PACIFIC
ENVIRONMENTAL
GROUP, INC.

January 20, 1997
Project 304-012.1A

Mr. Timothy D. Johnson
Tosco Northwest Company
601 Union Street, Suite 2500
Seattle, Washington 98101

Re: Oil/Water Separator
Closure Documentation
Tosco Service Station 11270
3255 McCartney Road
Alameda, California

Dear Mr. Johnson:

Pacific Environmental Group, Inc. (PACIFIC) has prepared this letter for the Tosco Northwest Company (Tosco) to document the results of the oil/water separator closure activities at the site referenced above (Figure 1). This work was performed by PACIFIC at the request of Tosco. The purpose of this work was to investigate the condition of soil beneath the base of the oil/water separator located on the service station property.

SUMMARY OF FIELD ACTIVITIES

On December 12, 1996, PACIFIC collected two soil samples (OWS-1, 0.5' and OWS-1, 2') from beneath the oil/water separator located in the floor of the vehicle service bay at the west side of the service station building (Figure 1 and Table 1). Soil samples OWS-1, 0.5' and OWS-1, 2' were collected immediately below the second stage of the separator and at depth approximately 0.5 foot and 2 feet, respectively.

The soil samples were collected using hand auger equipment and were retained in brass liners, sealed with Teflon® tape and plastic end caps, and stored on ice. The samples were later transported under chain-of-custody to a California state-certified laboratory. Each soil sample was analyzed for total recoverable petroleum hydrocarbons (TRPH) and halogenated volatile organic compounds (HVOCs) by EPA Methods 418.1 and 8010, respectively. In addition, the soil samples were analyzed for total petroleum

hydrocarbons calculated as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) by EPA Methods 8015 (modified) and 8020. Samples OWS-1, 0.5' and OWS-1, 2' were also analyzed for TPH calculated as diesel (TPH-d) with silica gel cleanup by the California DHS LUFT Method. Field and laboratory procedures are presented as Attachment A. Certified analytical reports and chain-of-custody documentation are presented as Attachment B.

FINDINGS

Oil/Water Separator Closure

Prior to collecting the soil samples, Gettler-Ryan removed the contents of the oil/water separator and steam cleaned the inside. Each stage of the separator was then inspected and appeared to be in good and undamaged condition. The bottom of the separator was then broken out using an pneumatic hammer. The concrete at the base of the second stage of the separator was observed to be less than 1-inch thick. Soil samples were then collected from below the second stage using hand auger equipment. Field evidence of hydrocarbon-impacted soil was not observed.

Soil Analytical Results

TRPH was detected in soil samples OWS-1, 0.5' and OWS-1, 2' at concentrations of 49 and 13 parts per million (ppm), respectively. TPH-g and BTEX compounds were not detected in the samples at concentrations above the laboratory method reporting limits (MRLs). In addition, TPH-d and HVOCs were not detected at concentrations above the MRLs. Soil analytical data are presented in Table 1.

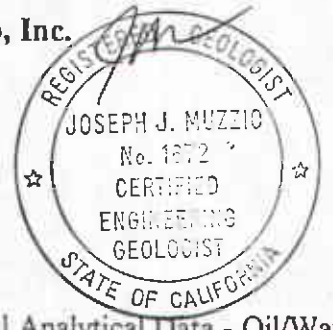
CONCLUSIONS

Based on the analytical results for the two soil samples collected from hand auger Boring OWS-1, minor concentrations of petroleum hydrocarbons are present in the soil below oil/water separator. Soil samples collected at depths of 0.5 foot and 2 feet beneath the separator contained TRPH at concentrations of 49 and 13 ppm, respectively. TPH-g, BTEX compounds, TPH-d, and HVOCs were not detected at concentrations above the laboratory MRLs.

Should you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.



Joseph Muzzio
Project Geologist
CEG 1672

Attachments: Table 1 - Soil Analytical Data - Oil/Water Separator
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, TRPH, and HVOCs)
Figure 1 - Site Map
Attachment A - Field and Laboratory Procedures
Attachment B - Certified Analytical Reports and Chain-of-Custody Documentation

