

November 7, 1997
Project 512-005.1A

Mr. Martin Cramer
Tosco Distribution Company
5528 Northwest Doane Avenue
Portland, Oregon 97210

Re: Soil Investigation

Inman Oil Company Facility
1300 West 12th Street
Vancouver, Washington

Dear Mr. Cramer:

This letter documents a soil probe investigation performed by Pacific Environmental Group, Inc. (PACIFIC), at the site referenced above (Figure 1). The purpose of this investigation was to assess and document soil quality with respect to petroleum hydrocarbons at the site, which is a bulk fuel storage plant.

The scope of work for the environmental investigation was performed on September 22, 1997 and consisted of the following tasks:

- Prepare a site safety plan for the project in accordance with WISHA and OSHA regulations.
- Excavate nine hand auger borings (B-4, B-7 through B-14) to document soil conditions adjacent to potential sources of soil impact on the property.
- Install seven soil probes (B-1, B-2, B-3, B-5, B-6, B-15, and B-16) adjacent to potential sources of soil impact on the property.
- Abandon the soil probes and hand auger borings with bentonite.

- Submit soil samples from the probes and hand auger borings for laboratory analysis.
- Prepare this letter report.

SITE DESCRIPTION

The Inman Oil Company facility is located at 1300 West 12th Street in Vancouver, Washington (Figure 1). The exact age of the site has not been investigated, however, the current operator indicated in an interview that the site was used as a waste oil reprocessing facility in its current configuration from 1956 to 1995. Prior to 1956, the site was operated as a bulk fuel terminal dating back to the 1930's. Fuel processing has not taken place on site for the last two years. Currently the facility accepts processed waste oil and dirty diesel fuel from other sources and blends reformulated fuel oil (RFO) for sale as an industrial fuel.

The site is located at the west end of 12th Street, and is bounded on the east side by Lincoln Street, and by a railroad spur on the southern half of the west side. The Columbia River is located approximately 1,500 feet to the southwest. Four concrete bermed area with a soil floor. Five additional ASTs and a loading rack are located in the north central portion of the site within a concrete bermed area on a concrete floor. The northern half of the property also contains two underground storage tanks (USTs), two oil/water separators, and several waste oil processing units. The southern part of the property contains an office building, loading dock, storage area, and a third UST used to store heating oil for on-site consumption.

Areas of Concern (AOC) were identified at the site during a Due Diligence Assessment previously performed by PACIFIC for Tosco. The AOC investigated during this project included areas adjacent to the ASTs, the USTs, oil/water separators, pipelines, loading rack, processing units, and storage area. Soil Probes B-1 and B-16 were intended to assess potential releases from the storehouse and loading dock area. Soil Probe B-15 was intended to assess historic releases reported by the facility manager in the railroad area. Soil Probes B-2 and B-6 were intended to assess potential releases from USTs. Soil Probes B-3 and B-5 were intended to assess potential releases from the loading rack and an oil/water separator, respectively. Hand auger Borings B-7 through B-10 were intended to assess potential releases from the ASTs. Hand auger Borings B-11, 12, and 13 were intended to assess potential releases from the pumps and piping. Hand auger Boring B-4 was intended to assess potential releases from an area surrounded by an oil/water

separator, pump, UST, and AST. Hand auger Boring B-14 was intended to assess potential releases from the ASTs and process equipment located on the north central portion of the property.

SOIL SAMPLING

Soil Probe Installation

A total of 7 exploratory soil probes were installed by Geotech Explorations of Tualatin, Oregon. The soil probes were installed to determine if soil has been impacted with hydrocarbons on site. The soil probes were installed to depths ranging from 7 feet to 28 feet below grade on September 22, 1997. Soil Probes B-3, B-6, B-15, and B-16 were installed to 12 feet below grade. Refusal was encountered in Boring B-2 and the boring was terminated at seven feet below grade. Soil Probe B-1 was installed to a depth of 16 feet below grade in an initial attempt to determine depth to groundwater at the site. Soil Boring B-5 was installed to a depth of 28 feet below grade in a second attempt to determine depth to groundwater at the site. Boring B-5 was installed in an assumed downgradient direction from the source areas on site. A direct-push hydraulic drive point system was used and the soil probe borings were logged by a PACIFIC geologist using the Unified Soil Classification System. Soil samples were collected continuously from the surface in order to determine the approximate intervals of hydrocarbon-impacted soil. Soil samples for field screening and chemical analysis were collected at selected depths in the borings. Soil probe installation and soil sampling procedures are presented in Attachment A. Exploratory soil probe logs are included in Attachment B.

Soil samples were field screened for the presence of organic vapors using a Thermo Environmental Instruments Inc. Model 580B photo-ionization detector (PID) with a 10.0 eV lamp. PID test procedures are described in Attachment A. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 electron volts. The results of this screening are recorded on the soil probe logs in Attachment B.

Following the collection of soil samples, the borings were abandoned by grouting with a bentonite sealant to the surface. Soil probe locations are presented on Figure 1.

Hand Auger Boring Installation

A total of nine hand auger borings were installed to depths of 2 to 2.5 feet below grade on September 22, 1997. Four of the hand auger borings (B-7 through B-10) were installed

within the concrete-bermed AST area located at the northeast corner of the site. Hand auger borings B-11, B-12, and B-13 were installed around PUMP-1 located in the north central portion of the site. These borings also acted to assess potentially impacted soil in the area of the loading rack, PUMP-2, and the ASTs on site. Hand auger boring B-4 was installed between PUMP-3, UST-2, and an oil/water separator (OWS-2). Hand auger boring B-14 was installed at the north end of the site adjacent to the ASTs and former processing units. The hand auger borings were installed with a four-inch diameter stainless-steel hand auger. The hand auger was cleaned between sample locations by washing in a detergent solution followed by a clean water rinse and a distilled water rinse.

The hand auger borings were logged by a PACIFIC geologist using the Unified Soil Classification System. Soil samples were collected continuously from the surface in order to determine the approximate intervals of hydrocarbon-impacted soil. Soil samples for field screening and chemical analysis were collected at the bottom of the borings at a maximum depth of two to 2.5 feet below grade. The soil samples were screened in the field for ionizable organic compounds using a PID. Sample depths and the results of the PID screening are indicated in the hand auger boring logs presented in Attachment B. Following the collection of soil samples, the borings were abandoned by grouting with a bentonite sealant to the surface. Hand auger installation procedures, sample preservation techniques, and PID test procedures are described in Attachment A. Hand auger boring locations are presented on Figure 1.

FINDINGS/CONCLUSIONS

Soil encountered on site consisted primarily of sandy gravel to approximately 23 feet below grade. Sand was encountered in geoprobe boring B-5 between approximately 23 and 28 feet below grade. Groundwater was not encountered on site.

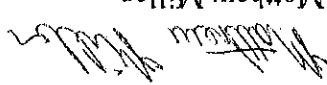
The laboratory soil sample analytical results are presented in Table 1. Laboratory analytical results indicate that concentrations of TPH-diesel exceeded the Washington State Model Toxics Control Act (MTCOA) Method A soil cleanup level in soil probe and hand auger borings B-4, B-7, B-8, B-9, B-10, B-12, and B-14. Laboratory analytical results indicate that concentrations of TPH-oil exceeded the MTCOA Method A soil cleanup level in soil probe and hand auger borings B-1, B-4, B-7, B-8, B-9, B-10, B-12, B-14, and B-16. Laboratory analytical methods, analytical reports, and chain-of-custody documentation are contained in Attachment C.

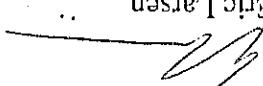
Based on the laboratory analytical results, the vertical extent of hydrocarbon impact to soil has not been determined in several areas of the site. The lateral extent of impacted soil has only been determined at the southwest corner of the site.

PACIFIC appreciates this opportunity to be of continuing service. If you have any questions regarding the contents of this report, please call.

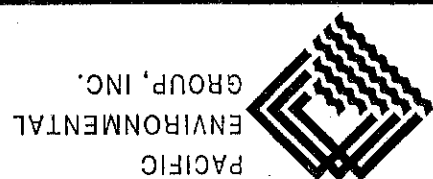
Sincerely,

Pacific Environmental Group, Inc.


Matthew Miller
Project Geologist


Eric Larsen
Senior Geologist

Attachments: Figure 1 - Site Map
Table 1 - Soil Sample Analytical Results
Attachment A - Investigative Procedures
Attachment B - Boring Logs
Attachment C - Laboratory Analytical Methods and Reports
Chain-of-Custody Documentation



TOSCO CORPORATION
Inman Oil Company Facility
1300 West 12th Street
Vancouver, Washington

SITE MAP

FIGURE:
1
PROJECT:
512-005.1A
1785

SCALE: 1" = 30'

