30	0.37	0.46	1.36
Matrix Spike % Recovery:	60	74	92	91
Conc. Matrix Spike Dup.:	0.31	0.39	0.48	1.42
Matrix Spike Duplicate % Recovery:	62	78	96	95
Relative % Difference:	3.3	5.3	4.3	4.3

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 6-8-92
Page 1 of 1

Site Address: 21641 MAPLE VALLEY HWY
MAPLE VALLEY, WA 98036

Analysis Required - LAB: North Creek Analytical

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL W56-19.05
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments: PLEASE PUT # ON LAB REPORT RUSH ANALYSIS

Sampled By: J. BERTRAND
Printed Name: J. BERTRAND

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input checked="" type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input checked="" type="checkbox"/>	5442	15 days <input type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
3PASS-1	6-8-92	X	2060	18	1	X	X				40Z		N	SOIL 1435	24 HR
3PASS-2	↓	X	2060	419	↓	X	X				↓			1440	RUSH
3PASS-3	↓	X	2060	420	↓	X	X				↓			1445	BY
3PASS-4	↓	X	2060	421	↓	X	X				↓			1450	6PM
3PASS-5	6-8-92	X	2060	422	1	X	X				42		↓	SOIL 1455	6-9-92
															IF POSSIBLE

Relinquished By (signature): <u>J. BERTRAND</u>	Printed name: <u>J. BERTRAND</u>	Date: <u>6-8-92</u> Time: <u>1645</u>	Received (signature): <u>[Signature]</u>	Printed name: <u>IANA HEINZ</u>	Date: <u>6/8/92</u> Time: <u>4:45</u>
Relinquished By (signature):	Printed name:	Date: Time:	Received (signature):	Printed name:	Date: Time:
Relinquished By (signature):	Printed name:	Date: Time:	Received (signature):	Printed name:	Date: Time:

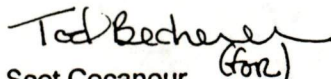
THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Matrix: Soil Analysis for: Total Solids First Sample #: 206-0636	Received: Jun 11, 1992 Reported: Jun 16, 1992
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LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-0636	North Sidewall Middle 12 & East 12	94
206-0637	South Sidewall Middle-12	96
206-0638	South Sidewall East-11	93
206-0639	East Sidewall - 12	98
206-0640	South Sidewall Septic - 5	78

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0636	Sampled: Jun 11, 1992 Received: Jun 11, 1992 Analyzed: Jun 11, 1992 Reported: Jun 16, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0636	North Sidewall Middle 12 & East 12	N.D.	N.D.	N.D.	N.D.	N.D.	98
206-0637	South Sidewall Middle-12	N.D.	N.D.	N.D.	N.D.	N.D.	98
206-0638	South Sidewall East-11	N.D.	N.D.	N.D.	N.D.	N.D.	96
206-0639	East Sidewall - 12	N.D.	N.D.	N.D.	N.D.	N.D.	96
206-0640	South Sidewall Septic - 5	N.D.	N.D.	N.D.	N.D.	N.D.	98
BLK061192	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	94

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Tad Becher
 Scot Cocanour (for)
 Laboratory Director

Emcon Northwest	Client Project ID: Shell Maple Valley, #246-5068-0101	Sampled: Jun 11, 1992
18912 North Creek Parkway, #220	Matrix Descript: Soil	Received: Jun 11, 1992
Bothell, WA 98011	Analysis Method: Qualitative GC-FID	Extracted: Jun 12, 1992
Attention: Mike Noll	First Sample #: 206-0640	Analyzed: Jun 13, 1992
		Reported: Jun 16, 1992

HYDROCARBON IDENTIFICATION (WTPH-HCID)

Sample Number	Sample Description	HCID as Gasoline nC7 - nC12 mg/kg (ppm)	GRO Surrogate Recovery %	HCID as Diesel nC12 - nC24 mg/kg (ppm)	DRO Surrogate Recovery %	HCID Heavy Oil >nC24 mg/kg (ppm)
206-0640	South Sidewall Septic - 5	<20	92	<50	182	<100
BLK061292	Method Blank	<20	63	<50	149	<100

WTPH-HCID is a qualitative screen to determine the presence and the type of petroleum products that exist at a site. It is intended to be performed on representative soils from a site when the type of petroleum hydrocarbon contamination is unknown. When the analytical results for gasoline range organics, diesel range organics or heavy oils are shown as "Present", thereby exceeding the reporting limits, the specific quantitation method must be employed.

NORTH CREEK ANALYTICAL inc

Tod Becher
 Scot Cocanour (for)
 Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Sample Descript: South Sidewall Septic - 5 Analysis Method: EPA 1311/6010/7000 Sample Number: 206-0640	Sampled: Jun 11, 1992 Received: Jun 11, 1992 TCLP Ext: Jun 15, 1992 Analyzed: Jun 17, 1992 Reported: Jun 18, 1992
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TCLP Extraction Metals

Analyte	Regulatory Level mg/L (ppm)	Detection Limit mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic.....	5.0	0.2	N.D.
Barium.....	100.0	0.05	0.45
Cadmium.....	1.0	0.01	N.D.
Chromium.....	5.0	0.025	N.D.
Lead.....	5.0	0.05	N.D.
Mercury.....	0.2	0.0050	N.D.
Selenium.....	1.0	0.30	N.D.
Silver.....	5.0	0.020	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Sample Descript: Method Blank Analysis Method: EPA 1311/6010/7000 Sample Number: BLK061592	TCLP Ext: Jun 15, 1992 Analyzed: Jun 17, 1992 Reported: Jun 18, 1992
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TCLP Extraction Metals

Analyte	Regulatory Level mg/L (ppm)	Detection Limit mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic.....	5.0	0.2	N.D.
Barium.....	100.0	0.05	0.34
Cadmium.....	1.0	0.01	N.D.
Chromium.....	5.0	0.025	N.D.
Lead.....	5.0	0.05	N.D.
Mercury.....	0.2	0.0050	N.D.
Selenium.....	1.0	0.30	N.D.
Silver.....	5.0	0.020	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Tod Cochran
 Scot Cochran
 Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Analysis Method: EPA 7420 Analysis for: Lead First Sample #: 206-0638 Matrix: Soil	Sampled: Jun 11, 1992 Received: Jun 11, 1992 Digested: Jun 11, 1992 Analyzed: Jun 16, 1992 Reported: Jun 16, 1992
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METALS ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
206-0638	South Sidewall East - 11	7.5	12
BLK061192	Method Blank	0.15 mg/L	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Tod Becherer
 Scot Cocanour (for)
 Laboratory Director

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Method : EPA 5030/8020 Sample Matrix : Soil Units : mg/kg QC Sample #: 206-0593	Analyst : M. Essig K. Wilke Analyzed: Jun 11, 1992 Reported: Jun 16, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.34	0.38	0.46	1.30
Matrix Spike % Recovery:	68	76	92	87
Conc. Matrix Spike Dup.:	0.34	0.39	0.47	1.32
Matrix Spike Duplicate % Recovery:	68	78	94	88
Relative % Difference:	0	2.6	2.2	1.5

NORTH CREEK ANALYTICAL inc

Tod Keckner
 Scot Cocanour (for)
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley, #246-5068-0101 Method : EPA 7420 Sample Matrix : Water Units : mg/L QC Sample #: BLK061192	Analyst : F. Shino Digested: Jun 11, 1992 Analyzed: Jun 16, 1992 Reported: Jun 16, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Pb
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Sample Conc.:	0
Spike Conc. Added:	0.50
Conc. Matrix Spike:	0.47
Matrix Spike % Recovery:	94
Conc. Matrix Spike Dup.:	0.47
Matrix Spike Duplicate % Recovery:	94
Relative % Difference:	0

NORTH CREEK ANALYTICAL inc

Tod Becherer
 Scot Cocanour (for)
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Emcon Northwest
 18912 North Creek Parkway, #220
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell Maple Valley, #246-5068-0101
 Method : EPA 1311/6010/7000
 Sample Matrix : TCLP Extract for Metals
 Units : mg/L (ppm)
 QC Sample #: BLK061592

Analyst : D. Vandell
 F. Shino
 TCLP Ext.: Jun 15, 1992
 Analyzed: Jun 17, 1992
 Reported: Jun 18, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Arsenic	N.D.	1.0	0.76	76%	0.74	74%	2.7%
Barium	0.34	1.0	1.1	76%	1.1	76%	0.0%
Cadmium	N.D.	1.0	0.70	70%	0.70	70%	0.0%
Chromium	N.D.	1.0	0.74	74%	0.75	75%	1.3%
Lead	N.D.	1.0	0.67	67%	0.64	64%	4.6%
Mercury	N.D.	0.010	0.074	740%	0.075	750%	1.3%
Selenium	N.D.	1.0	0.85	85%	0.87	87%	2.3%
Silver	N.D.	1.0	1.1	110%	1.1	110%	0.0%

NORTH CREEK ANALYTICAL inc

Tom Becher
 Scot Cocanour (for)
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: _____
Page of _____