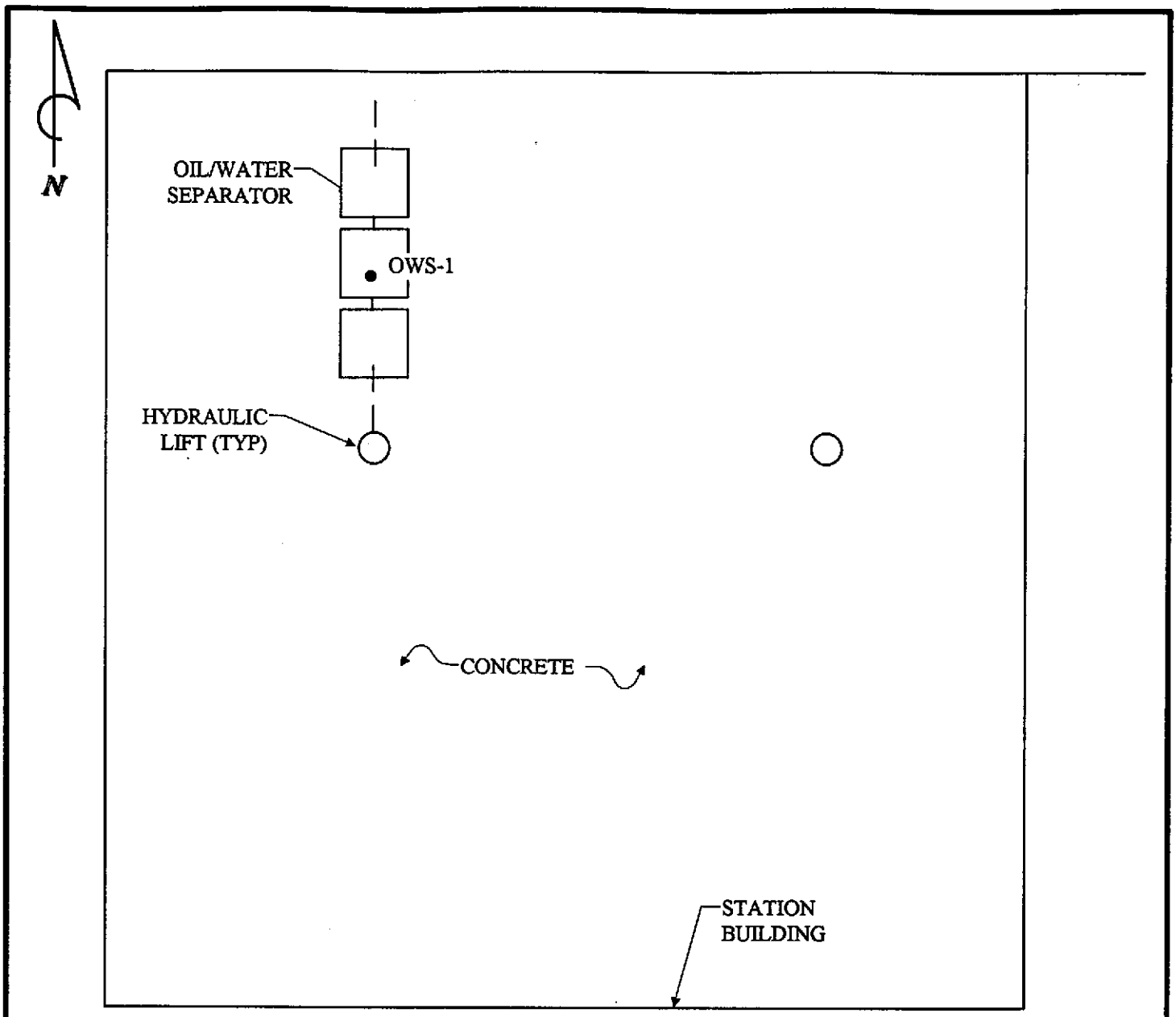
cc: Mr. Scott Hooton, British Petroleum Oil Company
Ms. Juliet Shin, Alameda County Environmental Health
Mr. Kevin Graves, California Regional Water Quality Control Board, San Francisco Bay Region
Mr. Kent Hein, Tosco Corporation

Table 1
Soil Analytical Data
Oil/Water Separator
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, TRPH, and HVOCs)

Tosco Service Station 11270
3255 McCartney Road
Alameda, California

Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	TPH as Diesel (ppm)	TRPH (ppm)	HVOCs (ppb)
OWS-1, 0.5'	0.5	12/12/96	ND	ND	ND	ND	ND	ND	49	ND
OWS-1, 2'	2	12/12/96	ND	ND	ND	ND	ND	ND	13	ND

TRPH = Total recoverable petroleum hydrocarbons
HVOCs = Halogenated volatile organic compounds
ppm = Parts per million
ND = Not detected at a concentration above the laboratory method reporting limit.



LEGEND

OWS-1 ● SOIL SAMPLE LOCATION AND DESIGNATION

SCALE

0 5 10 FEET

PACIFIC ENVIRONMENTAL GROUP, INC.