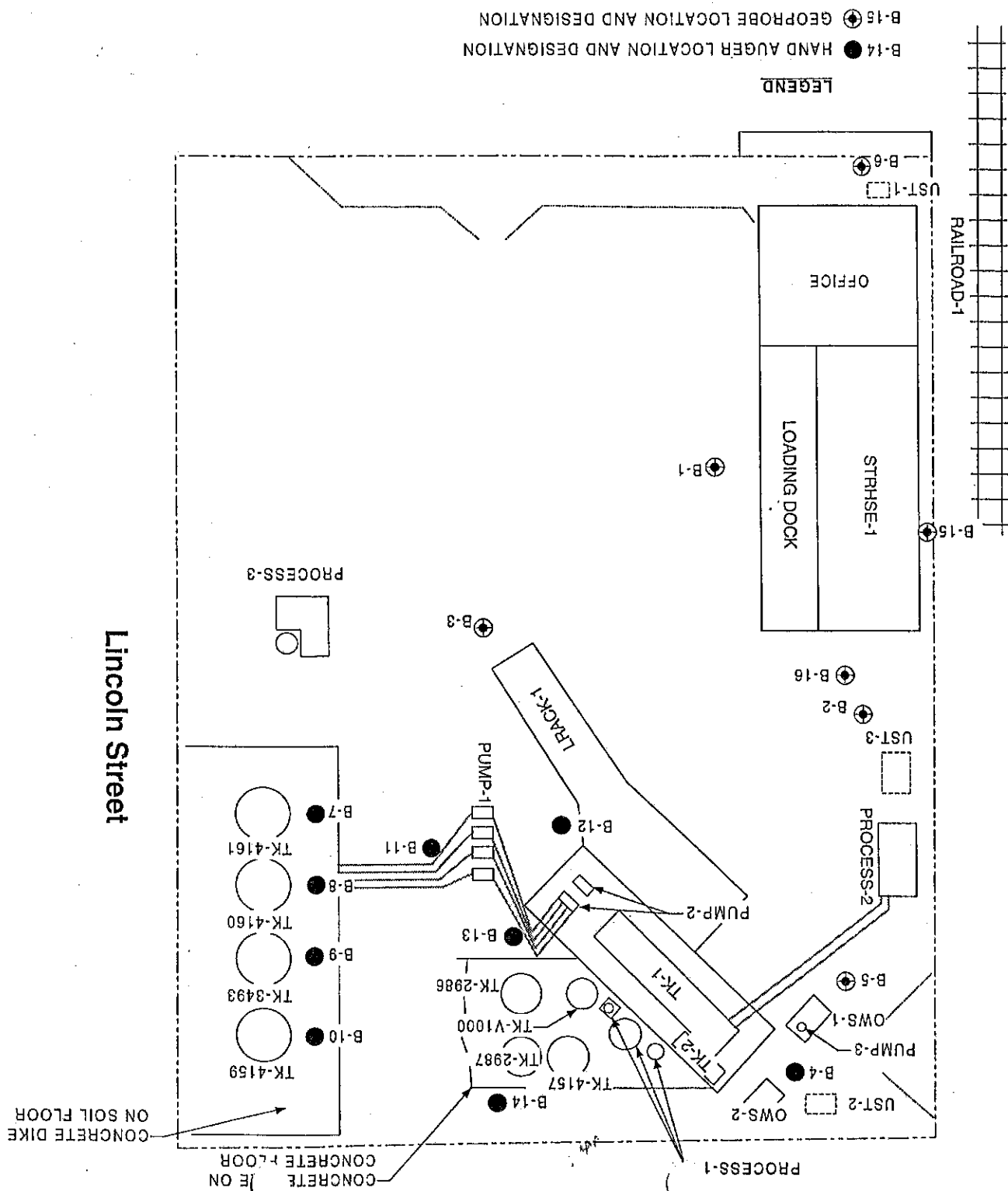


TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS

Tosco Bulk Terminal #1785
1300 West 12th Street
Vancouver, Washington

Sample I.D.	Date	Depth (feet)	TPH- Gasoline (ppm)	TPH- Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl- benzene (ppm)	Xylenes (ppm)
B-1 (4)	09/22/97	4.0	ND	ND	ND	ND	ND	ND	ND
B-1 (12)	09/22/97	12.0	6.11	159	698	ND	ND	ND	ND
B-2 (4)	09/22/97	4.0	ND	ND	ND	ND	ND	ND	ND
B-3 (4)	09/22/97	4.0	ND	ND	ND	ND	ND	ND	ND
B-3 (12)	09/22/97	12.0	ND	ND	ND	ND	ND	ND	ND
B-4 (2)	09/22/97	2.0	ND	787	1,650	ND	ND	ND	ND
B-4 (2.5)	09/22/97	2.5	ND	641	1,120	ND	ND	ND	ND
B-5 (4)	09/22/97	4.0	4.22	ND	ND	ND	ND	ND	ND
B-5 (12)	09/22/97	12.0	ND	ND	ND	ND	ND	ND	ND
B-6 (4)	09/22/97	4.0	ND	ND	ND	ND	ND	ND	ND
B-6 (12)	09/22/97	12.0	ND	ND	ND	ND	ND	ND	ND
B-7 (2)	09/22/97	2.0	ND	509	1,350	ND	ND	ND	ND
B-8 (2)	09/22/97	2.0	ND	819	1,400	ND	ND	ND	ND
B-9 (2)	09/22/97	2.0	43.1	1,900	563	ND	ND	ND	ND
B-10 (2)	09/22/97	2.0	ND	904	357	ND	ND	ND	ND
B-11 (2)	09/22/97	2.0	ND	ND	ND	ND	ND	ND	ND
B-12 (2)	09/22/97	2.0	ND	442	265	ND	ND	ND	ND
B-13 (2)	09/22/97	2.0	ND	ND	60.4	ND	ND	ND	ND
B-14 (2)	09/22/97	2.0	ND	258	1,310	ND	ND	ND	ND
B-15 (4)	09/22/97	4.0	ND	ND	ND	ND	ND	ND	ND
B-15 (12)	09/22/97	12.0	ND	ND	ND	ND	ND	ND	ND
B-16 (4)	09/22/97	4.0	ND	197	233	ND	ND	ND	ND
B-16 (12)	09/22/97	12.0	ND	ND	ND	ND	ND	ND	ND
MTCA Method A Cleanup Levels:									
			100	200	200	0.5	40	20	20
Laboratory Reporting Limits:			2.00	25	50	0.050	0.050	0.050	0.050
Concentrations in ppm (mg/kg)									
ND - Not Detected									
Certified analytical results are included in Attachment B									
TPH as Gasoline - Analysis by Washington DOE Method WTPH-G									
TPH as Diesel/TPH-Oil - Analysis by Washington Method WTPH-D + Extended									
BTX Compounds - Analysis by EPA 8020A									

ATTACHMENT A
INVESTIGATIVE PROCEDURES

ATTACHMENT A

Soil Probe Installation/Soil Sampling Procedures

The seven soil probes were installed on September 22, 1997 by Geotech Explorations of Tualatin, Oregon. The probes were installed using a direct-push hydraulic and percussion drive-point sampling system. The soil probe borings were logged by a PACIFIC geologist using the Unified Soil Classification System and standard geologic techniques. Boring logs are presented in Attachment B. Soil samples for logging and chemical analysis were collected utilizing a retractable piston sampler. Soil samples were collected continuously from the surface in order to determine an approximate interval of possibly impacted soil. The sampler consists of a 2 inch diameter by four foot long stainless steel tube (continuous sampler) with a piston assembly added to allow for discrete interval sampling. To collect a sample, the continuous sampler is hydraulically pushed to the desired depth and the piston is unlocked. The sampler is then advanced using a hydraulic percussion hammer causing the piston to retract and allowing the continuous sampler to collect the sample. All soil samples for chemical analyses were retained in laboratory-supplied glass jars with Teflon[®] lined lids. Each sample was affixed with a waterproof label showing project identification, boring designation, approximate depth, date, and the sampler's initials. The samples were placed on ice for transport to the laboratory accompanied by chain-of-custody documentation shown in Attachment C. The continuous sampler was cleaned between samples by washing in a detergent solution followed by a clean water rinse and distilled water rinse.

Hand Auger Boring Installation/Soil Sampling Procedures

The nine hand auger borings were installed on September 22, 1997 by Pacific Environmental Group Inc., of Portland, Oregon. Soil samples were collected continuously from the surface in order to determine the approximate intervals of hydrocarbon-impacted soil. The hand auger borings were installed with a four-inch diameter stainless-steel hand auger. The hand auger was cleaned between sample locations by washing in a detergent solution followed by a clean water rinse and distilled water rinse.

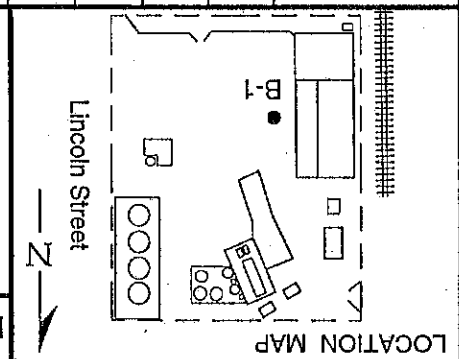
Soil samples submitted for analysis were generally collected by removing the soil from the auger and placing it by hand into sample jars. A pair of clean disposable gloves were

used for each sample. All soil samples for chemical analyses were retained in laboratory-supplied glass jars with Teflon® lined lids. The sample jars were packed tightly with soil to minimize headspace. Each sample was affixed with a waterproof label showing project identification, boring designation, approximate depth, date, and the sampler's initials. The samples were placed on ice for transport to the laboratory accompanied by chain-of-custody documentation shown in Attachment C.

Organic Vapor Screening

Soil samples were screened in the field for ionizable organic compounds using a Thermo Environmental Instruments Inc. Model 580B photo-ionization detector with a 10.0 electron volts (eV) lamp. The test procedure involved measuring approximately 30 grams from an undisturbed soil sample, placing this sub-sample in a zip-lock bag. The bag was allowed to warm to ambient temperature for approximately twenty minutes, then the bag was pierced and the head-space within the bag was tested for total organic vapor, measured in parts per million, (ppm; volume/volume). The instrument was calibrated daily using a 100 ppm isobutylene standard (in air) and a sensitivity factor which relates the photo-ionization sensitivity of benzene to the sensitivity of isobutylene. The detection limit of the instrument ranges from 0.1 ppm to 2,000 ppm. The results of these tests are recorded on the boring logs in Attachment B. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 eV.