Site Address:
21641 Maple Valley Hwy

Analysis Required - LAB: *NORTH CREEK ANALYTICAL*

WIC#: *246 5068 0101*

Shell Engineer: **FRANK FOSSATI**
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: **MIKE NOLL**
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments: *Please verbally report results to Mike Noll by 2pm Monday 6/15/92*

Sampled By: *HW Small*
Printed Name: *HW Small*

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input checked="" type="checkbox"/>	5441	48 hours <input checked="" type="checkbox"/>
Soil for disposal <input type="checkbox"/>	5442	15 days <input type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input checked="" type="checkbox"/> <i>SW/STAIN</i>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

TPH (EPA 8015 Mod. Gas) <input checked="" type="checkbox"/>	TPH (EPA 8015 Mod. Diesel) <input type="checkbox"/>	BTEX (EPA 8020/602) <input type="checkbox"/>	Volatile Organics (EPA 8240) <input type="checkbox"/>	Test for Disposal <input type="checkbox"/>	WTPH - HClD <input type="checkbox"/>
<i>SELF</i>				<i>Total Pb</i>	

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
			GRAN. SAND	2060636
			DISCRETE	2060637
			DISCRETE	2060638
			DISCRETE	2060639
			DISCRETE	2060640
			Run 5 DAY TURN AROUND	

Sample ID	Date	Soil	Water	Air	No. of conts.
NORTH SIDEWALL MIDDLE - 12	6/11/92	✓			2
NORTH SIDEWALL EAST - 12	"	✓			2
SOUTH SIDEWALL MIDDLE - 12	"	✓			2
SOUTH SIDEWALL EAST - 11	"	✓			2
EAST SIDEWALL - 12	"	✓			2
SOUTH SIDEWALL SEPTIC - 5	"	✓			2

Relinquished By (signature): <i>HW Small</i>	Printed name: <i>HW Small</i>	Date: <i>6/11/92</i>	Received (signature): <i>Bob Neely</i>	Printed name: <i>BOB NEELY</i>	Date: <i>06-11-92</i>
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

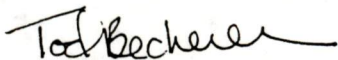
EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, WIC 246-5088-0101 Matrix: Soil Analysis for: Total Solids First Sample #: 206-0797	Received: Jun 15, 1992 Reported: Jun 17, 1992
--	---	--

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Total Solids %
206-0797	Stkpile 1	91
206-0798	Stkpile 2	90
206-0799	Stkpile 3	91

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, WIC 246-5088-0101 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0797	Sampled: Jun 15, 1992 Received: Jun 15, 1992 Analyzed: Jun 16, 1992 Reported: Jun 17, 1992
--	---	---

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0797	Stkpile 1	3.8 G-2	N.D.	N.D.	N.D.	N.D.	105
206-0798	Stkpile 2	3.4 G-2	N.D.	N.D.	N.D.	N.D.	104
206-0799	Stkpile 3	3.5 G-2	N.D.	N.D.	N.D.	N.D.	110
BLK061692	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	99

Detection Limits:	1.0	0.050	0.10	0.10	0.10
--------------------------	------------	--------------	-------------	-------------	-------------

Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell, WIC 246-5088-0101
Method : EPA 5030/8020
Sample Matrix : Soil
Units : mg/kg
QC Sample #: 206-0209

Analyst : M. Essig
K. Wilke
Analyzed: Jun 16, 1992
Reported: Jun 17, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.35	0.40	0.47	1.33
Matrix Spike % Recovery:	70	80	94	89
Conc. Matrix Spike Dup.:	0.37	0.43	0.51	1.45
Matrix Spike Duplicate % Recovery:	74	86	102	97
Relative % Difference:	5.6	7.2	8.2	8.6

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 6-15-92

Page 1 of 1

Site Address: 21641 Maple Valley Highway
Maple Valley, WA

Analysis Required - LAB: North Creek Analytical

PPH

WIC#: 246-5088-061

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments: Include name on report: Mike Noll
Include project # on report: W56-M.05

Sampled By: Tom Boole *Tom Boole*
Printed Name: Tom Boole

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input checked="" type="checkbox"/>
Soil for disposal <input checked="" type="checkbox"/>	5442	15 days <input type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample - Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas) <input checked="" type="checkbox"/>	TPH (EPA 8015 Mod. Diesel) <input type="checkbox"/>	BTEX (EPA 8020/602) <input type="checkbox"/>	Volatile Organics (EPA 8240) <input type="checkbox"/>	Test for Disposal <input type="checkbox"/>	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
stKpile 1	6-15-92	✓			1	✓	✓				2oz		N	soil	2060797
stKpile 2	6-15-92	✓			1	✓	✓				2oz		N	soil	798
stKpile 3	6-15-92	✓			1	✓	✓				2oz		N	soil	799

Relinquished By (signature): <i>Tom Boole</i>	Printed name: Tom Boole	Date: 6-15-92 Time: 17:00	Received (signature): <i>Dana Heinz</i>	Printed name: DANA HEINZ	Date: 6-15-92 Time: 5:00
Relinquished By (signature):	Printed name:	Date: Time:	Received (signature):	Printed name:	Date: Time:
Relinquished By (signature):	Printed name:	Date: Time:	Received (signature):	Printed name:	Date: Time:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

Emcon Northwest 18912 North Creek Parkway, #220 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell Maple Valley Matrix Descript: Product Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0224	Sampled: Jun 4, 1992 Relogged: Jun 12, 1992 Analyzed: Jun 18, 1992 Reported: Jun 29, 1992
---	--	--

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons $\mu\text{g}/\text{kg}$ (ppb)	Benzene $\mu\text{g}/\text{kg}$ (ppb)	Toluene $\mu\text{g}/\text{kg}$ (ppb)	Ethyl Benzene $\mu\text{g}/\text{kg}$ (ppb)	Xylenes $\mu\text{g}/\text{kg}$ (ppb)	Surrogate Recovery %
206-0224	Product 1-13'	24,000,000	37,000	840,000	410,000	2,900,00	115
BLK061892	DI Water Blank	N.D.	N.D.	N.D.	N.D.	N.D.	91
BLK061892	Methanol Blank	N.D.	N.D.	N.D.	N.D.	N.D.	96

Detection Limits:

50

0.50

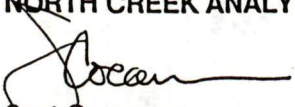
0.50

0.50

0.50

Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

Emcon Northwest
 18912 North Creek Parkway, #220
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell Maple Valley
 Method : EPA 5030/8020
 Sample Matrix : Water
 Units : $\mu\text{g/L}$
 QC Sample #: 206-0571

Analyst : M. Essig
 K. Wilke
 Analyzed: Jun 18, 1992
 Reported: Jun 29, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl benzene Xylenes			
	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	48	N.D.	150	29
Spike Conc. Added:	25	25	25	75
Conc. Matrix Spike:	77	23	200	108
Matrix Spike % Recovery:	116	92	200	105
Conc. Matrix Spike Dup.:	78	24	203	110
Matrix Spike Duplicate % Recovery:	120	96	212	108
Relative % Difference:	1.3	4.2	1.5	1.8

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Post-it brand fax transmittal memo 70/1 for pages 1

To: Todd Becker From: Mike Noll

Co: EMCON NW Co: EMCON NW

Dept: Phone # 485-5000

Fax # 485-2992 Fax # 486-9766

CHAIN OF CUSTODY RECORD

Date 6/5/92 Page 1 of 1

Serial No. _____

SHELL OIL COMPANY

RETAIL ENVIRONMENTAL ENGINEERING - WEST

Site Address: 2141 Maple Valley Highway
Maple Valley, WA 98036

WIC#: 246-508-0101

Shell Engineer: FRANK POSSART
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address: SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
Phone No. (206) 485-5000
Fax #: (206) 485-5000
Roy. No. 056-19.05

Comments:

Sampled By: Michael D. Hill

Printed Name: Michael D Hill

TPH (EPA 8015 Mod. Gas)

TPH (EPA 8015 Mod. Diesel)

BTEX (EPA 8020/602)

Volatile Organics (EPA 8240)

Test for Disposal

UTPA-HCIB

Total Lead 2420 ± 7421

Container Size

Preparation Used

Composite Y/N

MATERIAL DESCRIPTION

SAMPLE CONDITION COMMENTS

2060218 Soil

Quarterly Monitoring 5161 24 hours

Site Investigation 5441 48 hours

Soil for disposal 5412 15 days (Room)

Water for disposal 5443 Other

Air Sample - Syn O&N 5452

Water Sample - Syn O&N 5453

NOTE: Notify Lab as soon as possible of 24/48 hr. TAT.

