LUST # 2298
TEXACO
KING / SEATTLE

EMCON
18912 North Creek Parkway • Suite 100 • Bothell, Washington 98011-8016 • (206) 485-5000 • Fax (206) 486-9766

RECEIVED
7-14-95
NWRO

June 13, 1995
Project 40368-013.009

Ms. Theresa Geijer
Texaco Environmental Services
3400 188th Street SW, Suite 630
Lynnwood, Washington 98037

Re: Groundwater Sampling Report
Texaco Service Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Dear Ms. Geijer:

This letter report documents recent groundwater sampling activities that EMCON conducted at Texaco Service Station 63-232-0037, 8701 Greenwood Avenue North Seattle, Washington (Figure 1). On February 24, 1995, EMCON measured groundwater depth in five monitoring wells, sampled them, and submitted the groundwater samples for laboratory analysis.

Attached are a site vicinity map, a February 24, 1995, groundwater data map, historical tables of groundwater monitoring data and groundwater laboratory results, the field sampling data sheets, a chain-of-custody form, and laboratory report for the February 24, 1995, sampling event.

If you have any questions about this report, please call.

Sincerely,

EMCON

John K. Meyer
Project Manager

James Bailey, R.G.
Supervising Hydrogeologist

Attachments: Figure 1 - Site Vicinity Map
Figure 2 - Groundwater Data Map
Table 1 - Groundwater Monitoring Data
Table 2 - Groundwater Laboratory Results
Field Sample Data Sheets, February 24, 1995
Laboratory Report and Chain-of-custody Documentation

rcvd 8/31/95 CM

3rd 9/20/95 CM

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT
INTERIM CLEANUP REPORT
SITE CHARACTERIZATON
FINAL CLEANUP REPORT
OTHER
AFFECTED MEDIA: SOIL
OTHER GW
INSPECTOR (INIT.) DATE 7-20-95