ATTACHMENT B
BORING LOGS



WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
Backfilled with Bentonite	Dry	0		1			GM	SANDY GRAVEL: gray; 20% silt; 30% sand; 50% gravel; no product odor.
	Dry	0		2				
				3				
				4			GM	@ 4.0': as above; brown; 25% silt; 25% sand; 50% gravel; no product odor.
	Dry	0		5				
				6				
				7				
				8				@ 8.0': brown; 50% sand; 50% gravel; no product odor.
				9				
	Dry	0		10				
				11				
				12				@ 12.0': brown; 20% silt; 20% sand; 60% gravel; no product odor.
				13				
				14				
	Dry	0		15				
				16				
				17				
				18				
				19				
				20				
				21				
				22				

BOTTOM OF BORING 16'

PROJECT NO: 512-005.1A
 LOGGED BY: J.J.C.
 DRILLER: GEOTECH
 DRILLING METHOD: GEOPROBE
 SAMPLING METHOD: MACRO
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 2"
 HOLE DEPTH: 16'
 WELL DIAMETER: NA
 CASING DEPTH: NA
 CASING STICKUP: NA

PACIFIC ENVIRONMENTAL GROUP, INC.		BORING NO. B-1	
PAGE 1 OF 1			

PROJECT NO: 512-005.1A
LOGGED BY: J.J.C.
DRILLER: GEOTECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: MACRO

WELL DEPTH: NA

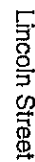
HOLE DEPTH: 7'

LOCATION: VANCOUVER

DATE DRILLED: 9-22-97

10-1-1951

BOIRING NO. B.



WELL
COMPLETION

Backfilled
with
Bentonite

Dry	Dry	Dry	Dry
-----	-----	-----	-----

0
0
0
0

PENETRATION
(BLOWS/FT)

DEPTH
(FEET)

RECOVERY	SAMPLE INTERVAL
----------	-----------------

GRAPHIC

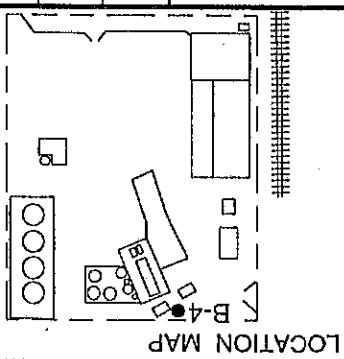
SOIL TYPE

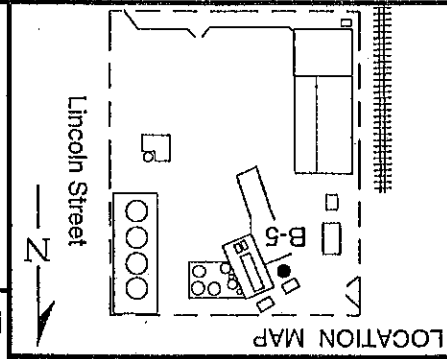
LITHOLOGY / REMARKS

SANDY GRAVEL: brown; 10% silt; 20% sand; 80% gravel; no product odor.

@7: refusal.

BOTTOM OF BORING 7'

LOCATION MAP  Lincoln Street N		WELL COMPLETION Backfilled with Bentonite		Moisture Content Dry Mst 0		Penetration (Blows/ft)		Depth (Feet) 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1		LITHOLOGY / REMARKS SANDY GRAVEL: gray; 10% silt; 30% fine sand; 60% gravel; slight product odor. BOTTOM OF BORING 2.5'	
PROJECT NO: 512-005.1A LOGGED BY: K.M.F. DRILLER: K.M.F. DRILLING METHOD: HAND AUGER SAMPLING METHOD: DIRECT CASING TYPE: NA SLOT SIZE: NA WELL PACK: NA		CLIENT: TOSCO DATE DRILLED: 9-22-97 LOCATION: VANCOUVER, WA HOLE DIAMETER: 4" HOLE DEPTH: 2.5' WELL DIAMETER: NA CASING STICKUP: NA		SOIL TYPE		GRAPHIC		RECOVERY SAMPLE INTERVAL		DEPTH (FEET)	



PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. B-5
PAGE 1 OF 2

PROJECT NO: 512-005.1A
 LOGGED BY: J.J.C.
 DRILLER: GEOTECH
 DRILLING METHOD: GEOPROBE
 SAMPLING METHOD: MACRO
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 2"
 HOLE DEPTH: 27'
 WELL DIAMETER: NA
 WELL DEPTH: NA
 CASING STICKUP: NA

WELL COMPLETION	Backfilled with Bentonite
MOISTURE CONTENT	Dry
PID	3
PENETRATION (BLOWS/FT)	
DEPTH (FEET)	
RECOVERY SAMPLE INTERVAL	
GRAPHIC	
SOIL TYPE	
LITHOLOGY / REMARKS	SANDY GRAVEL: gray; 5% silt; 15% sand; 80% gravel; no product odor.

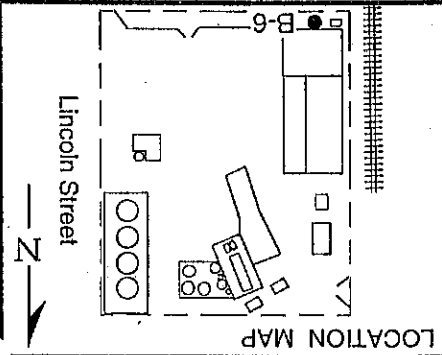
See Page One

PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. B-5
PAGE 2 OF 2

PROJECT NO. 512-005.1A
CLIENT: TOSCO
LOGGED BY:
DRILLER:
DRILLING METHOD:
SAMPLING METHOD:
CASING TYPE:
SLOT SIZE:
GRAVEL PACK:
DATE DRILLED:
LOCATION:
HOLE DIAMETER:
HOLE DEPTH:
WELL DIAMETER:
WELL DEPTH:
CASING STICKUP:

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
Backfilled with Bentonite	Mst	0		23	GM	SP		SAND: brown; 10% silt; 10% gravel; no product odor.
	Mst			24				@26: gray; 5% silt; no product odor.
				27				@27.7': refusal.
				28				BOTTOM OF BORING 28'
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				
				40				
				41				
				42				
				43				
				44				

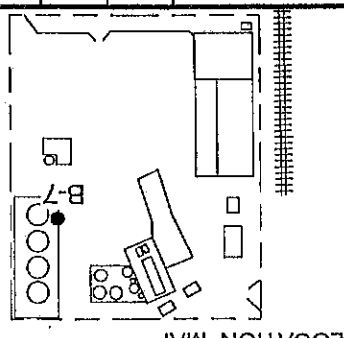
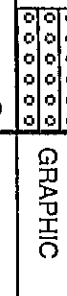


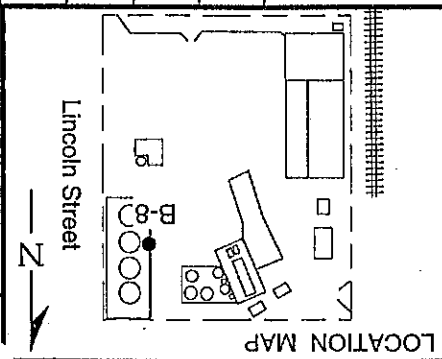
WELL COMPLETION	Backfilled with Bentonite
MOISTURE CONTENT	Dry
PID	1
PENETRATION (BLOWS/FT)	

DEPTH (FEET)	22
RECOVERY SAMPLE INTERVAL	
GRAPHIC	
SOIL TYPE	GM

LITHOLOGY / REMARKS	SANDY GRAVEL: brown; 15% sand; 85% gravel; no product odor.
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PROJECT NO: 512-005.1A
 LOGGED BY: J.J.C.
 DRILLER: GEOTECH
 DRILLING METHOD: GEOPROBE
 SAMPLING METHOD: MACRO
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 2"
 HOLE DEPTH: 12'
 WELL DIAMETER: NA
 CASING STICKUP: NA
 WELL DEPTH: NA

LOCATION MAP 		WELL COMPLETION Backfilled with Bentonite	
MOISTURE CONTENT Dry		DEPTH (FEET) 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	
PID		RECOVERY SAMPLE INTERVAL 	
PENETRATION (BLOWS/FT)		GRAPHIC 	
LITHOLOGY / REMARKS		SOIL TYPE GM	
PROJECT NO: 512-005.1A LOGGED BY: K.M.F. DRILLER: K.M.F. DRILLING METHOD: HAND AUGER SAMPLING METHOD: DIRECT CASING TYPE: NA SLOT SIZE: NA WELL PACK: NA		CLIENT: TOSCO DATE DRILLED: 9-22-97 LOCATION: VANCOUVER, WA HOLE DIAMETER: 4" HOLE DEPTH: 2' WELL DIAMETER: NA WELL DEPTH: NA CASING STICKUP: NA	
SANDY GRAVEL: gray; 30-40% fine sand; 60-70% gravel; no product odor. BOTTOM OF BORING 2'		Boring NO. B-7 PAGE 1 OF 1	

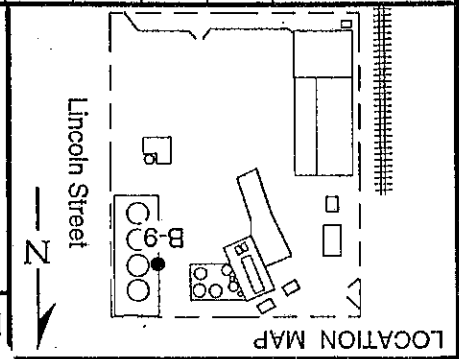


PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. B-8
PAGE 1 OF 1

PROJECT NO: 512-005.1A
 LOGGED BY: K.M.F.
 DRILLER: K.M.F.
 DRILLING METHOD: HAND AUGER
 SAMPLING METHOD: DIRECT
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 4"
 HOLE DEPTH: 2'
 WELL DIAMETER: NA
 CASING DEPTH: NA
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
Backfilled with Bentonite	Dry			1	0-1		GM	SANDY GRAVEL: gray; 30-40% fine sand; 60-70% gravel; no product odor.
				2	1-2			BOTTOM OF BORING 2'