Other

Sample ID	Date	Soil	Water	Air	No. of Reps	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	UTPA-HCIB	Total Lead	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION COMMENTS
WESTVAL-9'	6-4-92	X			1	X	X	X	X				42			Soil	
HOTWELL-5'	6-4-92	X			1	X	X	X	X								
Northwell-9'	6-4-92	X			1	X	X	X	X								
Tank 3 - WBM-11'	6-4-92	X			1	X	X	X	X								
Northwell-5-11'	6-4-92	X			1	X	X	X	X								
Tank 2 - WBM-11'	6-4-92	X			1	X	X	X	X								
Product 1-13'	6-4-92		X		1	X	X	X	X								
Requested 6-12-92																	

RELOG

Requested By (signature): Michael D Hill Date: 6-5-92

Requested By (signature): J. BERTRAND Date: 6-5-92

Requested By (signature): DANA HEWA Date: 6/5/92

Requested By (signature): J. BERTRAND Date: 6/5/92

Time of no. _____

Date: 6-5-92

Time: 7:30

Date: 6/5/92

Time: 7:30

Date: _____

15 day TAT
6-12-92
signature

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Matrix: Soil Analysis for: Total Solids First Sample #: 206-0848	Received: Jun 17, 1992 Reported: Jun 29, 1992
--	---	--

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-0848	West Pump N-1'	89

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL Inc



for Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-0848	Sampled: Jun 16, 1992 Received: Jun 17, 1992 Analyzed: Jun 25, 1992 Reported: Jun 29, 1992
--	---	---

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-0848	West Pump N-1'	6,400 G-2	N.D.	9.6	5.1	350	127
BLK062592	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	96

Detection Limits:
1.0
0.050
0.10
0.10
0.10

Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Please Note:

The detection limit for Benzene in #206-0848 = 1.0 mg/kg.


 Scot Cocanour
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley #W56-19.05 Method : EPA 5030/8020 Sample Matrix : Soil Units : mg/kg (ppm) QC Sample #: 206-0850	Analyst : R. Lister K. Wilke Analyzed: Jun 25, 1992 Reported: Jun 29, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.39	0.44	0.53	1.51
Matrix Spike % Recovery:	78	88	106	101
Conc. Matrix Spike Dup.:	0.39	0.45	0.54	1.53
Matrix Spike Duplicate % Recovery:	78	90	108	102
Relative % Difference:	0	2.2	1.9	1.3

NORTH CREEK ANALYTICAL inc

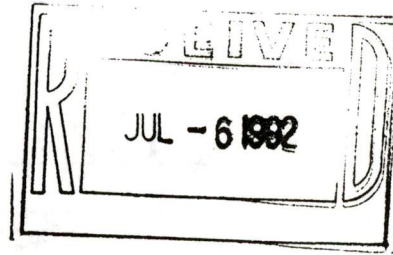

 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley W56-19.05 Matrix: Soil Analysis for: Total Solids First Sample #: 206-1001	Received: Jun 18, 1992 Reported: Jul 1, 1992
--	--	---

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-1001	PMPCAS-10'	92
206-1002	SWPCAS-8'	92
206-1003	NWPIPE-3'	92
206-1004	NEPIPE-3'	79
206-1005	SEPIPE-3'	87
206-1006	SWPIPE-4'	89
206-1007	SEPCAS-7.5	92
206-1008	NEPCAS-7.5	92



North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley W56-19.05 Matrix Descript: Soil Analysis Method: EPA 5030/8015/8020 First Sample #: 206-1001	Sampled: Jun 17-18, 1992 Received: Jun 18, 1992 Analyzed: Jun 25, 1992 Reported: Jul 1, 1992
--	--	---

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
206-1001	PMPCAS-10'	N.D.	N.D.	N.D.	N.D.	N.D.	95
206-1002	SWPCAS-8'	N.D.	N.D.	N.D.	N.D.	N.D.	101
206-1003	NWPIPE-3'	N.D.	N.D.	N.D.	N.D.	N.D.	104
206-1004	NEPIPE-3'	N.D.	N.D.	N.D.	N.D.	N.D.	100
206-1005	SEPIPE-3'	N.D.	N.D.	N.D.	N.D.	N.D.	100
206-1006	SWPIPE-4'	N.D.	N.D.	N.D.	N.D.	N.D.	109
206-1007	SEPCAS-7.5	N.D.	N.D.	N.D.	N.D.	N.D.	102
206-1008	NEPCAS-7.5	N.D.	N.D.	N.D.	N.D.	N.D.	102
BLK062592	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	94

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Tod Beckner
 Scot Cocanour (for)
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley W56-19.05 Method : EPA 5030/8020 Sample Matrix : Soil Units : mg/kg (ppm) QC Sample #: 206-0850	Analyst : M. Essig K. Wilke Analyzed: Jun 25, 1992 Reported: Jul 1, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.39	0.44	0.53	1.51
Matrix Spike % Recovery:	78	88	106	101
Conc. Matrix Spike Dup.:	0.39	0.45	0.54	1.53
Matrix Spike Duplicate % Recovery:	78	90	108	102
Relative % Difference:	0	2.2	1.9	1.3

NORTH CREEK ANALYTICAL inc

Ted Bechey
 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 6-18-92

Page 1 of 1

Site Address: 216 41 MAPLE VALLEY HWY
 MAPLE VALLEY, WA

Analysis Required - LAB: North Creek Analytical

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
 Phone No. (714) 520-3362
 Fax #: (714) 520-3313

Consultant Name & Address:
 SWEET-EDWARDS/EMCON, INC.
 18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL WS6-19.05
 Phone No. (206) 485-5000
 Fax #: (206) 496-9766

Comments: PUT # ON LAB REPORT

Sampled By: [Signature]
 Printed Name: J. BERTRAND

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input checked="" type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	

Sample ID	Date	Soil	Water	Air	No. of conds.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
PMP CAS-10'	6-17-92	X			1	X	X				452	NO	NO	SOIL 1045	2061001
SWPCAS-8'	6-17-92	X			1	X	X							1241	2061002
NW PIPE-3'	6-17-92	X			1	X	X							1320	2061003
NE PIPE-3'	6-17-92	X			1	X	X							1438	2061004
SE PIPE-3'	6-17-92	X			1	X	X							1523	2061005
SW PIPE-4'	6-18-92	X			1	X	X							0929	2061006
SEPCAS-7.5	6-18-92	X			1	X	X							1132	2061007
NEPCAS-7.5	6-18-92	X			1	X	X							1325	2061008

Relinquished By (signature): [Signature]	Printed name: J. BERTRAND	Date: 6-18-92	Received (signature): [Signature]	Printed name: DANA HEINZ	Date: 6/18/92
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

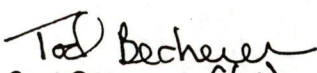
THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley # W56-19.05 Matrix: Soil Analysis for: Total Solids First Sample #: 207-0117	Received: Jul 2, 1992 Reported: Jul 6, 1992
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LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
207-0117	Read Screen - 1	92
207-0118	Read Screen - 2	93
207-0119	Read Screen - 3	94

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL inc

 Scot Cocanour (Se)
 Laboratory Director

EMCON Northwest	Client Project ID: Shell, Maple Valley # W56-19.05	Sampled: Jul 2, 1992
18912 N. Creek Parkway, #210	Matrix Descript: Soil	Received: Jul 2, 1992
Bothell, WA 98011	Analysis Method: EPA 5030/8015/8020	Analyzed: Jul 2, 1992
Attention: Mike Noll	First Sample #: 207-0117	Reported: Jul 6, 1992

TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
207-0117	Read Screen - 1	N.D.	N.D.	N.D.	N.D.	N.D.	92
207-0118	Read Screen - 2	N.D.	N.D.	N.D.	N.D.	N.D.	96
207-0119	Read Screen - 3	2.2 G-1	N.D.	N.D.	N.D.	N.D.	99
BLK070292	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	93

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Volatile Hydrocarbons are quantitated as gasoline range organics (nC5 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL Inc

Tod Becherer
(for)
Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, Maple Valley # W56-19.05 EPA Method: 5030/8020 Sample Matrix : Soil Units: mg/kg (ppm) QC Sample #: 207-0117	Analyst: R. Lister K. Wilke Analyzed: Jul 2, 1992 Reported: Jul 6, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	1.50
Conc. Matrix Spike:	0.36	0.43	0.50	1.41
Matrix Spike % Recovery:	72	86	100	94
Conc. Matrix Spike Dup.:	0.37	0.43	0.51	1.42
Matrix Spike Duplicate % Recovery:	74	86	102	95
Upper Control Limit %:	93	96	117	109
Lower Control Limit %:	57	58	69	63
Relative % Difference:	2.7	0	2.0	0.71
Maximum RPD:	8.6	9.6	8.8	9.5

NORTH CREEK ANALYTICAL inc

Tom Becher
 Scot Cocanour (for)
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 7-2-92

Page 1 of 1

Site Address: 21641 Maple Valley Highway
Maple Valley, WA 98036

Analysis Required - LAB: North Creek

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL WS6-19.05
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments:

Sampled By:

Printed Name:

CHECK ONE (1) BOX ONLY CT/DT TURN AROUND TIME

- Quarterly Monitoring 5461 24 hours
 - Site Investigation 5441 48 hours
 - Soil for disposal 5442 15 days (Normal)
 - Water for disposal 5443 Other
 - Air Sample- Sys O&M 5452
 - Water Sample - Sys O&M 5453
 - Other
- NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.