TOSCO SERVICE STATION 11270
3255 McCartney Road
Oakland, California

SITE MAP

FIGURE: 1

PROJECT: 304-012.1A

304/012/Sitemap5.vsd

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

ATTACHMENT A
FIELD AND LABORATORY PROCEDURES

Hand-Auger Drilling Method

Soil Boring OWS-1 was completed using the hand-auger drilling method. This method utilizes a 3-inch diameter earth auger attached to a 4-foot long T-bar that is turned by hand. As the depth of the boring was increased, additional extension rods were attached. For the collection of soil samples, the auger was removed and replaced with a sampling devise, consisting of a steel penetration shoe attached to a extension rod and sliding hammer. The shoe was equipped with a brass sample retention liner, approximately 6 inches long and 2 inches in diameter. To collect soil samples, the shoe and liner were driven with the slide hammer into the undisturbed soil at the bottom of the borehole. After the sampler was driven into the soil, the shoe was removed from the boring and the sample liner was removed from the shoe and sealed on both ends with Teflon® tape and plastic end caps. The hand auger and sampling equipment were washed in a nonphosphatic cleaning solution and rinsed with deionized water prior to collecting each sample. Upon completion of the sampling, the boring was backfilled with soil cuttings.

The soil samples were stored at a temperature of less than 4 degrees Centigrade in an insulated container. The samples were later transported under chain-of-custody to a California State-certified laboratory.

Laboratory Procedure

Soil samples OWS-1, 0.5' and OWS-1, 2' were analyzed for total recoverable petroleum hydrocarbons (TRPH) and halogenated volatile organic compounds (HVOCs) by EPA Methods 418.1 and 8010, respectively. In addition, the soil samples were analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) by EPA Methods 8015 (modified) and 8020, respectively. The samples were also analyzed for TPH calculated as diesel (TPH-d) with silica gel cleanup by the California DHS LUFT Method. Certified analytical reports and chain-of-custody documentation are presented as Attachment B.

ATTACHMENT B

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

Columbia Analytical Services, Inc.

December 27, 1996 Service Request No.: S9602180

Mr. Joe Muzzio
PACIFIC ENVIRONMENTAL GROUP
2025 Gateway Place, Suite 440
San Jose, CA 95110

RE: TOSCO 11270/Oakland/304-012.1A

Dear Mr. Joe Muzzio:

The following pages contain analytical results for sample(s) received by the laboratory on December 13, 1996. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above. To help expedite our service, please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 10, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely,

Cristina V. Layburn

Steven L. Green
Project Chemist

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	TOSCO	**Service Request:**	L9604972
Project:	TOSCO 11270/Oakland/#304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	12/19/96
		Date Analyzed:	12/19/96

Total Recoverable Petroleum Hydrocarbons (TRPH)
EPA Method 418.1
Units: mg/Kg (ppm)

Sample Name	Lab Code	MRL	Result
OWS-1, 0.5'	L9604972-001	10	49
OWS-1, 2'	L9604972-002	10	13
Method Blank	L961219-MB	10	ND

1AMRL/120594

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	12/18/96

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

		Sample Name:	**OWS-1, 0.5'**	**OWS-1, 2'**	**Method Blank**
		Lab Code:	S9602180-001	S9602180-002	S961218-SB1
		Date Analyzed:	12/19/96	12/19/96	12/18/96
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	0.1		ND	ND	ND
Chloromethane	0.1		ND	ND	ND
Vinyl Chloride	0.05		ND	ND	ND
Bromomethane	0.05		ND	ND	ND
Chloroethane	0.05		ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05		ND	ND	ND
1,1-Dichloroethene	0.05		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05		ND	ND	ND
Methylene Chloride	0.05		ND	ND	ND
trans-1,2-Dichloroethene	0.05		ND	ND	ND
cis-1,2-Dichloroethene	0.05		ND	ND	ND
1,1-Dichloroethane	0.05		ND	ND	ND
Chloroform	0.05		ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05		ND	ND	ND
Carbon Tetrachloride	0.05		ND	ND	ND
1,2-Dichloroethane	0.05		ND	ND	ND
Trichloroethene (TCE)	0.05		ND	ND	ND
1,2-Dichloropropane	0.05		ND	ND	ND
Bromodichloromethane	0.05		ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5		ND	ND	ND
trans-1,3-Dichloropropene	0.05		ND	ND	ND
cis-1,3-Dichloropropene	0.05		ND	ND	ND
1,1,2-Trichloroethane	0.05		ND	ND	ND
Tetrachloroethene (PCE)	0.05		ND	ND	ND
Dibromochloromethane	0.05		ND	ND	ND
Chlorobenzene	0.05		ND	ND	ND
Bromoform	0.05		ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05		ND	ND	ND
1,3-Dichlorobenzene	0.1		ND	ND	ND
1,4-Dichlorobenzene	0.1		ND	ND	ND
1,2-Dichlorobenzene	0.1		ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	12/23/96
		Date Analyzed:	12/23-24/96