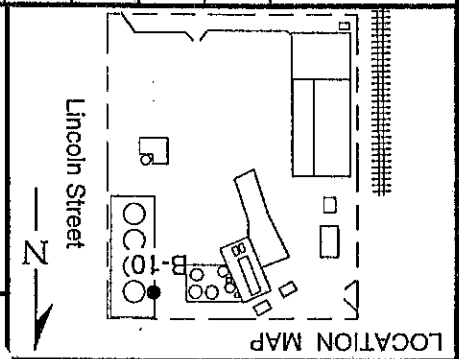


PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. B-9
PAGE 1 OF 1

PROJECT NO: 512-005.1A
 LOGGED BY: K.M.F.
 DRILLER: K.M.F.
 DRILLING METHOD: HAND AUGER
 SAMPLING METHOD: DIRECT
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 4"
 HOLE DEPTH: 2'
 WELL DIAMETER: NA
 CASING DEPTH: NA
 CASING STICKUP: NA

WELL COMPLETION	Backfilled with Bentonite
MOISTURE CONTENT	Dry
PID	
PENETRATION (BLOWS/FT)	
DEPTH (FEET)	
RECOVERY SAMPLE INTERVAL	
GRAPHIC	
SOIL TYPE	GM
LITHOLOGY / REMARKS	SANDY GRAVEL: gray; 30-40% fine sand; 60-70% gravel; no product odor. BOTTOM OF BORING 2'



WELL COMPLETION	Backfilled with Bentonite
MOISTURE CONTENT	Dry
PID	
PENETRATION (BLOWS/FT)	

DEPTH (FEET)	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
RECOVERY SAMPLE INTERVAL																						
GRAPHIC																						
SOIL TYPE																						

LITHOLOGY / REMARKS	SANDY GRAVEL: gray; 30-40% fine sand; 60-70% gravel; no product odor.
	BOTTOM OF BORING 2'

PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. B-10

PAGE 1 OF 1

PROJECT NO: 512-005.1A

LOGGED BY: K.M.F.

DRILLER: K.M.F.

DRAWING METHOD: HAND AUGER

SAMPLING METHOD: DIRECT

CASING TYPE: NA

SLOT SIZE: NA

WELL PACK: NA

CLIENT: TOSCO

DATE DRILLED: 9-22-97

LOCATION: VANCOUVER, WA

HOLE DIAMETER: 4"

HOLE DEPTH: 2'

WELL DIAMETER: NA

WELL DEPTH: NA

CASING STICKUP: NA

PROJECT NO: 512-005.1A

LOGGED BY: K.M.F.

DRILLER: K.M.F.

DRILLING METHOD: HAND AUGER

SAMPLING METHOD: DIRECT

CASING TYPE: NA

SLOT SIZE: NA

WELL PACK: NA

CLIENT: TOSCO

DATE DRILLED: 9-22-97

LOCATION: VANCOUVER, WA

HOLE DIAMETER: 4"

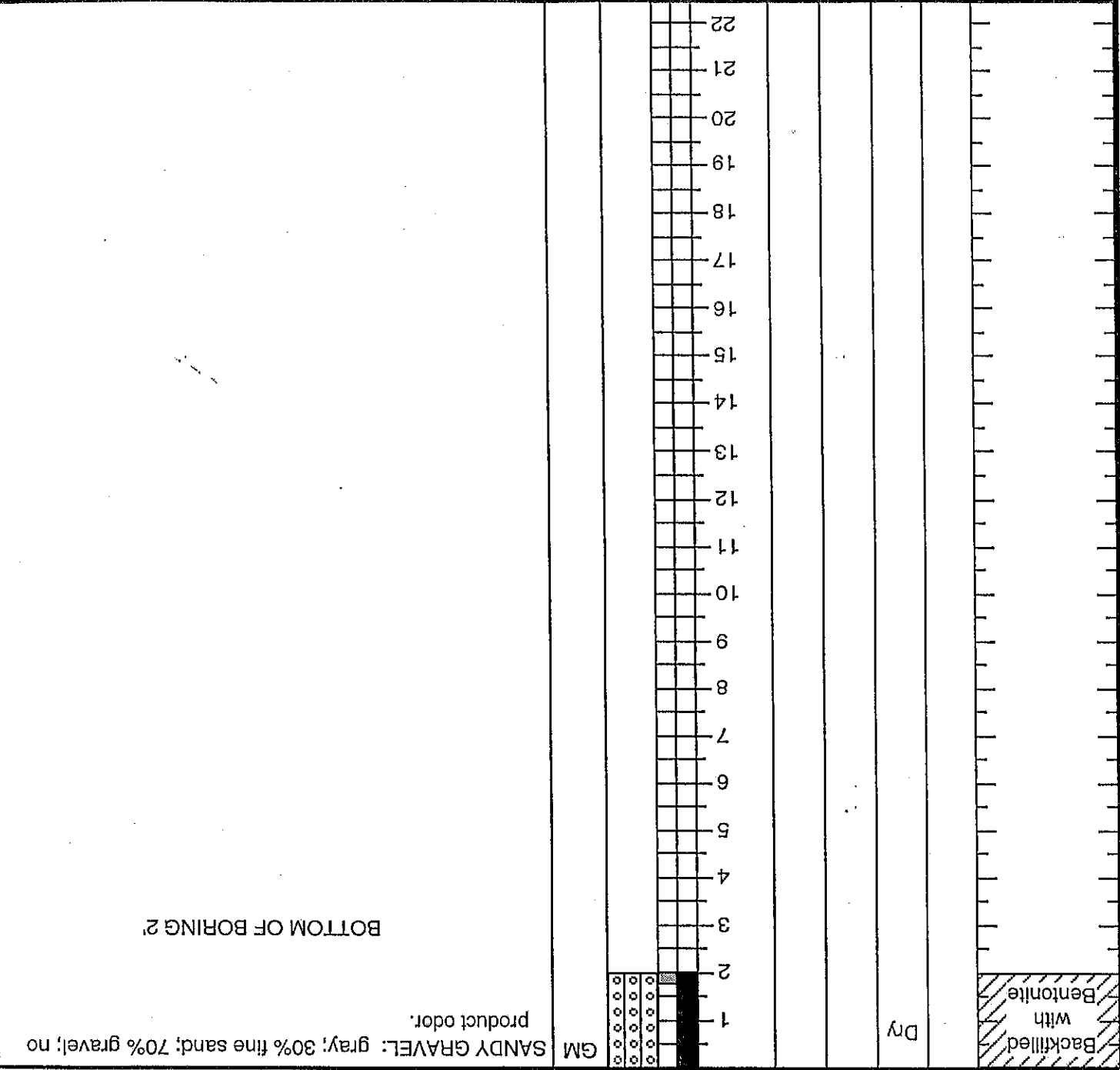
HOLE DEPTH: 2'

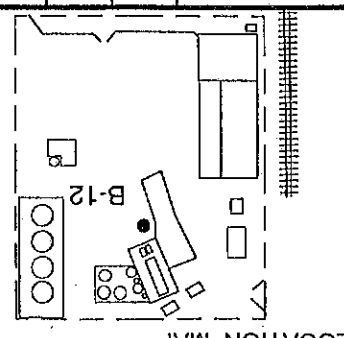
WELL DIAMETER: NA

WELL DEPTH: NA

CASING STICKUP: NA

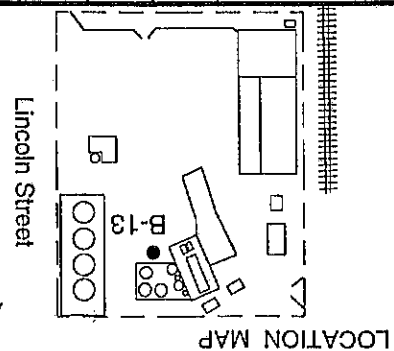
WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
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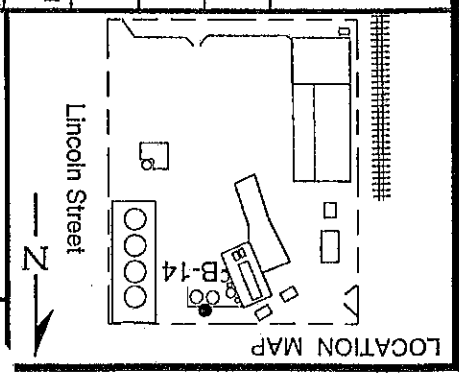
LOCATION MAP 		WELL COMPLETION Backfilled with Bentonite	
MOISTURE CONTENT Dry		PID	
DEPTH (FEET) 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1		RECOVERY SAMPLE INTERVAL	
GRAPHIC		SOIL TYPE	
LITHOLOGY / REMARKS SANDY GRAVEL: 30% fine sand; 70% gravel; no product odor. BOTTOM OF BORING 2'		DEPTH (FEET) 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	

PROJECT NO: 512-005.1A
 LOGGED BY: K.M.F.
 DRILLER: K.M.F.
 DRILLING METHOD: HAND AUGER
 SAMPLING METHOD: DIRECT
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 4"
 HOLE DEPTH: 2'
 WELL DIAMETER: NA
 CASING DEPTH: NA
 CASING STICKUP: NA