B\L:\DATA\0368-TEX\13\GREEN-LR.530-95\dmr:2

Independent Action Report Update

Site Name: TEXACO

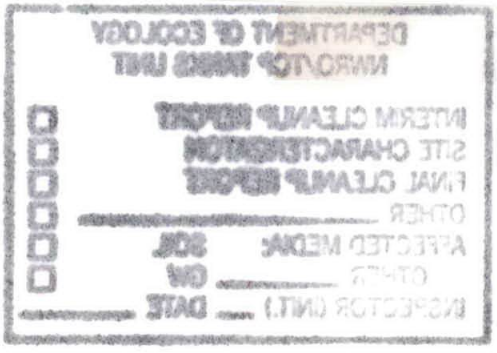
Inc. #: 2298 Date of Report: 6-13-95

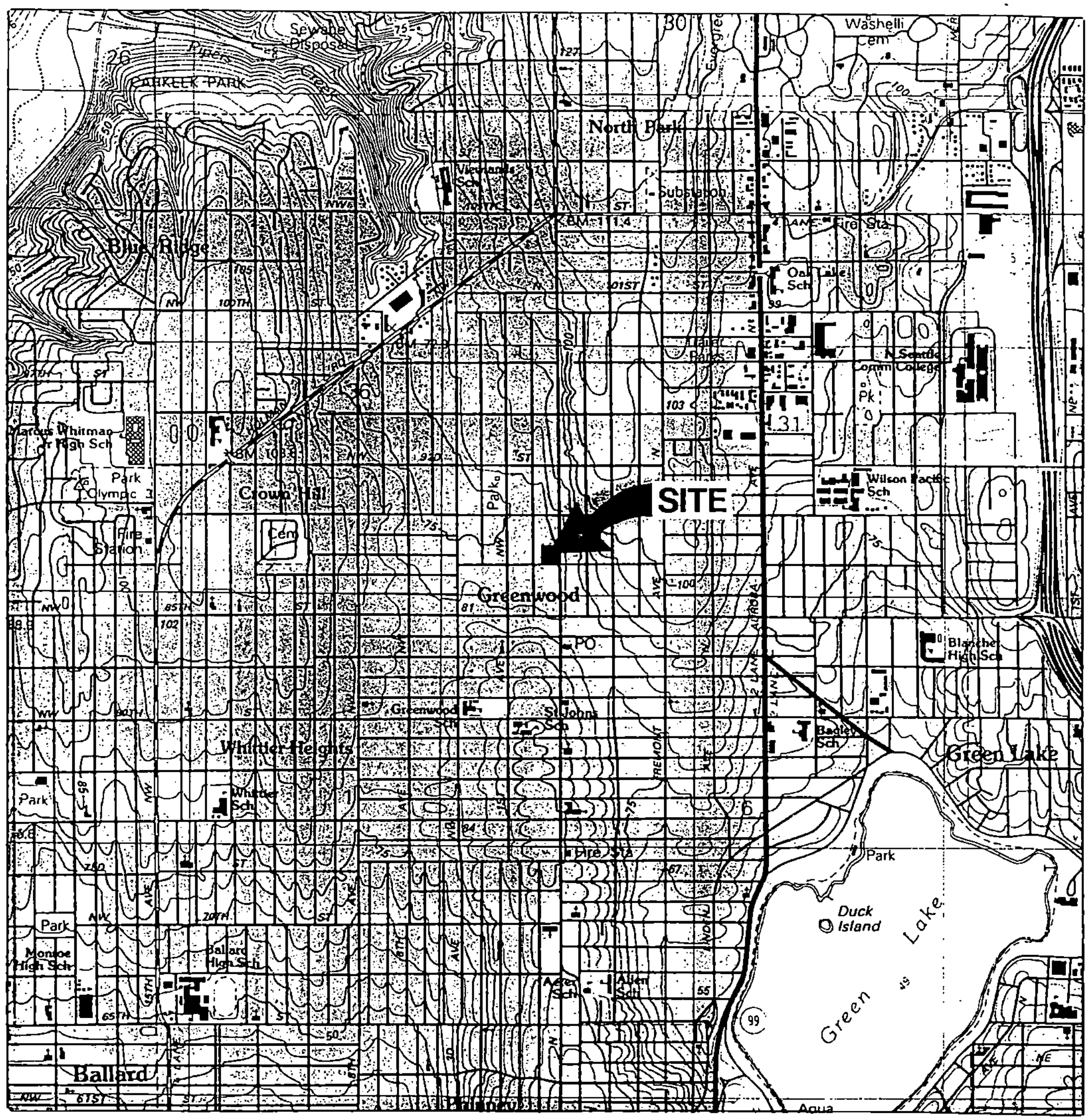
County: KING Date Report Rec'd: 7-14-95

Reviewed by: John Bails

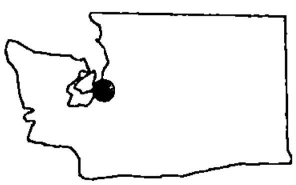
Comments (please include: free prod., tank info., contaminant migration, GW depth & flow, conc. trends, PCS treated?):

Results of Gw Sampling for 2/24/95
Benzene in 2 wells; AGW-6
and AGW-5. B in AGW-5 @ 30.6ppb
Gw between 2'-7', Active
Remediation discontinued.

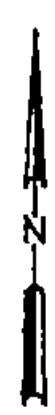




SOURCE: U.S.G.S. 7.5' x 15' Quadrangle, Seattle North, WA.