Sample ID	Date	Soil	Water	Air	No. of conls.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal
READ SCREEN 1 -1	0930 7-2-92	X			1	X		X		
READ SCREEN 2	1000 7-2-92	X			1	X		X		
READ SCREEN -3	1100 7-2-92	X			1	X		X		

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
8oz	100	100		2070117
8oz	100	100		118
8oz	100	100		119

Relinquished By (signature): <i>Michael D. Noll</i>	Printed name: Michael D. Noll	Date: 7-2-92 Time: 12:50	Received (signature): <i>Mark Daniels</i>	Printed name: MARK DANIELS	Date: 7/2/92 Time: 12:50
Relinquished By (signature): <i>Mark Daniels</i>	Printed name: MARK DANIELS	Date: 7/2/92 Time: 1:00	Received (signature): <i>Tim Collier</i>	Printed name: T. Collier	Date: 7/2/92 Time: 1:10
Relinquished By (signature):	Printed name:	Date: Time:	Received (signature):	Printed name:	Date: Time:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

Last Revision Date: 9/25/91

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	
18912 N. Creek Parkway, #210	Matrix: Soil	
Bothell, WA 98011	Analysis for: Total Solids	Received: Jun 22, 1992
Attention: Mike Noll	First Sample #: 206-1238	Reported: Jul 8, 1992

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
206-1238	WO-WNS-6'	95
206-1239	WO-WEW-6'	94
206-1240	WO-B-10'	95

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Matrix Descript: Soil Analysis Method: EPA 418.1 Modified (I.R. w/clean-up) First Sample #: 206-1238	Sampled: Jun 22, 1992 Received: Jun 22, 1992 Extracted: Jun 24, 1992 Analyzed: Jun 25, 1992 Reported: Jul 8, 1992
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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (WTPH-418.1)

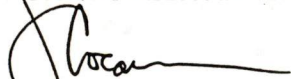
Sample Number	Sample Description	Petroleum Oil mg/kg (ppm)
206-1238	WO-WNS-6'	83
206-1239	WO-WEW-6'	40
BLK062492	Method Blank	N.D.

Detection Limits:

10

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101, # W56-19.05
 EPA Method: 5030/8020
 Sample Matrix: Water
 Units: µg/L (ppb)
 QC Sample #: 208-0259

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 17, 1992
 Reported: Aug 18, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	0.030	N.D.	0.021
Spike Conc. Added:	0.50	0.50	0.50	0.50
Conc. Matrix Spike:	0.45	0.44	0.44	0.46
Matrix Spike % Recovery:	90	88	88	92
Conc. Matrix Spike Dup.:	0.46	0.45	0.45	0.48
Matrix Spike Duplicate % Recovery:	92	90	90	96
Upper Control Limit %:	112	105	109	108
Lower Control Limit %:	85	74	87	79
Relative % Difference:	2.2	2.2	2.2	4.3
Maximum RPD:	9.9	17	13	17

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101, # W56-19.05
 EPA Method: WTPH-G
 Sample Matrix: Water
 Units: $\mu\text{g/L}$ (ppb)

Analyst: R. Lister
 K. Wilke

Analyzed: Aug 17, 1992
 Reported: Aug 18, 1992

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT Laboratory Control Sample

Gasoline

Spike Conc. Added: 100

Spike Result: 107

% Recovery: 107

Upper Control Limit %: 120

Lower Control Limit %: 80

PRECISION ASSESSMENT Sample Duplicate

Volatile Hydrocarbons

Sample Number: 208-0651

Original Result: 150

Duplicate Result: 220

Relative % Difference: 38

Maximum RPD: 20, Q-2

Q-2 = Maximum Relative Percent Difference is advisory only, no WTPH limits are established.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$
Relative % Difference:	$\frac{\text{Original Result} - \text{Duplicate Result}}{(\text{Original Result} + \text{Duplicate Result}) / 2} \times 100$

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	Sampled: Jun 22, 1992
18912 N. Creek Parkway, #210	Sample Descript: WO-B-10'	Received: Jun 22, 1992
Bothell, WA 98011	Analysis Method: EPA 1311/6010/7000	TCLP Ext: Jun 25, 1992
Attention: Mike Noll	Sample Number: 206-1240	Analyzed: Jul 2-6, 1992
		Reported: Jul 8, 1992

TCLP Extraction Metals

Analyte	Regulatory Level mg/L (ppm)	Detection Limit mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic.....	5.0	0.2	N.D.
Barium.....	100.0	0.05	0.95
Cadmium.....	1.0	0.01	N.D.
Chromium.....	5.0	0.025	N.D.
Lead.....	5.0	0.10	N.D.
Mercury.....	0.2	0.0010	N.D.
Selenium.....	1.0	0.15	N.D.
Silver.....	5.0	0.020	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	
18912 N. Creek Parkway, #210	Sample Descript: Method Blank	
Bothell, WA 98011	Analysis Method: EPA 1311/6010/7000	TCLP Ext: Jun 25, 1992
Attention: Mike Noll	Sample Number: BLK062592	Analyzed: Jul 2-6, 1992
		Reported: Jul 8, 1992

TCLP Extraction Metals

Analyte	Regulatory Level mg/L (ppm)	Detection Limit mg/L (ppm)	Sample Results mg/L (ppm)
Arsenic.....	5.0	0.2	N.D.
Barium.....	100.0	0.05	0.20
Cadmium.....	1.0	0.01	N.D.
Chromium.....	5.0	0.025	N.D.
Lead.....	5.0	0.10	N.D.
Mercury.....	0.2	0.0010	N.D.
Selenium.....	1.0	0.15	N.D.
Silver.....	5.0	0.020	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
 Sample Descript: Method Blank
 Analysis Method: EPA 8270
 Sample Number: BLK062492

Extracted: Jun 24, 1992
 Analyzed: Jun 29, 1992
 Reported: Jul 8, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
2,4-Dinitrotoluene.....	0.10	N.D.
2,6-Dinitrotoluene.....	0.10	N.D.
Di-N-octyl phthalate.....	0.10	N.D.
Fluoranthene.....	0.10	N.D.
Fluorene.....	0.10	N.D.
Hexachlorobenzene.....	0.10	N.D.
Hexachlorobutadiene.....	0.10	N.D.
Hexachlorocyclopentadiene.....	0.10	N.D.
Hexachloroethane.....	0.10	N.D.
Indeno(1,2,3-cd)pyrene.....	0.10	N.D.
Isophorone.....	0.10	1.8
2-Methylnaphthalene.....	0.10	N.D.
2-Methylphenol.....	0.10	N.D.
4-Methylphenol.....	0.10	N.D.
Naphthalene.....	0.10	N.D.
2-Nitroaniline.....	0.50	N.D.
3-Nitroaniline.....	0.50	N.D.
4-Nitroaniline.....	0.50	N.D.
Nitrobenzene.....	0.10	N.D.
2-Nitrophenol.....	0.10	N.D.
4-Nitrophenol.....	0.50	N.D.
N-Nitrosodiphenylamine.....	0.10	N.D.
N-Nitroso-di-N-propylamine.....	0.10	N.D.
Pentachlorophenol.....	0.50	N.D.
Phenanthrene.....	0.10	N.D.
Phenol.....	0.10	N.D.
Pyrene.....	0.10	N.D.
1,2,4-Trichlorobenzene.....	0.10	N.D.
2,4,5-Trichlorophenol.....	0.50	N.D.
2,4,6-Trichlorophenol.....	0.10	N.D.

Surrogate Standards Percent Recovery:

2-Fluorophenol	78	Nitrobenzene-d5	89
Phenol-d6	95	2-Fluorobiphenyl	86
2,4,6-Tribromophenol	95	Terphenyl-d14	120

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Method : EPA 8240 Sample Matrix : Soil Units : mg/kg QC Sample #: 206-1232	Analyst : J. Kimball Analyzed: Jun 24, 1992 Reported: Jul 8, 1992
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QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloroethene	N.D.	2.0	1.4	70%	1.3	65%	7.4%
Benzene	N.D.	2.0	1.7	85%	1.7	85%	0.0%
Trichloroethene	N.D.	2.0	1.6	80%	1.6	80%	0.0%
Toluene	N.D.	2.0	1.7	85%	1.7	85%	0.0%
Chlorobenzene	N.D.	2.0	1.7	85%	1.7	85%	0.0%

NORTH CREEK ANALYTICAL Inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Sample Descript: Soil, WO-B-10' Analysis Method: EPA 8270 Sample Number: 206-1240	Sampled: Jun 22, 1992 Received: Jun 22, 1992 Extracted: Jun 24, 1992 Analyzed: Jun 29, 1992 Reported: Jul 8, 1992
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SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
2,4-Dinitrotoluene.....	0.10	N.D.
2,6-Dinitrotoluene.....	0.10	N.D.
Di-N-octyl phthalate.....	0.10	N.D.
Fluoranthene.....	0.10	N.D.
Fluorene.....	0.10	N.D.
Hexachlorobenzene.....	0.10	N.D.
Hexachlorobutadiene.....	0.10	N.D.
Hexachlorocyclopentadiene.....	0.10	N.D.
Hexachloroethane.....	0.10	N.D.
Indeno(1,2,3-cd)pyrene.....	0.10	N.D.
Isophorone.....	0.10	2.2
2-Methylnaphthalene.....	0.10	N.D.
2-Methylphenol.....	0.10	N.D.
4-Methylphenol.....	0.10	N.D.
Naphthalene.....	0.10	N.D.
2-Nitroaniline.....	0.50	N.D.
3-Nitroaniline.....	0.50	N.D.
4-Nitroaniline.....	0.50	N.D.
Nitrobenzene.....	0.10	N.D.
2-Nitrophenol.....	0.10	N.D.
4-Nitrophenol.....	0.50	N.D.
N-Nitrosodiphenylamine.....	0.10	N.D.
N-Nitroso-di-N-propylamine.....	0.10	N.D.
Pentachlorophenol.....	0.50	N.D.
Phenanthrene.....	0.10	N.D.
Phenol.....	0.10	N.D.
Pyrene.....	0.10	N.D.
1,2,4-Trichlorobenzene.....	0.10	N.D.
2,4,5-Trichlorophenol.....	0.50	N.D.
2,4,6-Trichlorophenol.....	0.10	N.D.