PROJECT NO: 512-005.1A
LOGGED BY: K.M.F.
DRILLER: K.M.F.
DRILLING METHOD: HAND AUGER
SAMPLING METHOD: DIRECT
CASING TYPE: NA
SLOT SIZE: NA
WELL PACK: NA
CASING STICKUP: NA
WELL DEPTH: NA
WELL DIAMETER: NA
HOLE DEPTH: 2'
HOLE DIAMETER: 4"
LOCATION: VANCOUVER, WA
DATE DRILLED: 9-22-97
CLIENT: TOSCO



LITHOLOGY / REMARKS	SOIL TYPE	DEPTH (FEET)	PENETRATION (BLOWS/FT)	PID	MOISTURE CONTENT	WELL COMPLETION
SANDY GRAVEL: brown; 30% fine sand; 70% gravel; no product odor.	GM				Dry	Backfilled with Bentonite
BOTTOM OF BORING 2'						



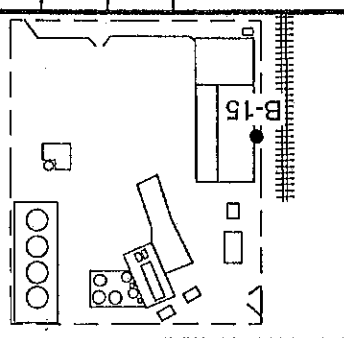
WELL COMPLETION	Backfilled with Bentonite
MOISTURE CONTENT	Dry
PID	
PENETRATION (BLOWS/FT)	

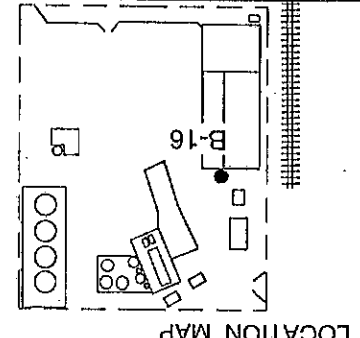
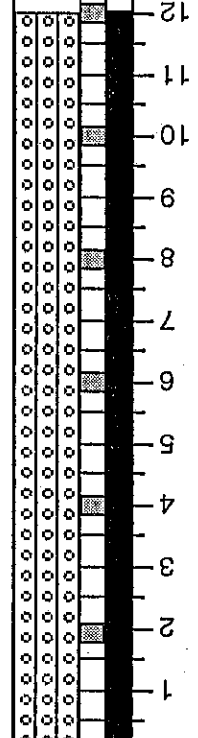
DEPTH (FEET)	22
RECOVERY SAMPLE INTERVAL	1
GRAPHIC	

SOIL TYPE	GM
-----------	----

LITHOLOGY / REMARKS	SANDY GRAVEL: brown; 30% fine sand; 70% gravel; no product odor. BOTTOM OF BORING 2'
---------------------	--

PROJECT NO: 512-005.1A
 LOGGED BY: K.M.F.
 DRILLER: K.M.F.
 DRILLING METHOD: HAND AUGER
 SAMPLING METHOD: DIRECT
 CASING TYPE: NA
 SLOT SIZE: NA
 WELL PACK: NA
 CLIENT: TOSCO
 DATE DRILLED: 9-22-97
 LOCATION: VANCOUVER, WA
 HOLE DIAMETER: 4"
 HOLE DEPTH: 2'
 WELL DIAMETER: NA
 CASING DEPTH: NA
 CASING STICKUP: NA

LOCATION MAP  Lincoln Street N		WELL COMPLETION Backfilled with Bentonite		Dry		Moisture Content PID Penetration (Blows/ft) Depth (feet) Recovery Sample Interval Graphic Soil Type		LITHOLOGY / REMARKS SANDY GRAVEL: brown; 15% silt; 35% sand; 50% fine gravel; no product odor. BOTTOM OF BORING 12'	
PACIFIC ENVIRONMENTAL GROUP, INC. BORING NO. B-15 PAGE 1 OF 1		PROJECT NO: 512-005.1A LOGGED BY: J.J.C. DRILLER: GEOTECH DRILLING METHOD: GEOPROBE SAMPLING METHOD: MACRO CASING TYPE: NA SLOT SIZE: NA WELL PACK: NA		CLIENT: TOSCO DATE DRILLED: 9-22-97 LOCATION: VANCOUVER, WA HOLE DIAMETER: 2" HOLE DEPTH: 12' WELL DIAMETER: NA WELL DEPTH: NA CASING STICKUP: NA		SOIL TYPE: GM		LITHOLOGY / REMARKS: SANDY GRAVEL: brown; 15% silt; 35% sand; 50% fine gravel; no product odor.	

LOCATION MAP 		WELL COMPLETION Backfilled with Bentonite	
MOISTURE CONTENT Dry		PID 0	
PENETRATION (BLOWS/FT)		DEPTH (FEET) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	
RECOVERY SAMPLE INTERVAL		GRAPHIC 	
SOIL TYPE GM		LITHOLOGY / REMARKS SANDY GRAVEL: brown; 20% sand; 80% fine gravel; no product odor. BOTTOM OF BORING 12'	

PACIFIC ENVIRONMENTAL GROUP, INC. BORING NO. B-16 PAGE 1 OF 1	PROJECT NO: 512-005.1A LOGGED BY: J.J.C. DRILLER: GEOTECH DRILLING METHOD: GEOPROBE SAMPLING METHOD: MACRO CASING TYPE: NA SLOT SIZE: NA WELL PACK: NA CLIENT: TOSCO DATE DRILLED: 9-22-97 LOCATION: VANCOUVER, WA HOLE DIAMETER: 2" HOLE DEPTH: 12' WELL DIAMETER: NA CASING STICKUP: NA
--	---

CERTIFIED ANALYTICAL RESULTS

ATTACHMENT C

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202



RECEIVED OCT 14 1997

ANALYTICAL REPORT FOR SAMPLES:

Pacific Environmental Group - OR 7320 S.W. Hunziker, Suite 320 Portland, OR 97223	Project: TOSCO #1785 Inman Oil, Vancouver, WA	Project Number: 512-005.1A	Project Manager: Kevin Freeman	Reported: 9/29/97 12:20
	Sampled: 9/22/97	Received: 9/23/97		

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
--------------------	--------------------------	---------------	--------------

B-1 (4)	P709436-02	Soil	9/22/97
B-1 (12)	P709436-06	Soil	9/22/97
B-2 (4)	P709436-09	Soil	9/22/97
B-3 (4)	P709436-13	Soil	9/22/97
B-3 (12)	P709436-17	Soil	9/22/97
B-4 (2)	P709436-18	Soil	9/22/97
B-4 (2.5)	P709436-19	Soil	9/22/97
B-5 (4)	P709436-21	Soil	9/22/97
B-5 (12)	P709436-25	Soil	9/22/97
B-6 (4)	P709436-31	Soil	9/22/97
B-6 (12)	P709436-35	Soil	9/22/97
B-7 (2)	P709436-36	Soil	9/22/97
B-8 (2)	P709436-37	Soil	9/22/97
B-9 (2)	P709436-38	Soil	9/22/97
B-10 (2)	P709436-39	Soil	9/22/97
B-11 (2)	P709436-40	Soil	9/22/97
B-12 (2)	P709436-41	Soil	9/22/97
B-13 (2)	P709436-42	Soil	9/22/97
B-14 (2)	P709436-43	Soil	9/22/97
B-15 (4)	P709436-45	Soil	9/22/97

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Laboratory Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223
 Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
--------------------	--------------------------	---------------	--------------

B-15 (12)	P709436-49	Soil	9/22/97
B-16 (4)	P709436-51	Soil	9/22/97
B-16 (12)	P709436-55	Soil	9/22/97

North Creek Analytical, Inc.
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NORTH CREEK ANALYTICAL



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223

Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A

North Creek Analytical - Portland

Analyte	Batch	Date	Date	Surrogate	Limit	Result	Units	Notes*
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B-1 (4) Gasoline Range Hydrocarbons	0970586	9/24/97	9/24/97	P709436-02	2.00	ND	mg/kg dry	Soil
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					6.11	ND	mg/kg dry	Soil
					2.00	ND		
					50.0-150	87.1	%	Surrogate: a,a,a-TFT (FID)
					50.0-150	87.8	%	Surrogate: a,a,a-TFT (PID)
B-1 (12) Gasoline Range Hydrocarbons	0970586	9/24/97	9/24/97	P709436-06	2.00	ND	mg/kg dry	Soil
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					6.11	ND	mg/kg dry	Soil
					2.00	ND		
					50.0-150	87.1	%	Surrogate: a,a,a-TFT (FID)
					50.0-150	87.8	%	Surrogate: a,a,a-TFT (PID)
B-2 (4) Gasoline Range Hydrocarbons	0970586	9/24/97	9/24/97	P709436-09	2.00	ND	mg/kg dry	Soil
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					6.11	ND	mg/kg dry	Soil
					2.00	ND		
					50.0-150	92.4	%	Surrogate: a,a,a-TFT (FID)
					50.0-150	93.1	%	Surrogate: a,a,a-TFT (PID)
B-3 (4) Gasoline Range Hydrocarbons	0970586	9/24/97	9/24/97	P709436-13	2.00	ND	mg/kg dry	Soil
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					2.00	ND	mg/kg dry	Soil
					2.00	ND		
					50.0-150	83.0	%	Surrogate: a,a,a-TFT (FID)
					50.0-150	82.6	%	Surrogate: a,a,a-TFT (PID)
B-3 (12) Gasoline Range Hydrocarbons	0970586	9/24/97	9/24/97	P709436-17	2.00	ND	mg/kg dry	Soil
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					0.0500	ND		
					2.00	ND	mg/kg dry	Soil
					2.00	ND		
					50.0-150	94.0	%	Surrogate: a,a,a-TFT (FID)
					50.0-150	92.8	%	Surrogate: a,a,a-TFT (PID)

North Creek Analytical, Inc. *Refer to end of report for text of notes and definitions.