WASHINGTON



0 2000 4000

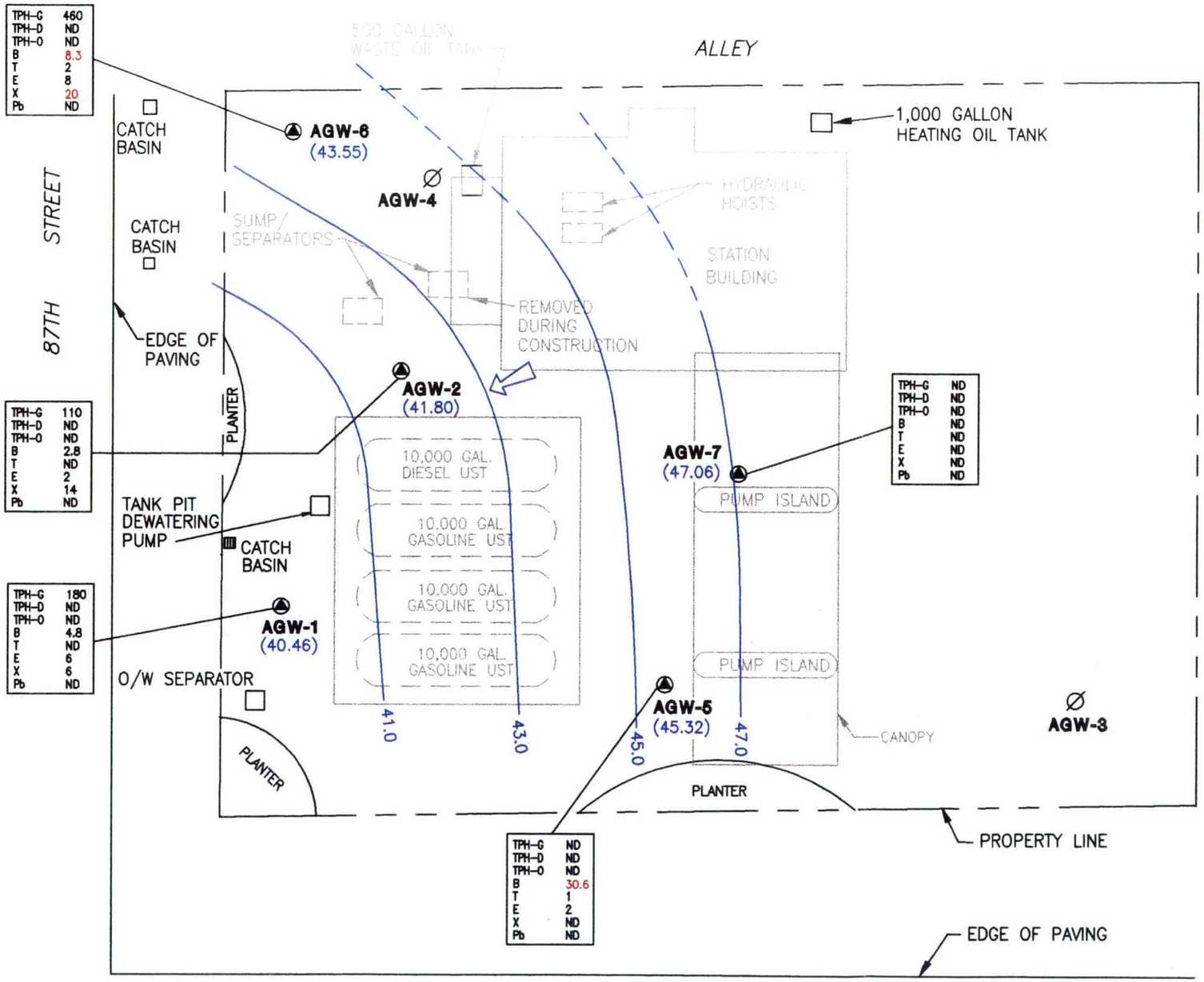
SCALE (Ft.)

EMCON

DATE 3-95
DWN. MLP
REV.
APPR.
PROJECT NO.
0368-013.11

Figure 1
TEXACO SERVICE STATION #63-232-0037
8701 GREENWOOD AVENUE NORTH
SEATTLE, WASHINGTON

SITE LOCATION MAP



LEGEND:

- AGW-1 — Monitoring Well Location and Well Number
- AGW-3 — Decommissioned Monitoring Well
- 41.0 — Groundwater Elevation Contour
- (40.46) — Relative Groundwater Elevation
- Inferred Groundwater Flow Direction

TPH-G	460
TPH-D	ND
TPH-O	ND
B	8.3
T	2
E	8
X	20
Pb	ND

Laboratory Results in Parts per Billion

TPH-G = Total Petroleum Hydrocarbons as Gasoline
TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-O = Total Petroleum Hydrocarbons as Oil
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
Pb = Total Lead
ND = Not Detected at or Above Method Reporting Limits
-- = Not Analyzed

Numbers in red equal or exceed MTCA Method A Cleanup Levels

Contour lines may not reflect potential effects of the UST complex.