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
As Received Basis

Analyte:	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes, Total
Units:	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Method Reporting Limit:	1	0.005	0.005	0.005	0.005
Sample Name	**Lab Code**				
OWS-1, 0.5'	S9602180-001	ND	ND	ND	ND	ND
OWS-1, 2'	S9602180-002	ND	ND	ND	ND	ND
Method Blank	S961223-SB1	ND	ND	ND	ND	ND

5ABTXGAS/061694

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	12/18/96
		Date Analyzed:	12/18/96

TPH as Diesel
California DHS LUFT Method/Silica Gel Clean-Up
Units: mg/Kg (ppm)
As Received Basis

Sample Name	Lab Code	MRL	Result
OWS-1, 0.5'	S9602180-001	1	ND
OWS-1, 2'	S9602180-002	1	ND
Method Blank	9601218-SB1	1	ND

1AMRL/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	12/18/96
		Date Analyzed:	NA

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
OWS-1, O.5'	S9602180-001	97
OWS-1, 2'	S9602180-002	97
Method Blank	S961218-SB1	92

CAS Acceptance Limits: 74-125

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
TPH as Gasoline/BTEX
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	PID Detector Percent Recovery 4-Bromofluorobenzene	FID Detector Percent Recovery α,α,α–Trifluorotoluene
OWS-1, 0.5'	S9602180-001	105	100
OWS-1, 2'	S9602180-002	107	100
Method Blank	S961223-SB1	100	91
CAS Acceptance Limits:		51-137	51-137

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	TOSCO	**Service Request:**	S9602180
Project:	TOSCO 11270/Oakland/304-012.1A	**Date Collected:**	12/12/96
Sample Matrix:	Soil	**Date Received:**	12/13/96
		Date Extracted:	NA
		Date Analyzed:	12/18/96

Surrogate Recovery Summary
TPH as Diesel
California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery p-Terphenyl
OWS-1, 0.5'	S9602180-001	89
OWS-1, 2'	S9602180-002	86
Method Blank	9601218-SB1	80

CAS Acceptance Limits: 41-140

SUR1/062994

5960218 0

Chain of Custody

PG 1 OF 1

Pacific Environmental Group, Inc.
2025 Gateway Place #440, San Jose CA 95110
Phone 408 441-7500 Fax 408 441-7539

PROJECT No. 304-012.1A

Facility No. TOSCO 11270

Facility Address: 3055 McCARTHY RD., OAKLAND

Billing Refence Number:

CLIENT engineer: TIM JOHNSON

PACIFIC Point of Contact: JOE MUZZIO

Sampler: MARK KWIKE

Laboratory Name: CAS

Sample I.D.	Cont. No.	Container Size (ml)	Sample Preserv.	Matrix (W=water S=soil A=air)	Type (G=grab D=disc. C=comp.)	Sampling Date	Sampling Time	TPPH AS GASOLINE 8015M	TEPH AS DIESEL 8015M	TEPH-OIL/GREASE 418.1	BTEX 8020	CHLORINATED HYDROCARBONS						Comments:
OWS-1, 0.5'	2	BRASS	<4°C	S	G	12-12-96		X	X	X	X	X						• TEPH AND TEPH-O/G METHODS W/SILICA GEL CLEAN UP. • DIRECT BILL TOSCO
OWS-1, 2'	2	BRASS	<4°C	S	G	12-12-96		X	X	X	X	X						
															R8			

Condition of Sample:

Temperature Received: cool

Relinquished by	Date	Time	Received by	Date	Time
[signature] MARK KWIKE	12/13/96	16:05	[signature]	12/13/96	1605
			Received by laboratory		

Mail original Analytical Report to: Pacific Environmental Group

- [X] 2025 Gateway Place #440 San Jose, CA 95110
- [ ] 620 Contra Costa Blvd. #209 Pleasant Hill, CA 94523
- [ ] 25725 Jeronimo Rd. #576C Mission Viejo, CA 92622
- [ ] 4020 148th Ave NE #B Redmond, WA 98052

Turnaround Time:

- [ ] Priority Rush (1 day)
- [ ] Rush (2 days)
- [ ] Expedited (5 days)
- [X] Standard (10 days)
- [ ] As Contracted

R8