Surrogate Standards Percent Recovery:

2-Fluorophenol	77	Nitrobenzene-d5	88
Phenol-d6	94	2-Fluorobiphenyl	86
2,4,6-Tribromophenol	98	Terphenyl-d14	130

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
Sample Descript: Method Blank
Analysis Method: EPA 8270
Sample Number: BLK062492

Extracted: Jun 24, 1992
Analyzed: Jun 29, 1992
Reported: Jul 8, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Acenaphthene.....	0.10	N.D.
Acenaphthylene.....	0.10	N.D.
Aniline.....	0.10	N.D.
Anthracene.....	0.10	N.D.
Benzidine.....	0.25	N.D.
Benzoic Acid.....	0.50	N.D.
Benzo(a)anthracene.....	0.10	N.D.
Benzo(b)fluoranthene.....	0.10	N.D.
Benzo(k)fluoranthene.....	0.10	N.D.
Benzo(g,h,i)perylene.....	0.10	N.D.
Benzo(a)pyrene.....	0.10	N.D.
Benzyl alcohol.....	0.10	N.D.
Bis(2-chloroethoxy)methane.....	0.10	N.D.
Bis(2-chloroethyl)ether.....	0.10	N.D.
Bis(2-chloroisopropyl)ether.....	0.10	N.D.
Bis(2-ethylhexyl)phthalate.....	0.50	N.D.
4-Bromophenyl phenyl ether.....	0.10	N.D.
Butyl benzyl phthalate.....	0.10	N.D.
4-Chloroaniline.....	0.10	N.D.
2-Chloronaphthalene.....	0.10	N.D.
4-Chloro-3-methylphenol.....	0.10	N.D.
2-Chlorophenol.....	0.10	N.D.
4-Chlorophenyl phenyl ether.....	0.10	N.D.
Chrysene.....	0.10	N.D.
Dibenz(a,h)anthracene.....	0.10	N.D.
Dibenzofuran.....	0.10	N.D.
Di-N-butyl phthalate.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.10	N.D.
1,4-Dichlorobenzene.....	0.10	N.D.
1,2-Dichlorobenzene.....	0.10	N.D.
3,3-Dichlorobenzidine.....	0.50	N.D.
2,4-Dichlorophenol.....	0.10	N.D.
Diethyl phthalate.....	0.10	N.D.
2,4-Dimethylphenol.....	0.10	N.D.
Dimethyl phthalate.....	0.10	N.D.
4,6-Dinitro-2-methylphenol.....	0.50	N.D.
2,4-Dinitrophenol.....	0.50	N.D.

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
 EPA Method: 5030/8020
 Sample Matrix: Water
 Units: µg/L (ppb)
 QC Sample #: 208-0817

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 21, 1992
 Reported: Aug 27, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0	15.0
Conc. Matrix Spike:	4.8	4.6	4.6	13.8
Matrix Spike % Recovery:	96	92	92	92
Conc. Matrix Spike Dup.:	4.8	4.6	4.6	14.2
Matrix Spike Duplicate % Recovery:	96	92	92	95
Upper Control Limit %:	112	105	109	108
Lower Control Limit %:	85	74	87	79
Relative % Difference:	0	0	0	2.9
Maximum RPD:	9.9	17	13	17

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
 EPA Method: WTPH-G
 Sample Matrix: Water
 Units: $\mu\text{g/L}$ (ppb)

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 21, 1992
 Reported: Aug 27, 1992

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT Laboratory Control Sample

Gasoline

Spike Conc. Added: 100

Spike Result: 86

% Recovery: 86

Upper Control Limit %: 120

Lower Control Limit %: 80

PRECISION ASSESSMENT Sample Duplicate

Volatile Hydrocarbons

Sample Number: 208-0724

Original Result: N.D.

Duplicate Result: N.D.

Relative % Difference: Q-1

Maximum RPD: 20

Q-1 = Relative Percent Difference values are not reported at sample concentration levels less than ten (10) times the Detection Limit.

NORTH CREEK ANALYTICAL inc

Ted Becherer
 Scot Cocanour
 Laboratory Director

$$\% \text{ Recovery} = \frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$$

$$\text{Relative \% Difference} = \frac{\text{Original Result} - \text{Duplicate Result}}{(\text{Original Result} + \text{Duplicate Result}) / 2} \times 100$$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Matrix Descript: Water Analysis Method: WTPH-418.1 First Sample #: 208-0726	Sampled: Aug 17, 1992 Received: Aug 17, 1992 Extracted: Aug 18, 1992 Analyzed: Aug 18, 1992 Reported: Aug 27, 1992
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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (WTPH-418.1)

Sample Number	Sample Description	Petroleum Oil mg/L (ppm)
208-0726	MW-13	N.D.
BLK081892	Method Blank	N.D.

Detection Limits:	1.0
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Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 EPA Method: WTPH-418.1 Sample Matrix: Water Units: mg/L (ppm)	Analyst: S. Kimball Extracted: Aug 18, 1992 Analyzed: Aug 18, 1992 Reported: Aug 27, 1992
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HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT Laboratory Control Sample

Petroleum Oil

PRECISION ASSESSMENT Sample Duplicate

Petroleum Oil

Spike Conc.
Added: 15

Spike
Result: 14.9

%
Recovery: 99

Upper Control
Limit %: 120

Lower Control
Limit %: 80

Sample
Number: 208-0601

Original
Result: 1.0

Duplicate
Result: 1.0

Relative
% Difference: 0

Maximum
RPD: 20

NORTH CREEK ANALYTICAL inc

Ted Becherer
(for)
Scot Cocanour
Laboratory Director

% Recovery:	$\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$
Relative % Difference:	$\frac{\text{Original Result} - \text{Duplicate Result}}{(\text{Original Result} + \text{Duplicate Result}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 8-14 -

Page 1 of 1

Site Address: 21641 Maple Valley Hwy.
 Maple Valley, WA

Analysis Required - LAB: N. Creek Analytical

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
 Phone No. (714) 520-3362
 Fax #: (714) 520-3313

Consultant Name & Address:
 SWEET-EDWARDS/EMCON, INC.
 18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
 Phone No. (206) 485-5000
 Fax #: (206) 496-9766

Comments: ref rpt. "Attn Mike Noll / Pat Brooks
 project managers w 56-91.05"

Sampled By: Tom Bode
 Printed Name: Tom Bode

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input type="checkbox"/>	5461	24 hours <input checked="" type="checkbox"/> <u>TEB too</u>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/> <u>Mike Noll</u>
Soil for disposal <input type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input checked="" type="checkbox"/>		

TPH (EPA 8015 Mod. Gas)
 TPH (EPA 8015 Mod. Diesel)
 BTEX (EPA 8020/602)
 Volatile Organics (EPA 8240)
 Test for Disposal

Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
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Sample ID	Date	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-12	8-14-92		✓		2	✓		✓							2080651
MW-13	8-14-92		✓		3	✓		✓							2080652

Relinquished By (signature): <u>Tom Bode</u>	Printed name: Tom Bode	Date: 8-14-92	Received (signature): <u>[Signature]</u>	Printed name: <u>BETH NEELY</u>	Date: 8-14-92
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Matrix Descript: Water Analysis Method: WTPH-G,EPA 5030/8020 First Sample #: 208-0724	Sampled: Aug 17, 1992 Received: Aug 17, 1992 Analyzed: Aug 21, 1992 Reported: Aug 27, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons $\mu\text{g/L}$ (ppb)	Benzene $\mu\text{g/L}$ (ppb)	Toluene $\mu\text{g/L}$ (ppb)	Ethyl Benzene $\mu\text{g/L}$ (ppb)	Xylenes $\mu\text{g/L}$ (ppb)	Surrogate Recovery %
208-0724	MW-11	N.D.	N.D.	N.D.	N.D.	N.D.	99
208-0725	MW-12	N.D.	N.D.	N.D.	N.D.	N.D.	102
208-0726	MW-13	N.D.	N.D.	N.D.	N.D.	N.D.	107
208-0727	MW-14	N.D.	N.D.	N.D.	N.D.	N.D.	107
208-0728	Field Blank	N.D.	N.D.	N.D.	N.D.	N.D.	99
BLK082192	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	100