0 20 40
SCALE (ft)

EMCON

DATE 6-95
DWN. ____
REV. ____
APPR. ____
PROJECT NO. 40368-013.011

Figure 2
8701 GREENWOOD AVENUE NORTH
SEATTLE, WASHINGTON
GROUNDWATER DATA (FEBRUARY 24, 1995)

I=20 07-05-95 G:\DWG\0368\013\11BLC08

Table 1

Groundwater Monitoring Data
Texaco Service Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Well Number	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Depth to Product (feet)	Groundwater Elevation (feet)	Groundwater Elevation Change Since Last Measurement (feet)
AGW-1	4.5 - 19.5	47.36	04/03/91	3.18	None	44.18	—
			05/15/91	—	None	—	—
			08/15/91	0.62	None	46.74	+2.56
			11/21/91	0.70	None	46.88	+0.14
			03/06/92	0.47	None	46.89	+0.01
			11/06/92	0.46	None	46.90	+0.01
			03/26/93	0.49	None	46.87	-0.03
			06/09/93	0.42	None	46.94	+0.07
		47.36*	03/17/94	1.99	None	45.37	-1.57
			11/10/94	1.21	None	46.15	+0.78
			02/24/95	6.90	None	40.46	-5.69
AGW-2	4.5 - 19.0	47.59	04/03/91	3.43	None	44.16	—
			05/15/91	—	None	—	—
			08/15/91	1.65	None	45.94	+1.78
			11/21/91	1.30	None	46.29	+0.35
			03/06/92	1.14	None	46.45	+0.16
			11/06/92	1.18	None	46.41	-0.04
			03/26/93	1.18	None	46.41	0.00
			06/09/93	1.06	None	46.53	+0.12

Table 1

Groundwater Monitoring Data
Texaco Service Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Well Number	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Depth to Product (feet)	Groundwater Elevation (feet)	Groundwater Elevation Change Since Last Measurement (feet)
AGW-2		47.64*	03/17/94	2.18	None	45.46	-0.07
(continued)			11/10/94	1.57	None	46.07	+0.61
			02/24/95	5.84	None	41.80	-4.27
AGW-3	4.5 - 19.0	49.10	03/29/91	—	None	49.10	—
Well Decommissioned							
AGW-4	4.5 - 19.5	47.97	04/03/91	4.61	None	43.36	—
			05/15/91	—	None	—	—
			08/15/91	2.76	None	45.21	+1.85
			11/21/91	2.45	None	45.52	+0.31
			03/06/92	2.45	None	45.52	0.00
			11/06/92	3.21	None	44.79	-0.76
			03/26/93	3.03	None	44.94	+0.18
			06/09/93	2.66	None	45.31	+0.37
Well Decommissioned							
AGW-5	4.5 - 19.5	49.47	04/03/91	2.78	None	46.69	—
			05/15/91	—	None	—	—
			08/15/91	1.53	None	47.94	+1.25
			11/21/91	2.40	None	47.07	-0.87