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SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
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Pacific Environmental Group - OR
Project: TOSCO #1785 Inman Oil, Vancouver, WA
Project Number: 512-005.1A
Project Manager: Kevin Freeman
Sampled: 9/22/97
Received: 9/23/97
Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
North Creek Analytical - Portland

Analyte	Batch	Date	Prepared	Surrogate	Limit	Result	Units	Notes*
---------	-------	------	----------	-----------	-------	--------	-------	--------

B-3 (12) (continued)	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
B-4 (2)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
B-4 (2.5)	Benzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Gasoline Range Hydrocarbons	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (FID)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (PID)	Ethylbenzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
B-5 (4)	Benzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Gasoline Range Hydrocarbons	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (FID)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (PID)	Ethylbenzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
B-5 (12)	Benzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Gasoline Range Hydrocarbons	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (FID)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (PID)	Ethylbenzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	

B-5 (4)	Benzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Gasoline Range Hydrocarbons	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (FID)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (PID)	Ethylbenzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
B-5 (12)	Benzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Gasoline Range Hydrocarbons	Toluene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (FID)	Xylenes (total)	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	
Surrogate: a,a,a-TFT (PID)	Ethylbenzene	0970586	9/24/97	9/24/97	50.0-150	0.0500	ND	Soil
						0.0500	ND	mg/kg dry
						0.0500	ND	
						0.0500	ND	
						0.0500	ND	

North Creek Analytical, Inc. *Refer to end of report for text of notes and definitions.

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223

Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
 North Creek Analytical - Portland

Analyte	Batch	Date	Prepared	Date	Analyzed	Surrogate	Limit	Reporting	Result	Units	Notes*
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B-5 (12) (continued)		0970586	9/24/97	9/25/97			50.0-150	0.0500	ND	mg/kg dry	Soil
Surrogate: a,a-TFT (FID)							50.0-150		87.0	%	
Surrogate: a,a-TFT (PID)							50.0-150		86.2	%	

B-6 (4)		0970586	9/24/97	9/25/97			50.0-150	2.00	ND	mg/kg dry	Soil
Gasoline Range Hydrocarbons								0.0500	ND		
Benzene								0.0500	ND		
Toluene								0.0500	ND		
Ethylbenzene								0.0500	ND		
Xylenes (total)								0.0500	ND		
Surrogate: a,a-TFT (FID)							50.0-150		87.9	%	
Surrogate: a,a-TFT (PID)							50.0-150		87.9	%	

B-6 (12)		0970586	9/24/97	9/25/97			50.0-150	2.00	ND	mg/kg dry	Soil
Gasoline Range Hydrocarbons								0.0500	ND		
Benzene								0.0500	ND		
Toluene								0.0500	ND		
Ethylbenzene								0.0500	ND		
Xylenes (total)								0.0500	ND		
Surrogate: a,a-TFT (FID)							50.0-150		91.5	%	
Surrogate: a,a-TFT (PID)							50.0-150		89.7	%	

B-7 (2)		0970586	9/24/97	9/25/97			50.0-150	2.00	ND	mg/kg dry	Soil
Gasoline Range Hydrocarbons								0.0500	ND		
Benzene								0.0500	ND		
Toluene								0.0500	ND		
Ethylbenzene								0.0500	ND		
Xylenes (total)								0.0500	ND		
Surrogate: a,a-TFT (FID)							50.0-150		87.7	%	
Surrogate: a,a-TFT (PID)							50.0-150		87.0	%	

B-8 (2)		0970586	9/24/97	9/25/97			50.0-150	2.00	ND	mg/kg dry	Soil
Gasoline Range Hydrocarbons								0.0500	ND		
Benzene								0.0500	ND		
Toluene								0.0500	ND		
Ethylbenzene								0.0500	ND		
Xylenes (total)								0.0500	ND		
Surrogate: a,a-TFT (FID)							50.0-150		87.7	%	
Surrogate: a,a-TFT (PID)							50.0-150		87.0	%	

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Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 TOSCO #1785 Inman Oil, Vancouver, WA
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
 North Creek Analytical - Portland

Analyte	Batch	Date	Prepared	Date	Analyzed	Surrogate	Reporting	Limit	Result	Units	Notes*
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B-8 (2) (continued)
 Surrogate: a,a,a-TFT (PID) 0970586 9/24/97 9/25/97 50.0-150
 Soil 82.8 %

B-9 (2)
 Gasoline Range Hydrocarbons 0970586 9/24/97 9/25/97 2.00
 Soil 43.1 mg/kg dry
 Benzene ND 0.0500
 Toluene ND 0.0500
 Ethylbenzene ND 0.0500
 Xylenes (total) ND 0.0500
 Surrogate: a,a,a-TFT (FID) 50.0-150
 Surrogate: a,a,a-TFT (PID) 50.0-150
 81.8 %
 82.2 %

B-10 (2)
 Gasoline Range Hydrocarbons 0970586 9/24/97 9/25/97 2.00
 Soil 43.1 mg/kg dry
 Benzene ND 0.0500
 Toluene ND 0.0500
 Ethylbenzene ND 0.0500
 Xylenes (total) ND 0.0500
 Surrogate: a,a,a-TFT (FID) 50.0-150
 Surrogate: a,a,a-TFT (PID) 50.0-150
 87.8 %
 81.4 %

B-11 (2)
 Gasoline Range Hydrocarbons 0970586 9/24/97 9/25/97 2.00
 Soil 43.1 mg/kg dry
 Benzene ND 0.0500
 Toluene ND 0.0500
 Ethylbenzene ND 0.0500
 Xylenes (total) ND 0.0500
 Surrogate: a,a,a-TFT (FID) 50.0-150
 Surrogate: a,a,a-TFT (PID) 50.0-150
 87.2 %
 82.4 %

B-12 (2)
 Gasoline Range Hydrocarbons 0970586 9/24/97 9/25/97 2.00
 Soil 43.1 mg/kg dry
 Benzene ND 0.0500
 Toluene ND 0.0500
 Ethylbenzene ND 0.0500
 Xylenes (total) ND 0.0500
 Surrogate: a,a,a-TFT (FID) 50.0-150
 Surrogate: a,a,a-TFT (PID) 50.0-150
 89.9 %
 87.4 %

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Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 TOSCO #1785 Inman Oil, Vancouver, WA
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
 North Creek Analytical - Portland

Analyte	Batch	Date	Date	Surrogate	Limit	Result	Units	Notes*
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B-16 (4) (continued)	0970612	9/25/97	9/26/97	P709436-51	0.0500	ND	mg/kg dry	
Toluene	"	"	"	"	0.0500	ND	"	
Ethylbenzene	"	"	"	"	0.0500	ND	"	
Xylenes (total)	"	"	"	"	0.0500	ND	"	
Surrogate: a,a-TFT (FID)	"	"	"	"	50.0-150	84.0	%	
Surrogate: a,a-TFT (PID)	"	"	"	"	50.0-150	83.2	"	

B-16 (12)	0970612	9/25/97	9/26/97	P709436-55	2.00	ND	mg/kg dry	
Gasoline Range Hydrocarbons	"	"	"	"	0.0500	ND	"	
Benzene	"	"	"	"	0.0500	ND	"	
Toluene	"	"	"	"	0.0500	ND	"	
Ethylbenzene	"	"	"	"	0.0500	ND	"	
Xylenes (total)	"	"	"	"	0.0500	ND	"	
Surrogate: a,a-TFT (FID)	"	"	"	"	50.0-150	85.8	%	
Surrogate: a,a-TFT (PID)	"	"	"	"	50.0-150	85.1	"	

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Philip Nerenberg, Laboratory Manager
 18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

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 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223

Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) per WTPH-D (extended)
 North Creek Analytical - Portland

Analyte	Batch	Date	Prepared	Date	Analyzed	Surrogate	Limit	Reporting	Result	Units	Notes*
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B-1 (4)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	80.8	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-1 (12)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	698	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-2 (4)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	80.0	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-3 (4)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	83.4	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-3 (12)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	83.6	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-4 (2)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	787	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-4 (2.5)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	641	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

B-5 (4)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	ND	25.0	50.0	ND	mg/kg dry	ND	%
	Heavy Oil Range Hydrocarbons					50.0	50.0	ND			
	Surrogate: 1-Chlorooctadecane					50.0-150					

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 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

Philip Nerenberg, Laboratory Manager

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
 SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 TOSCO #1785 Inman Oil, Vancouver, WA
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) per WTPH-D (extended)
 North Creek Analytical - Portland

Analyte	Batch	Date	Date	Surrogate	Limit	Result	Units	Notes*
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B-5 (12)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	25.0	ND	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	81.8	%	

B-6 (4)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	25.0	ND	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	80.7	%	

B-6 (12)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	25.0	ND	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	81.6	%	

B-7 (2)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	125	509	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	250	1350	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	90.9	%	

B-8 (2)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	250	819	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	500	1400	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	116	%	

B-9 (2)	Diesel Range Hydrocarbons	0970588	9/24/97	9/25/97	125	1900	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	250	563	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	113	%	

B-10 (2)	Diesel Range Hydrocarbons	0970588	9/24/97	9/26/97	25.0	904	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	357	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	82.9	%	

B-11 (2)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	ND	mg/kg dry	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	59.1	%	

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NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223

Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) per WTPH-D (extended)
 North Creek Analytical - Portland

Analyte	Batch	Date	Date	Surrogate	Reporting	Limit	Result	Units	Notes*
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B-12 (2)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	442	mg/kg dry	3	3
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	265	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	74.7	%		

B-13 (2)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	ND	mg/kg dry	"	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	60.4	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	68.3	%		