ORIGINAL IS
IN THE FILE

Detection Limits:	50	0.50	0.50	0.50	1.0
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Volatile Hydrocarbons are quantitated as Gasoline Range Organics (nC7 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
 Scot Cocanour
 Laboratory Director

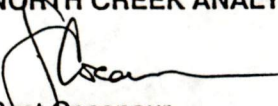
EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05		
18912 N. Creek Parkway, #210	Sample Descript: Method Blank		
Bothell, WA 98011	Analysis Method: EPA 8080	Extracted: Jul 1, 1992	
Attention: Mike Noll	Sample Number: BLK070192	Analyzed: Jul 6, 1992	
		Reported: Jul 8, 1992	

POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
PCB 1016.....	0.050	N.D.
PCB 1221.....	0.050	N.D.
PCB 1232.....	0.050	N.D.
PCB 1242.....	0.050	N.D.
PCB 1248.....	0.050	N.D.
PCB 1254.....	0.050	N.D.
PCB 1260.....	0.050	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 71
 Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	Sampled: Jun 22, 1992
18912 N. Creek Parkway, #210	Sample Descript: Soil, WO-B-10'	Received: Jun 22, 1992
Bothell, WA 98011	Analysis Method: EPA 8270	Extracted: Jun 24, 1992
Attention: Mike Noll	Sample Number: 206-1240	Analyzed: Jun 29, 1992
		Reported: Jul 8, 1992

SEMI-VOLATILE ORGANICS by GC/MS (EPA 8270)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Acenaphthene.....	0.10	N.D.
Acenaphthylene.....	0.10	N.D.
Aniline.....	0.10	N.D.
Anthracene.....	0.10	N.D.
Benzidine.....	0.25	N.D.
Benzoic Acid.....	0.50	N.D.
Benzo(a)anthracene.....	0.10	N.D.
Benzo(b)fluoranthene.....	0.10	N.D.
Benzo(k)fluoranthene.....	0.10	N.D.
Benzo(g,h,i)perylene.....	0.10	N.D.
Benzo(a)pyrene.....	0.10	N.D.
Benzyl alcohol.....	0.10	N.D.
Bis(2-chloroethoxy)methane.....	0.10	N.D.
Bis(2-chloroethyl)ether.....	0.10	N.D.
Bis(2-chloroisopropyl)ether.....	0.10	N.D.
Bis(2-ethylhexyl)phthalate.....	0.50	N.D.
4-Bromophenyl phenyl ether.....	0.10	N.D.
Butyl benzyl phthalate.....	0.10	N.D.
4-Chloroaniline.....	0.10	N.D.
2-Chloronaphthalene.....	0.10	N.D.
4-Chloro-3-methylphenol.....	0.10	N.D.
2-Chlorophenol.....	0.10	N.D.
4-Chlorophenyl phenyl ether.....	0.10	N.D.
Chrysene.....	0.10	N.D.
Dibenz(a,h)anthracene.....	0.10	N.D.
Dibenzofuran.....	0.10	N.D.
Di-N-butyl phthalate.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.10	N.D.
1,4-Dichlorobenzene.....	0.10	N.D.
1,2-Dichlorobenzene.....	0.10	N.D.
3,3-Dichlorobenzidine.....	0.50	N.D.
2,4-Dichlorophenol.....	0.10	N.D.
Diethyl phthalate.....	0.10	N.D.
2,4-Dimethylphenol.....	0.10	N.D.
Dimethyl phthalate.....	0.10	N.D.
4,6-Dinitro-2-methylphenol.....	0.50	N.D.
2,4-Dinitrophenol.....	0.50	N.D.

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	
18912 N. Creek Parkway, #210	Sample Descript: Method Blank	
Bothell, WA 98011	Analysis Method: EPA 8240/8260	Analyzed: Jun 24, 1992
Attention: Mike Noll	Sample Number: BLK062492	Reported: Jul 8, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240/8260)


Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Acetone.....	0.50	N.D.
Benzene.....	0.10	N.D.
Bromodichloromethane.....	0.10	N.D.
Bromoform.....	0.10	N.D.
Bromomethane.....	0.10	N.D.
2-Butanone.....	0.50	N.D.
Carbon disulfide.....	0.10	N.D.
Carbon tetrachloride.....	0.10	N.D.
Chlorobenzene.....	0.10	N.D.
Chloroethane.....	0.10	N.D.
2-Chloroethyl vinyl ether.....	0.50	N.D.
Chloroform.....	0.10	N.D.
Chloromethane.....	0.10	N.D.
Dibromochloromethane.....	0.10	N.D.
1,1-Dichloroethane.....	0.10	N.D.
1,2-Dichloroethane.....	0.10	N.D.
1,1-Dichloroethene.....	0.10	N.D.
cis 1,2-Dichloroethene.....	0.10	N.D.
trans 1,2-Dichloroethene.....	0.10	N.D.
1,2-Dichloropropane.....	0.10	N.D.
cis 1,3-Dichloropropene.....	0.10	N.D.
trans 1,3-Dichloropropene.....	0.10	N.D.
Ethylbenzene.....	0.10	N.D.
2-Hexanone.....	0.50	N.D.
Methylene chloride.....	0.50	N.D.
4-Methyl-2-pentanone.....	0.50	N.D.
Styrene.....	0.10	N.D.
1,1,2,2-Tetrachloroethane.....	0.10	N.D.
Tetrachloroethene.....	0.10	N.D.
Toluene.....	0.10	N.D.
1,1,1-Trichloroethane.....	0.10	N.D.
1,1,2-Trichloroethane.....	0.10	N.D.
Trichloroethene.....	0.10	N.D.
Trichlorofluoromethane.....	0.10	N.D.
Vinyl chloride.....	0.10	N.D.
Total Xylenes	0.10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Surrogate Standards Percent Recovery:

1,2-Dichloroethane-d4	106
Toluene-d8	98
4-Bromofluorobenzene	97


 Scot Cocanour
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Sample Descript: Soil, WO-B-10' Analysis Method: EPA 8080 Sample Number: 206-1240	Sampled: Jun 22, 1992 Received: Jun 22, 1992 Extracted: Jul 1, 1992 Analyzed: Jul 2, 1992 Reported: Jul 8, 1992
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POLYCHLORINATED BIPHENYLS (EPA 8080)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
PCB 1016.....	0.050	N.D.
PCB 1221.....	0.050	N.D.
PCB 1232.....	0.050	N.D.
PCB 1242.....	0.050	N.D.
PCB 1248.....	0.050	N.D.
PCB 1254.....	0.050	N.D.
PCB 1260.....	0.050	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 73
Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

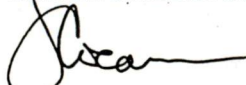
EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Matrix Descript: Soil Analysis Method: Qualitative GC-FID First Sample #: 206-1240	Sampled: Jun 22, 1992 Received: Jun 22, 1992 Extracted: Jun 23, 1992 Analyzed: Jun 23, 1992 Reported: Jul 8, 1992
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HYDROCARBON IDENTIFICATION (WTPH-HCID)

Sample Number	Sample Description	HCID as Gasoline nC7 - nC12 mg/kg (ppm)	GRO Surrogate Recovery %	HCID as Diesel nC12 - nC24 mg/kg (ppm)	DRO Surrogate Recovery %	HCID Heavy Oil >nC24 mg/kg (ppm)
206-1240	WO-B-10'	<20	81	<50	63	<100
BLK062392	Method Blank	<20	75	<50	74	<100

WTPH-HCID is a qualitative screen to determine the presence and the type of petroleum products that exist at a site. It is intended to be performed on representative soils from a site when the type of petroleum hydrocarbon contamination is unknown. When the analytical results for gasoline range organics, diesel range organics or heavy oils are shown as "Present", thereby exceeding the reporting limits, the specific quantitation method must be employed.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

EMCON Northwest	Client Project ID: Shell #246-5088-0101, W56-19.05	Sampled: Jun 22, 1992
18912 N. Creek Parkway, #210	Sample Descript: Soil, WO-B-10'	Received: Jun 22, 1992
Bothell, WA 98011	Analysis Method: EPA 8240/8260	Analyzed: Jun 24, 1992
Attention: Mike Noll	Sample Number: 206-1240	Reported: Jul 8, 1992

VOLATILE ORGANICS by GC/MS (EPA 8240/8260)