Table 1

Groundwater Monitoring Data
Texaco Service Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Well Number	Screened Interval (feet bgs)	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Depth to Product (feet)	Groundwater Elevation (feet)	Groundwater Elevation Change Since Last Measurement (feet)
AGW-5 (continued)			03/06/92	1.45	None	48.02	+0.95
			11/06/92	2.27	None	47.20	-0.82
			03/26/93	2.05	None	47.42	+0.22
			06/09/93	1.95	None	47.52	+0.10
		49.11*	03/17/94	1.65*	None	47.46	-0.06
			11/10/94	3.52	None	45.59	-1.87
			02/24/95	3.79	None	45.32	-0.27
AGW-6	14.0 - 24.0	46.17*	03/17/94	.51	None	45.66	—
			11/10/94	1.58	None	44.59	-1.07
			02/24/95	2.62	None	43.55	-1.04
AGW-7	16.0 - 26.0	48.70	03/17/94	.05	None	48.65	—
			11/10/94	0.00	None	48.70	+0.05
			02/24/95	1.64	None	47.06	-1.64

NOTE: * = Resurveyed March 16, 1994.

Table 2

Groundwater Laboratory Results
Texaco Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Monitoring Well		Results of Analyses (µg/L)							
		Ecology Method WTPH-G	Ecology Method WTPH-D (extended)		EPA Method 5030/602				EPA Method 7421
Well Number	Date	TPH-G	TPH-D	TPH-O	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
MTCA Method A Cleanup Levels[a]		1,000	1,000	1,000	5	40	30	20	5
AGW-1	04/03/91	ND	—	—	ND	ND	ND	ND	—
	05/15/91	—	—	—	440	1,000	92	670	—
	08/15/91	361,000	—	—	1,400	7,400	1,000	8,100	ND
	11/21/91	47,000	ND	ND	680	6,400	2,000	13,000	—
	03/06/92	48,000	ND	ND	710	3,200	1,400	8,700	ND
	11/06/92	37,000	—	—	95.1	260	1,400	8,200	ND
	03/26/93	18,400	—	—	42.8	27	397	1,450	ND
	06/09/93	15,000	—	—	35.2	23	415	1,530	ND
	03/17/94	1,960	730	ND	17.8	8	24	104	ND
	11/10/94	ND	840	ND	2.2	ND	ND	2	ND
	*11/10/94	ND	—	—	2.2	ND	ND	2	—
	02/24/95	180	ND	ND	4.8	ND	6	6	ND
	02/24/95	190	—	—	5.3	ND	6	7	—
AGW-2	04/03/91	—	—	—	ND	ND	ND	ND	—
	05/15/91	—	—	—	ND	ND	ND	ND	—
	08/15/91	1,030	—	—	250	220	15	86	ND

Table 2

Groundwater Laboratory Results
Texaco Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Monitoring Well		Results of Analyses (µg/L)							
		Ecology Method WTPH-G	Ecology Method WTPH-D (extended)		EPA Method 5030/602				EPA Method 7421
Well Number	Date	TPH-G	TPH-D	TPH-O	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
MTCA Method A Cleanup Levels[a]		1,000	1,000	1,000	5	40	30	20	5
AGW-2	11/21/91	7,300	ND	1,200	910	1,300	260	1,200	—
(cont.)	03/06/92	24,000	ND	1,100	870	3,700	760	4,900	ND
	11/06/92	3,230	—	—	152	98	175	804	ND
	03/26/93	3,390	340	ND	113	33	149	642	ND
	06/09/93	3,270	ND	ND	108	18	164	666	3
	03/17/94	470	270	ND	18.4	ND	17	68	ND
	11/10/94	470	ND	ND	11.5	ND	10	72	ND
	02/24/95	110	ND	ND	2.8	ND	2	14	ND
AGW-3 Well Decommissioned	03/29/91	—	—	—	ND	ND	ND	ND	—
AGW-4	04/03/91	—	—	—	2.6	20	2.7	31	—
	05/15/91	—	—	—	8.4	19	2.4	20	—
	08/15/91	1,200	3,260	—	11	4	1	7	4
	11/21/91	3,500	ND	2,040	660	700	21	133	—
	03/06/92	ND	ND	800	139	182	3	18	ND
	11/06/92	90	—	—	20.9	13	4	17	ND