B-14 (2)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	258	mg/kg dry	"	1
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	1310	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	74.6	%		

B-15 (4)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	ND	mg/kg dry	"	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	69.0	%		

B-15 (12)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	ND	mg/kg dry	"	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	69.3	%		

B-16 (4)	Diesel Range Hydrocarbons	0970600	9/24/97	9/24/97	25.0	197	mg/kg dry	"	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	233	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	75.9	%		

B-16 (12)	Diesel Range Hydrocarbons	0970600	9/24/97	9/25/97	25.0	ND	mg/kg dry	"	
	Heavy Oil Range Hydrocarbons	"	"	"	50.0	ND	"	"	
	Surrogate: 1-Chlorooctadecane	"	"	"	50.0-150	68.5	%		

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 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

Philip Nerenberg, Laboratory Manager

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
 SPOKANE ■ (509) 924-9200 ■ FAX 924-9250
 PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223

Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

**Dry Weight Determination
 North Creek Analytical - Portland**

Sample Name	Lab ID	Matrix	Result	Units
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B-1 (4)	P709436-02	Soil	92.2	%
B-1 (12)	P709436-06	Soil	95.3	%
B-2 (4)	P709436-09	Soil	92.4	%
B-3 (4)	P709436-13	Soil	94.2	%
B-3 (12)	P709436-17	Soil	92.0	%
B-4 (2)	P709436-18	Soil	89.5	%
B-4 (2.5)	P709436-19	Soil	87.4	%
B-5 (4)	P709436-21	Soil	90.0	%
B-5 (12)	P709436-25	Soil	93.0	%
B-6 (4)	P709436-31	Soil	94.7	%
B-6 (12)	P709436-35	Soil	92.1	%
B-7 (2)	P709436-36	Soil	87.9	%
B-8 (2)	P709436-37	Soil	91.6	%
B-9 (2)	P709436-38	Soil	91.0	%
B-10 (2)	P709436-39	Soil	95.2	%
B-11 (2)	P709436-40	Soil	91.7	%
B-12 (2)	P709436-41	Soil	90.3	%
B-13 (2)	P709436-42	Soil	92.7	%
B-14 (2)	P709436-43	Soil	91.3	%

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Handwritten signature

Philip Nerenberg, Laboratory Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
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 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

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NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



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 Sampled: 9/22/97
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 Reported: 9/29/97 12:20

Dry Weight Determination
 North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
-------------	--------	--------	--------	-------

B-15 (4)	P709436-45	Soil	91.2	%
B-15 (12)	P709436-49	Soil	94.2	%
B-16 (4)	P709436-51	Soil	93.4	%
B-16 (12)	P709436-55	Soil	93.4	%

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[Signature]

Philip Nerrenberg, Laboratory Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Pacific Environmental Group - OR
7320 S.W. Hunziker, Suite 320
Project Number: 512-005.1A
Project Manager: Kevin Freeman
TOSCO #1785 Inman Oil, Vancouver, WA
Sampled: 9/22/97
Received: 9/23/97
Reported: 9/29/97 12:20

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Portland

Analyte	Date	Spike	Sample	QC	Units	Reporting Limit	Recovery	% Limit	% Notes
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Batch: 0970586
Date Prepared: 9/24/97
Extraction Method: MeOH Extraction

Gasoline Range Hydrocarbons	9/24/97	2.50	2.50	2.53	2.48	ND	0.0500	101	99.2
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	31.3	32.5	32.5	32.5	ND	50.0-150	104	111
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	0.500	0.522	0.543	0.538	ND	69.0-138	104	109
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	ND	ND	ND	2.35	ND	50.0-150	86.7	50.0
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/25/97	ND	ND	ND	2.54	ND	50.0-150	94.4	50.0
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	0.525	0.507	0.528	0.512	ND	56.0-123	96.6	101
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	0.525	0.507	0.528	0.512	ND	56.0-123	96.6	101
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	0.525	0.507	0.528	0.512	ND	56.0-123	96.6	101
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									

Gasoline Range Hydrocarbons	9/24/97	0.525	0.507	0.528	0.512	ND	56.0-123	96.6	101
Surrogate: a,a,a-TFT (FID)									
Surrogate: a,a,a-TFT (PID)									
Benzenes									
Toluene									
Ethylbenzene									
Xylenes (total)									



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Pacific Environmental Group - OR
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Sampled: 9/22/97
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Reported: 9/29/97 12:20

7320 S.W. Hunziker, Suite 320
Project Number: 512-005.1A
Project Manager: Kevin Freeman
Portland, OR 97223

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control

Analyte	Date	Spike	Sample	QC	Units	Reporting Limit	Recovery	RPD	RPD	% Notes*
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Matrix Spike (continued)	0970612-MS1	9/25/97	2.76	2.23	mg/kg dry	50.0-150	80.8			
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Matrix Spike Dup	0970612-MSD1	9/25/97	0.552	ND	0.386	mg/kg dry	56.0-123	69.9	17.0	22.4
Benzene			0.552	ND			54.0-123	75.0	24.0	18.2
Toluene			0.552	ND	0.414		45.0-130	73.6	20.0	15.7
Ethylbenzene			0.552	ND	0.406		50.0-127	72.3	20.0	16.0
Xylenes (total)			1.66	ND	1.20		50.0-150	71.0		
Surrogate: a,a,a-TFT (FID)			2.76		1.96		50.0-150	71.0		
Surrogate: a,a,a-TFT (PID)			2.76		1.96		50.0-150	71.0		



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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Pacific Environmental Group - OR
7320 S.W. Hunziker, Suite 320
Portland, OR 97223
Project: TOSCO #1785 Inman Oil, Vancouver, WA
Project Number: 512-005.1A
Project Manager: Kevin Freeman
Sampled: 9/22/97
Received: 9/23/97
Reported: 9/29/97 12:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) per WTPH-D (extended)/Quality Control
North Creek Analytical - Portland

Analyte	Date	Spike	Sample	QC	Reporting Limit	Recovery	% Limit	% Notes*
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Batch: 0970588	Date Prepared: 9/24/97	Extraction Method: TPH-D (OR)						
Blank	9/24/97	ND	ND	ND	mg/kg dry	25.0	50.0	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	3.76		"	50.0-150	75.2	

LCS	0970588-BS1	125	109		mg/kg dry	50.0-150	87.2	
Diesel Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	4.47		"	50.0-150	89.4	

Duplicate	0970588-DUP1	P709402-01	3950	3130	mg/kg dry	50.0	23.2	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		6.36	5.86		"	50.0-150	92.1	

Duplicate	0970588-DUP2	P709402-05	8110	4050	mg/kg dry	50.0	66.8	5
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		6.33	7.03		"	50.0-150	111	

Duplicate	0970588-DUP3	P709436-09	ND	ND	mg/kg dry	50.0	50.0	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.41	4.34		"	50.0-150	80.2	

Batch: 0970600	Date Prepared: 9/24/97	Extraction Method: TPH-D Extraction						
Blank	9/24/97	ND	ND	ND	mg/kg dry	25.0	50.0	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	4.11		"	50.0-150	82.2	

Blank	0970600-BLK1	9/24/97	ND	ND	mg/kg dry	25.0	50.0	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	4.11		"	50.0-150	82.2	

Blank	0970600-BLK2	9/25/97	ND	ND	mg/kg dry	25.0	50.0	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	4.32		"	50.0-150	86.4	

LCS	0970600-BS1	9/24/97	125	121	mg/kg dry	50.0-150	96.8	
Diesel Range Hydrocarbons								
Heavy Oil Range Hydrocarbons								
Surrogate: 1-Chlorooctadecane		5.00	4.84		"	50.0-150	96.8	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomerie, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

Philip Nerenberg, Laboratory Manager



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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Pacific Environmental Group - OR
Project: TOSCO #1785 Inman Oil, Vancouver, WA
Sampled: 9/22/97
Received: 9/23/97
Reported: 9/29/97 12:20
Project Number: 512-005.1A
Project Manager: Kevin Freeman

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) per WTPH-D (extended)/Quality Control
North Creek Analytical - Portland

Analyte	Date	Spike	Sample	QC	Units	Recovery	Limit	% RPD	% Notes*
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Duplicate	0970600-DUP1	P709436-43	258	223	mg/kg dry	50.0	14.6	13.0	
Diesel Range Hydrocarbons	9/25/97					50.0			
Heavy Oil Range Hydrocarbons			1310	1150	"	50.0-150	69.5		
Surrogate: 1-Chlorooctadecane		5.48		3.81	"	50.0-150			

Duplicate	0970600-DUP2	P709436-51	197	163	mg/kg dry	50.0	18.9	15.7	
Diesel Range Hydrocarbons	9/25/97					50.0			
Heavy Oil Range Hydrocarbons			233	199	"	50.0-150	75.3		
Surrogate: 1-Chlorooctadecane		5.35		4.03	"	50.0-150			

Duplicate	0970600-DUP3	P709335-03	1040	1120	mg/kg dry	50.0	7.41		
Diesel Range Hydrocarbons	9/25/97					50.0			
Heavy Oil Range Hydrocarbons			ND	ND	"	50.0-150	134		
Surrogate: 1-Chlorooctadecane		5.75		7.71	"	50.0-150			

North Creek Analytical, Inc.
*Refer to end of report for text of notes and definitions.