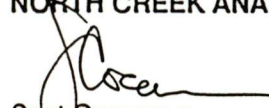
Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Acetone.....	0.50	N.D.
Benzene.....	0.10	N.D.
Bromodichloromethane.....	0.10	N.D.
Bromoform.....	0.10	N.D.
Bromomethane.....	0.10	N.D.
2-Butanone.....	0.50	N.D.
Carbon disulfide.....	0.10	N.D.
Carbon tetrachloride.....	0.10	N.D.
Chlorobenzene.....	0.10	N.D.
Chloroethane.....	0.10	N.D.
2-Chloroethyl vinyl ether.....	0.50	N.D.
Chloroform.....	0.10	N.D.
Chloromethane.....	0.10	N.D.
Dibromochloromethane.....	0.10	N.D.
1,1-Dichloroethane.....	0.10	N.D.
1,2-Dichloroethane.....	0.10	N.D.
1,1-Dichloroethene.....	0.10	N.D.
cis 1,2-Dichloroethene.....	0.10	N.D.
trans 1,2-Dichloroethene.....	0.10	N.D.
1,2-Dichloropropane.....	0.10	N.D.
cis 1,3-Dichloropropene.....	0.10	N.D.
trans 1,3-Dichloropropene.....	0.10	N.D.
Ethylbenzene.....	0.10	N.D.
2-Hexanone.....	0.50	N.D.
Methylene chloride.....	0.50	N.D.
4-Methyl-2-pentanone.....	0.50	N.D.
Styrene.....	0.10	N.D.
1,1,2,2-Tetrachloroethane.....	0.10	N.D.
Tetrachloroethene.....	0.10	N.D.
Toluene.....	0.10	N.D.
1,1,1-Trichloroethane.....	0.10	N.D.
1,1,2-Trichloroethane.....	0.10	N.D.
Trichloroethene.....	0.10	N.D.
Trichlorofluoromethane.....	0.10	N.D.
Vinyl chloride.....	0.10	N.D.
Total Xylenes	0.10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Surrogate Standards Percent Recovery:

1,2-Dichloroethane-d4	106
Toluene-d8	99
4-Bromofluorobenzene	99


 Scot Cocanour
 Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, #246-5088-0101, # W56-19.05 Matrix Descript: Water Analysis Method: WTPH-G, EPA 5030/8020 First Sample #: 208-0651	Sampled: Aug 14, 1992 Received: Aug 14, 1992 Analyzed: Aug 17, 1992 Reported: Aug 18, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)	Surrogate Recovery %
208-0651	MW-12 Purge	220	N.D.	0.74	1.2	17	111
208-0652	MW-13 Purge	N.D.	N.D.	N.D.	N.D.	N.D.	102
BLK081792	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	91

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AUG 21 1992

Detection Limits:

50 0.50 0.50 0.50 1.0

Volatile Hydrocarbons are quantitated as Gasoline Range Organics (nC7 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
Scot Cocanour
Laboratory Director

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101, #W56-19.05
 EPA Method: 5030/8020
 Sample Matrix: Soil
 Units: mg/kg (ppm)
 QC Sample #: 208-0464

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 12, 1992
 Reported: Aug 13, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	0.50
Conc. Matrix Spike:	0.44	0.47	0.52	0.48
Matrix Spike % Recovery:	88	94	104	96
Conc. Matrix Spike Dup.:	0.43	0.46	0.51	0.48
Matrix Spike Duplicate % Recovery:	86	92	102	96
Upper Control Limit %:	93	96	117	109
Lower Control Limit %:	57	58	69	63
Relative % Difference:	2.3	2.2	1.9	0
Maximum RPD:	8.6	9.6	8.8	9.5

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101, #W56-19.05
 EPA Method: WTPH-G
 Sample Matrix: Soil
 Units: mg/kg (ppm)

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 12, 1992
 Reported: Aug 13, 1992

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT Laboratory Control Sample

Gasoline

Spike Conc. Added: 20

Spike Result: 22

% Recovery: 110

Upper Control Limit %: 120

Lower Control Limit %: 80

PRECISION ASSESSMENT Sample Duplicate

Volatile Hydrocarbons

Sample Number: 208-0477

Original Result: N. D.

Duplicate Result: N. D.

Relative % Difference Relative Percent Difference values are not reported at sample concentrations less than ten (10) times the Detection Limit.

Maximum RPD: 20

NORTH CREEK ANALYTICAL inc


 Sset Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$
Relative % Difference:	$\frac{\text{Original Result} - \text{Duplicate Result}}{(\text{Original Result} + \text{Duplicate Result}) / 2} \times 100$

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101, #W56-19.05
Matrix: Soil
Analysis for: Total Solids
First Sample #: 208-0506

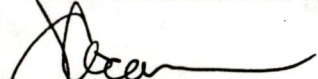
Received: Aug 12, 1992
Reported: Aug 13, 1992

LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
208-0506	S-12&13	96

North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

NORTH CREEK ANALYTICAL inc



Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, #246-5088-0101, #W56-19.05 Matrix Descript: Soil Analysis Method: WTPH-G, EPA 5030/8020 First Sample #: 208-0506	Sampled: Aug 11, 1992 Received: Aug 12, 1992 Analyzed: Aug 12, 1992 Reported: Aug 13, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
208-0506	S-12&13	N.D.	N.D.	N.D.	N.D.	N.D.	93
BLK081292	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	90

Detection Limits:	1.0	0.050	0.050	0.050	0.10
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Volatile Hydrocarbons are quantitated as Gasoline Range Organics (nC7 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc


Scott Cocanour
Laboratory Director

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101
 EPA Method: WTPH-G
 Sample Matrix: Soil
 Units: mg/kg (ppm)

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 10, 1992
 Reported: Aug 11, 1992

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT Laboratory Control Sample

Gasoline

Spike Conc.
 Added: 20

Spike
 Result: 19.8

%
 Recovery: 99

Upper Control
 Limit %: 125

Lower Control
 Limit %: 75

PRECISION ASSESSMENT Sample Duplicate

Volatile
 Hydrocarbons

Sample
 Number: 207-1476

Original
 Result: 59

Duplicate
 Result: 62

Relative
 % Difference: 5.0

Maximum
 RPD: 20

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

$$\% \text{ Recovery} = \frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$$

$$\text{Relative \% Difference} = \frac{\text{Original Result} - \text{Duplicate Result}}{(\text{Original Result} + \text{Duplicate Result}) / 2} \times 100$$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101
 EPA Method: 5030/8020
 Sample Matrix: Soil
 Units: mg/kg (ppm)
 QC Sample #: 208-0326

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 11, 1992
 Reported: Aug 11, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.50	0.50	0.50	0.50
Conc. Matrix Spike:	0.47	0.48	0.52	0.47
Matrix Spike % Recovery:	94	96	104	94
Conc. Matrix Spike Dup.:	0.46	0.47	0.50	0.44
Matrix Spike Duplicate % Recovery:	92	94	100	88
Upper Control Limit %:	93	96	117	109
Lower Control Limit %:	57	58	69	63
Relative % Difference:	2.2	2.1	3.9	6.6
Maximum RPD:	8.6	9.6	8.8	9.5

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell, #246-5088-0101
 EPA Method: 5030/8020
 Sample Matrix: Water
 Units: $\mu\text{g/L}$ (ppb)
 QC Sample #: 207-1445

Analyst: R. Lister
 K. Wilke
 Analyzed: Aug 6, 1992
 Reported: Aug 11, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Ethyl			
	Benzene	Toluene	Benzene	Xylenes
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	5.0	5.0	5.0	15.0
Conc. Matrix Spike:	5.0	5.4	4.8	14.8
Matrix Spike % Recovery:	100	108	96	99
Conc. Matrix Spike Dup.:	4.6	5.0	4.4	14.4
Matrix Spike Duplicate % Recovery:	92	100	88	96
Upper Control Limit %:	112	105	109	108
Lower Control Limit %:	85	74	87	79
Relative % Difference:	8.3	7.7	8.7	3.1
Maximum RPD:	9.9	17	13	17

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, #246-5088-0101 Matrix Descript: Soil Analysis Method: WTPH-G, EPA 5030/8020 First Sample #: 208-0326	Sampled: Aug 6, 1992 Received: Aug 7, 1992 Analyzed: Aug 11, 1992 Reported: Aug 11, 1992
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TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
208-0326	MW-11 Comp	N.D.	N.D.	N.D.	N.D.	N.D.	94
208-0327	MW-12	N.D.	N.D.	N.D.	N.D.	N.D.	90
BLK081192	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	89

Detection Limits:	1.0	0.050	0.050	0.050	0.10
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Volatile Hydrocarbons are quantitated as Gasoline Range Organics (nC7 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

NORTH CREEK ANALYTICAL inc

Scot Cocanour
(Star)
Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, #246-5088-0101 Matrix Descript: Water Analysis Method: WTPH-G,EPA 5030/8020 First Sample #: 208-0328	Sampled: Aug 7, 1992 Received: Aug 7, 1992 Analyzed: Aug 7, 1992 Reported: Aug 10, 1992
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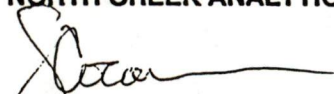
TOTAL PETROLEUM HYDROCARBONS with BTEX DISTINCTION (WTPH-G/BTEX)

Sample Number	Sample Description	Volatile Hydrocarbons $\mu\text{g/L}$ (ppb)	Benzene $\mu\text{g/L}$ (ppb)	Toluene $\mu\text{g/L}$ (ppb)	Ethyl Benzene $\mu\text{g/L}$ (ppb)	Xylenes $\mu\text{g/L}$ (ppb)	Surrogate Recovery %
208-0328	MW-11 Purge	N.D.	N.D.	0.78	N.D.	N.D.	103
BLK080792	Method Blank	N.D.	N.D.	N.D.	N.D.	N.D.	89

Detection Limits:	50	0.50	0.50	0.50	1.0
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Volatile Hydrocarbons are quantitated as Gasoline Range Organics (nC7 - nC12). Surrogate recovery reported is for Bromofluorobenzene. Analytes reported as N.D. were not present above the stated limit of detection.