Table 2

Groundwater Laboratory Results
Texaco Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Monitoring Well		Results of Analyses (µg/L)							
		Ecology Method WTPH-G	Ecology Method WTPH-D (extended)		EPA Method 5030/602				EPA Method 7421
Well Number	Date	TPH-G	TPH-D	TPH-O	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
MTCA Method A Cleanup Levels[a]		1,000	1,000	1,000	5	40	30	20	5
AGW-4	03/26/93	999	480	ND	31.8	35	51	246	ND
(cont.)	06/09/93	1,900	1,060	ND	61.1	64	108	533	ND
	03/17/94	—	—	—	—	—	—	—	—
Well Decommissioned									
AGW-5	04/03/91	—	—	—	30	10	5	7	—
	05/15/91	—	—	—	220	53	3.5	12	—
	08/15/91	—	—	—	9.4	ND	ND	ND	ND
	11/21/91	100	ND	ND	2.5	ND	ND	ND	—
	03/06/92	ND	ND	ND	0.9	ND	ND	ND	ND
	11/06/92	ND	—	—	ND	ND	ND	ND	ND
	03/26/93	ND	—	—	ND	ND	ND	ND	ND
	06/09/93	ND	—	—	ND	ND	ND	ND	ND
	03/17/94	ND	ND	ND	ND	ND	ND	ND	ND
	11/10/94	ND	ND	ND	ND	ND	ND	ND	ND
	02/24/95	ND	ND	ND	30.6	1	2	ND	ND

Table 2

Groundwater Laboratory Results
Texaco Station 63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Monitoring Well		Results of Analyses (µg/L)							
		Ecology Method WTPH-G	Ecology Method WTPH-D (extended)		EPA Method 5030/602				EPA Method 7421
Well Number	Date	TPH-G	TPH-D	TPH-O	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
MTCA Method A Cleanup Levels[a]		1,000	1,000	1,000	5	40	30	20	5
AGW-6	03/17/94	300	ND	ND	10.6	1	14	56	4
	11/10/94	200	ND	ND	7.4	ND	6	29	ND
	02/24/95	460	ND	ND	8.3	2	8	20	ND
AGW-7	03/17/94	ND	ND	ND	ND	ND	ND	ND	ND
	11/10/94	ND	ND	ND	ND	ND	ND	ND	ND
	02/24/95	ND	ND	ND	ND	ND	ND	ND	ND

NOTE: Shaded values equal or exceed MTCA Method A Cleanup Levels.
- ND = not detected at or above method reporting limit.
- µg/L = micrograms per liter, approximates parts per billion.
- — = not analyzed.
- * = results for duplicate sample, designated AGW-8-1194.
- TPH-G = total petroleum hydrocarbons as gasoline.
- TPH-D = total petroleum hydrocarbons as diesel.
- TPH-O = total petroleum hydrocarbons as oil.

[a] Chapter 173-340 WAC, *The Model Toxics Control Act Cleanup Regulation; Method A Cleanup Levels.* Amended December 1993.

LUST # 2298

Texaco Refining
and Marketing Inc

3400 188th Street SW
Suite 630
Lynnwood WA 98037

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JUL 14 1995
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July 13, 1995

ENV - SERVICE STATIONS
First Quarter 1995 Groundwater Monitoring and Sampling Data
Texaco Facility #63-232-0037
8701 Greenwood Avenue North
Seattle, Washington

Mr. Roger Nye
Washington Department of Ecology- Northwest Region
3190 - 160th Avenue Southeast
Bellevue, Washington 98008-5452

Dear Mr. Nye:

Enclosed please find a copy of the above-referenced groundwater monitoring and sampling data. The field activities were conducted by Texaco's environmental consultant, EMCON Northwest, Inc. of Bothell, Washington. The site vicinity is shown in Figure 1. Background information for this site is presented in Attachment A.

Groundwater was monitored and sampled in the five on-site monitoring wells (AGW-1, AGW-2, AGW-5, AGW-6 and AGW-7) on February 24, 1995. Depth to water in the monitoring wells ranged from 1.64 to 6.90 feet bgs (below ground surface) on February 24, 1995, with a groundwater flow direction toward the south to southeast. The groundwater flow direction has been consistent over several monitoring events. Groundwater contours for the February 1995 monitoring event are shown in Figure 2.