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NORTH CREEK ANALYTICAL
 Environmental Laboratory Services



Pacific Environmental Group - OR
 7320 S.W. Hunziker, Suite 320
 Portland, OR 97223
 Project: TOSCO #1785 Inman Oil, Vancouver, WA
 Project Number: 512-005.1A
 Project Manager: Kevin Freeman
 Sampled: 9/22/97
 Received: 9/23/97
 Reported: 9/29/97 12:20

Notes and Definitions

1 Detected hydrocarbons in the diesel range appear to be due primarily to overlap from heavy oil.

2 Detected hydrocarbons in the heavy oil range appear to be due primarily to overlap from diesel.

3 Hydrocarbon pattern resembles heavily weathered diesel or a light oil such as hydraulic fluid.

4 The RPD for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.

5 The RPD is above the control limit due to a non-homogeneous sample matrix.

 Note

DET

Analyte DETECTED

ND

Analyte NOT DETECTED at or above the reporting limit

NR

Not Reported

dry

Sample results reported on a dry weight basis

Recov.

Recovery

RPD

Relative Percent Difference

North Creek Analytical, Inc.

Handwritten signature

Philip Nerenberg, Laboratory Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
 East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

UNOCAL INFORMATION

Facility Number: Inman Oil No. 1785

Site Address: 1300 West 12th

City, State, ZIP: Vancouver, WA

Site Release Number:

Unocal Manager: Martha Granger

CERT INFO: (check one) ☐ Evaluation ☐ Remediation

☐ Detection ☐ Demolition ☐ Closure ☐ Miscellaneous

CONSULTANT INFORMATION

Firm: PEG Project Number: 512-605.1A

Address: Portland

Phone: 634-6305 Fax:

Project Manager: K. Freeman

Sample Collection by: K. Freeman

Chain of Custody Record #:

Quality Assurance Data Level:

☐ A ☐ B

A: Standard Summary

B: Standard + Chromatograms

Laboratory Turnaround Days:

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W, S, O)	# OF CON. TAINERS
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TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen, Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS Semi Vols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead: Total or Dissolved	TCLP Metals (8)
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NCA SAMPLE NUMBER

1. B-1 (2)	9/22/97	S	1
2. B-1 (4)			
3. B-1 (6)			
4. B-1 (8)			
5. B-1 (10)			
6. B-1 (12)			
7. B-1 (16)			
8. B-2 (2)			
9. B-2 (4)			
10. B-2 (6)			

X														

Relinquished By:	Firm:	Date & Time	Received by:	Firm:	Date & Time
<u>[Signature]</u>	<u>PEG</u>	<u>9/23/97</u>	<u>[Signature]</u>	<u>PEG</u>	<u>9/23/97</u>
<u>[Signature]</u>	<u>NCA</u>	<u>9-23-97 1655</u>	<u>[Signature]</u>	<u>NCA</u>	<u>9-23-97 1610</u>
<u>[Signature]</u>	<u>NCA</u>	<u>9-23-97 1655</u>	<u>[Signature]</u>	<u>NCA</u>	<u>9-23-97 1655</u>

Were all requested results provided?	☐ yes ☐ no	Define
Were results within requested turnaround?	☐ yes ☐ no	*No*
Final Approval Signature:		on back

please hold samples until further notice

12-4

Chain of Custody Record #:

P709436

Quality Assurance Data Level:

A B

A: Standard Summary

B: Standard + Chromatograms

Laboratory Turnaround Days:

5	3	2	1
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				O Oregon ☒ Washington Hydrocarbon Methods															
SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W.S.O)	# OF CONTAINERS	TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen. Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS SemiVols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead:	Total or Dissolved	TCLP Metals (8)
1. B-2 (7)	9/22/97	S	1																
2. B-3 (2)					X														
3. B-3 (4)									X										
4. B-3 (6)																			
5. B-3 (8)																			
6. B-3 (10)																			
7. B-3 (12)									X										
8. B-4 (2)									X										
9. B-4 (25)									X										
10. B-5 (2)																			

NCA SAMPLE NUMBER

please hold samples until further notice

Final Report Approval

Were all requested results provided?

Were results within requested turnaround?

Final Approval Signature:

Date:

yes	no	Define
yes	no	*No*

on back

171

CONSULTANT INFORMATION

Chain of Custody Record #: P70943C

Quality Assurance Data Level:

A B

A: Standard Summary

B: Standard + Chromatogram

Laboratory Turnaround Days:

5	3	2	1
19			

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INLA SAMPLE NUMBER

12/20/20

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yes	no	Defi
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Date: _____

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UNOCAL CHAIN OF CUSTODY REPORT

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9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2207

12-4

UNOCAL INFORMATION

Facility Number: Turna Oil No. 1785
Site Address: 1300 West 12th
City, State, ZIP: Vancouver, WA
Site Release Number:
Unocal Manager: Marty Carver
CERT INFO: (check one) ☐ Evaluation ☐ Remediation
☐ Detection ☐ Demolition ☐ Closure ☐ Miscellaneous

CONSULTANT INFORMATION

Firm: PEG Project Number: 512-005.14
Address: Portland
Phone: 639-6305 Fax:
Project Manager: K. Freeman
Sample Collection by: J. Callison

Chain of Custody Record #:

P700436

Quality Assurance Data Level:

☐ A ☐ B

A: Standard Summary

B: Standard + Chromatograms

Laboratory Turnaround Days:

☒ 5 ☐ 3 ☐ 2 ☐ 1

Oregon ☒ Washington Hydrocarbon Methods

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONTAINERS	TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen. Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS SemiVols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead:	Total or Dissolved	TCLP Metals (8)
1. B-6 (4)	9/22/97	S	1		X				X										
2. B-6 (6)																			
3. B-6 (8)																			
4. B-6 (10)																			
5. B-6 (12)																			
6. B-7 (2)																			
7. B-8 (2)																			
8. B-9 (2)																			
9. B-10 (2)																			
10. B-11 (2)																			

Relinquished by:

Firm:

Date & Time

Received by:

Firm:

Date & Time

Final Report Approval

Were all requested results provided?

Were results within requested turnaround?

Final Approval Signature:

☐ yes ☐ no ☐ yes ☐ no ☐ Define ☐ No ☐ on back

Comments:

Distribution: White - Laboratory Yellow - Consultant Photocopy - Unocal

Page 4 of 6
Rev. 2.2, 11/94

Firm:

Date:

NCA SAMPLE NUMBER

Please hold samples until further notice

UNOCAL INFORMATION

Facility Number: Tanah Oil No 1785
 Site Address: B300 West 12th
 City, State, ZIP: Vancouver WA
 Site Release Number:
 Unocal Manager: Marty Cranel
 CERT INFO: (check one) ☐ Evaluation ☐ Remediation
☐ Detection ☐ Demolition ☐ Closure ☐ Miscellaneous

CONSULTANT INFORMATION

Firm: PEG Project Number: 512-005.1A
 Address: Portland
 Phone: 639-6305 Fax:
 Project Manager: K. Freeman
 Sample Collection by: J. Callison

Chain of Custody Record #:

P7091436

Quality Assurance Data Level:

☐ A ☐ B

A: Standard Summary

B: Standard + Chromatograms

Laboratory Turnaround Days:

☒ 5 ☐ 3 ☐ 2 ☐ 1

Oregon ☒ Washington Hydrocarbon Methods

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONTAINERS
B-12 (2)	9/2/97	S	2
B-13 (2)			2
B-14 (2)			2
B-15 (2)			1
B-15 (4)			
B-15 (6)			
B-15 (8)			
B-15 (10)			
B-15 (12)			
B-16 (2)			

TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen, Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS SemiVols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead: Total or Dissolved	TCLP Metals (8)
X	X			X	X									
X	X			X	X									
X	X			X	X									

NCA SAMPLE NUMBER

Please hold samples until further notice

Relinquished by:

Firm:

Date & Time

Received by:

Firm:

Date & Time

Shasta Creek PEG 9/23/97 1610
Shasta Creek PEG 9/23/97 1655

Final Report Approval

Were all requested results provided?

Were results within requested turnaround?

☐ yes ☐ no ☐ yes ☐ no

Final Approval Signature:

on back

Comments:

Distribution: White - Laboratory Yellow - Consultant Photocopy - Unocal

Firm:

Date:



NORTH CREEK ANALYTICAL

UNOCAL CHAIN OF CUSTODY REPORT

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9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

UNOCAL INFORMATION

Facility Number: Immer Oil B. 1785
Site Address: 1320 West 12th
City, State, ZIP: Vancouver WA
Site Release Number:
Unocal Manager: Marty Cranner
CERT INFO: (check one) ☒ Evaluation ☐ Remediation
☐ Detection ☐ Demolition ☐ Closure ☐ Miscellaneous

CONSULTANT INFORMATION

Firm: PEG Project Number: SIC-005.1A
Address: Portland
Phone: 639-6305 Fax:
Project Manager: K. Freeman
Sample Collection by: J. Calisan

Chain of Custody Record #:

P7C9436

Quality Assurance Data Level:
☒ A ☐ B

A: Standard Summary
B: Standard + Chromatograms

Laboratory Turnaround Days:
☒ 5 ☐ 3 ☐ 2 ☐ 1

☒ Oregon ☒ Washington Hydrocarbon Methods

SAMPLE IDENTIFICATION		SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONTAINERS	TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen. Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS Semi Vols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead: Total or Dissolved	TCLP Metals (8)
1.	B-16(4)	9/23/97	S	1		X				X									
2.	B-16(6)																		
3.	B-16(8)																		
4.	B-16(10)																		
5.	B-16(12)					X				X									
6.																			
7.																			
8.																			
9.																			
10.																			

NCA SAMPLE NUMBER	please hold samples until further notice

Relinquished by: [Signature] Firm: PEG Date & Time: 9/23/97-1600 Received by: [Signature] Firm: NCA Date & Time: 9-23-07 1600
Comments: Turnover to NCA 9-23-07 1700

Final Report Approval
Were all requested results provided? ☒ yes ☐ no
Were results within requested turnaround? ☒ yes ☐ no
Final Approval Signature: _____ Date: _____

Please hold samples until further notice