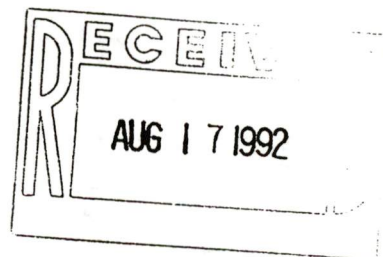
NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell, #246-5088-0101 Matrix: Soil Analysis for: Total Solids First Sample #: 208-0326	Received: Aug 7, 1992 Reported: Aug 11, 1992
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LABORATORY ANALYSIS FOR: Total Solids

Sample Number	Sample Description	Sample Result %
208-0326	MW-11 Comp	93
208-0327	MW-12 Comp	98



North Creek Analytical routinely provides analytical results for soils, sediments or sludges on a WET WEIGHT "as received" basis. To attain dry weight equivalents for regulatory compliance, divide the soil result by the decimal fraction of percent solids. The results in this report apply only to the samples analyzed, as indicated on the custody document. This analytical report is to be reproduced only in its entirety.

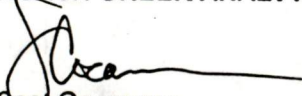
NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Method : EPA 8080 Sample Matrix : Soil Units : $\mu\text{g}/\text{kg}$ QC Sample #: BLK070192	Analyst : M. Bender Extracted: Jul 1, 1992 Analyzed: Jul 6, 1992 Reported: Jul 8, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Lindane	Heptachlor	Aldrin
Sample Conc.:	N.D.	N.D.	N.D.
Spike Conc. Added:	8.3	8.3	8.3
Conc. Matrix Spike:	8.1	8.3	8.1
Matrix Spike % Recovery:	98	100	98
Conc. Matrix Spike Dup.:	8.2	9.2	8.2
Matrix Spike Duplicate % Recovery:	99	111	99
Relative % Difference:	1.0	10	1.0

NORTH CREEK ANALYTICAL inc

 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
18912 N. Creek Parkway, #210
Bothell, WA 98011
Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
Method : EPA 1311/6010/7000
Sample Matrix : TCLP Extract for Metals
Units : mg/L (ppm)
QC Sample #: BLK062592

Analyst : D. Vandell
TCLP Ext.: Jun 25, 1992
Analyzed: Jul 1, 1992
Reported: Jul 8, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Arsenic	N.D.	1.0	0.85	85%	0.82	82%	3.6%
Barium	0.20	1.0	1.1	90%	1.1	90%	0.0%
Cadmium	N.D.	1.0	0.79	79%	0.78	78%	1.3%
Chromium	N.D.	1.0	0.81	81%	0.80	80%	1.2%
Lead	N.D.	1.0	0.78	78%	0.80	80%	2.5%
Mercury	N.D.	0.010	0.010	100%	0.010	100%	0.0%
Selenium	N.D.	1.0	0.94	94%	0.90	90%	4.3%
Silver	N.D.	1.0	1.0	100%	1.0	100%	0.0%

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest
 18912 N. Creek Parkway, #210
 Bothell, WA 98011
 Attention: Mike Noll

Client Project ID: Shell #246-5088-0101, W56-19.05
 Method : EPA 8270
 Sample Matrix : Soil
 Units : mg/kg
 QC Sample #: 206-1240

Analyst : G. Emory
 Extracted: Jun 24, 1992
 Analyzed: Jun 29, 1992
 Reported: Jul 8, 1992

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
Phenol	N.D.	6.7	6.0	90%	6.0	90%	0.0%
2-Chlorophenol	N.D.	6.7	5.3	79%	5.3	79%	0.0%
1,4-Dichloro-benzene	N.D.	3.3	2.5	76%	2.4	73%	4.1%
N-Nitroso-Di-N-propylamine	N.D.	3.3	2.5	76%	2.6	79%	3.9%
1,2,4-Trichloro-benzene	N.D.	3.3	3.2	97%	3.2	97%	0.0%
4-Chloro-3-Methylphenol	N.D.	6.7	6.9	103%	7.1	106%	2.9%
Acenaphthene	N.D.	3.3	2.3	70%	2.3	70%	0.0%
4-Nitrophenol	N.D.	6.7	5.7	85%	6.1	91%	6.8%
2,4-Dinitro-toluene	N.D.	3.3	2.8	85%	2.9	88%	3.5%
Pentachloro-phenol	N.D.	6.7	5.5	82%	5.6	84%	1.8%
Pyrene	N.D.	3.3	4.0	121%	4.4	133%	9.5%

NORTH CREEK ANALYTICAL inc


 Scot Cocanour
 Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

EMCON Northwest 18912 N. Creek Parkway, #210 Bothell, WA 98011 Attention: Mike Noll	Client Project ID: Shell #246-5088-0101, W56-19.05 Method : EPA 418.1 mod. Sample Matrix : Soil Units : mg/kg QC Sample #: 206-1222	Analyst : S. Mitchell Extracted: Jun 24, 1992 Analyzed: Jun 25, 1992 Reported: Jul 8, 1992
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QUALITY CONTROL DATA REPORT

ANALYTE	Petroleum Oil
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Sample Conc.:	34
Spike Conc. Added:	500
Conc. Matrix Spike:	570
Matrix Spike % Recovery:	107
Conc. Matrix Spike Dup.:	542
Matrix Spike Duplicate % Recovery:	102
Relative % Difference:	5.0

NORTH CREEK ANALYTICAL inc


Scot Cocanour
Laboratory Director

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: _____

Date: 8-17-92

Page 1 of 1

Handwritten initials: DH

Site Address: 21641 Maple Valley Hwy.
Maple Valley, WA 98036

Analysis Required - LAB: North Creek Analytical

WIC#: 246-5088-0101

Shell Engineer: FRANK FOSSATI
Phone No. (714) 520-3362
Fax #: (714) 520-3313

Consultant Name & Address:
SWEET-EDWARDS/EMCON, INC.
18912 NORTH CREEK PARKWAY, SUITE 210-BOTHELL

Consultant Contact: MIKE NOLL
Phone No. (206) 485-5000
Fax #: (206) 496-9766

Comments: reference rpt: Mike Noll, Project Manager
Project #: W56-19.05

Sampled By: *Tom Bodle*
Printed Name: Tom Bodle

CHECK ONE (1) BOX ONLY		CT/DT	TURN AROUND TIME
Quarterly Monitoring	<input type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation	<input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal	<input type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal	<input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M	<input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M	<input type="checkbox"/>	5453	
Other	<input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conds.	TPH (EPA 8015 Mod. Gas) <input checked="" type="checkbox"/>	TPH (EPA 8015 Mod. Diesel) <input type="checkbox"/>	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal <input type="checkbox"/>	418.1	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-11	8-17-92		✓		2	✓	✓							N	ALL VOCAS APPEAR	724
MW-12			✓		2	✓	✓							N	UNPRESERVED	725
MW-13			✓		6	✓	✓			✓				N	Like also recvd unpreserved DH	726
MW-14			✓		2	✓	✓							N		727
Field blank			✓		2	✓	✓							N		728

Relinquished By (signature): <i>Tom Bodle</i>	Printed name: Tom Bodle	Date: 8-17-92	Received (signature): <i>Lana Heinz</i>	Printed name: LANA HEINZ	Date: 8/17/92
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:
Relinquished By (signature):	Printed name:	Date:	Received (signature):	Printed name:	Date:

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE



EMCON

Northwest, Inc.

18912 North Creek Parkway • Suite 100 • Bothell, WA 98011-8016 • Office (206) 485-5000 • FAX (206) 486-9766

RECEIVED
TRANSMITTAL

MAR 04 1993

DEPT. OF ECOLOGY

Date March 3, 1993

Project 0556-019.20 Task 01

To: UST Group
PO Box 47655
Olympia, WA 98504-7655

We are enclosing:

Copies	Description
<u>1</u>	<u>Underground Storage Tank Closure Report (March 3, 1993)</u> <u>Former Shell Service Station</u> <u>21641 Maple Valley Highway</u> <u>Maple Valley, Washington 98036</u>
	<u>WIC 246-5068-0101</u>

For your Use
 Approval
 Information

Sent by First Class Mail
 Federal Express
 Other _____

Comments: 2 copies enclosed for UST Group.

cc: John Storman, NW Regional Office

Michael S. Bell