Groundwater samples were collected from the existing monitoring wells on February 24, 1995 for chemical analysis of gasoline-, diesel-, and oil-range hydrocarbons, BTEX (benzene, toluene, ethylbenzene and xylenes) compounds and total lead. Benzene was detected in monitoring wells AGW-5 and AGW-6 at concentrations of 30.6 and 8.3µg/l, respectively. Additionally, xylenes were detected in AGW-6 at a concentration of 20 µg/l. Concentrations detected during the February sampling event are similar to concentrations detected during the last sampling event (November 1994). Chemical analytical data for this and previous sampling events are presented in Table 2. Chemical analytical data for February 1995 are also shown in Figure 2.

The remediation system that had operated at this site has been decommissioned. Groundwater monitoring and sampling will continue on a quarterly basis. If you have any questions regarding this submittal, please contact me at (206) 774-6090, extension 224.

Sincerely,

T. A. Geijer

Theresa A. Geijer, R.G.
Project Coordinator

TAG:ejn
p:\tag\greenw\1qt95gw.cov

Enclosure

KAEdwards-File-UCPFile (w/enclosure)
PNWRead (w/o enclosure)

PR: EJN

emcon Northwest, Inc.
18912 North Creek Parkway, Suite 100 ● Bothell, WA 98011
Office (206) 485-5000 ● FAX (206) 486-9766

Field Sampling Data

* Duplicate

LOCATION/ADDRESS 8701 Greenwood Ave. N, Seattle, WA
PROJECT NAME Texaco-Greenwood #0368-013.09
CLIENT/CONTACT John Meyer

Well or Surface Site Number AGW-1
Sample Designation AGW-1-0295
Date, Time 2-24-95 1430
Weather

HYDROLOGY MEASUREMENTS:

	(Nearest .01 ft.)	Elevation	Date, Time	Method Used (M-Scope Number or Other)
DTW	6.90		2-24-95	Solinst
DTB			1125	

WELL EVACUATION:

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time
25.5	3	peri pump		2-24-95

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preservative	Iced (yes,no)	Sampler Cleaning Method
> BTEX	2-24-95 1430	Disp Bailer	2x40	glass		No	HCl	Yes	Non-Phosphatic detergent wash H2O rinse MeOH rinse Distilled H2O rinse
TPH-D ext		P. pump	1000	↓		↓	—	↓	
Total Lead		↓	500	poly		↓	HNO_3	↓	

FIELD WATER QUALITY TESTS:

Pore Vol. Number	pH	µS Conductivity	°C Temp	Gallons Removed	Time
1	7.04	357	12.5	8.5	1332
2	7.37	319	12.5	8.5	1344
3	7.52	315	12.5	8.5	1410

NOTES:

Depth To Bottom 19.40
-Depth To Water 6.90
12.50
X 0.67
Pore Volume = 8.38 gallons

Dry at 2.5 pore volumes. Allow to recharge, then finish purging

Water is clear, colorless and has a slight hydrocarbon-like odor

* Duplicate Gas/BTEX samples designated AGW-8-0295 at 1420

Total # of Bottles: 6 Signature: Michael Paulsen

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100 ● Bothell, WA 98011
Office (206) 485-5000 ● FAX (206) 486-9766

Field Sampling Data

LOCATION/ADDRESS 8701 Greenwood Ave. N. Seattle, WA
PROJECT NAME Texaco - Greenwood #0368-013.09
CLIENT/CONTACT John Meyer

Well or Surface Site Number AGW-2
Sample Designation AGW-2 -0295
Date, Time 2-24-95 1210
Weather Cloudy 50°F

HYDROLOGY MEASUREMENTS:

	(Nearest .01 ft.)	Elevation	Date, Time	Method Used (M-Scope Number or Other)
DTW	5.84		2-24-95	Solinst
DTB			1127	

WELL EVACUATION:

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time
28	3	peri pump		2-24-95

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preservative	Iced (yes,no)	Sampler Cleaning Method
BTEX	2-24-95 1210	Disp Bailer	2x40	glass		No	HCl	Yes	Non-Phosphatic detergent wash H2O rinse MeOH rinse Distilled H2O rinse
TPH-D ext	↓	p. pump	1000	↓		↓	—	↓	↓
Total Lead	↓	↓	500	poly		↓	HNO_3	↓	↓

FIELD WATER QUALITY TESTS:

Pore Vol. Number	pH	µS Conductivity	°C Temp	Gallons Removed	Time
1	6.88	330	11	9.25	1145
2	7.10	310	12	9.25	1155
3	7.24	306	12.5	9.25	1205

NOTES:

Depth To Bottom 19.65
- Depth To Water 5.84
13.81
X 0.67
Pore Volume = 9.25 gallons

Water is clear, tan and has a slight hydrocarbon-like odor.

Total # of Bottles: 4

Signature: Michael Paulsen

SEA-400-01

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100 ● Bothell, WA 98011
Office (206) 485-5000 ● FAX (206) 486-9766

Field Sampling Data

LOCATION/ADDRESS 8701 Greenwood Ave. N. Seattle, WA
PROJECT NAME Texaco-Greenwood #.0368-013.09
CLIENT/CONTACT John Meyer

Well or Surface Site Number AGW-5
Sample Designation AGW-5 -0295
Date, Time 2-24-95 1400
Weather Showers, 50°F

HYDROLOGY MEASUREMENTS:

	(Nearest .01 ft.)	Elevation	Date, Time	Method Used (M-Scope Number or Other)
DTW	3.79		2-24-95	Solinst
DTB			1131	

WELL EVACUATION:

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time
15.5	~~7~~ 1.5	peri pump		2-24-95

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preservative	Iced (yes,no)	Sampler Cleaning Method
BTEX	2-24-95 1400	Disp Bailer	2x40	glass		No	HCl	Yes	Non-Phosphatic detergent wash H2O rinse MeOH rinse Distilled H2O rinse
TPH-D ext	↓	p-pump	1000	↓		↓	—	↓	
total Lead	↓	↓	500	poly		↓	HNO_3	↓	

FIELD WATER QUALITY TESTS:

Pore Vol. Number	pH	µS Conductivity	°C Temp	Gallons Removed	Time
1	7.10	454	11.5	10.5	1244
1.5	7.72	427	12.0	~~15~~	1252

NOTES:

Depth To Bottom 19.11
- Depth To Water 3.79
15.32
X 0.67
Pore Volume = 10.26 gallons

Well pumped dry at 1.5 pore volumes - recharge is slow. Water is clear, colorless and has a slight sulfur-like odor.

Total # of Bottles: 4

Signature: Michael Paulson

SEA-400-01

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100 ● Bothell, WA 98011
Office (206) 485-5000 ● FAX (206) 486-9766

Field Sampling Data

LOCATION/ADDRESS 8701 Greenwood Ave. N. Seattle, WA
PROJECT NAME Texaco-Greenwood # 0368-013.09
CLIENT/CONTACT John Meyer

Well or Surface Site Number AGW-6
Sample Designation AGW-6-0295
Date, Time 2-24-95 1235
Weather Cloudy 50°F

HYDROLOGY MEASUREMENTS:

(Nearest .01 ft.)	Elevation	Date, Time	Method Used (M-Scope Number or Other)
DTW 2.62		2-24-95	Solinst
DTB		1129	

WELL EVACUATION:

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time
43	3	peri pump		2-24-95

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preservative	Iced (yes,no)	Sampler Cleaning Method
BTEX	2-24-95 1235	Disp Bailer	2x40	glass		No	HCl	Yes	Non-Phosphatic detergent wash H2O rinse MeOH rinse Distilled H2O rinse
TPH-D ext	↓	P. pump	1000	↓		↓	—	↓	
total Lead	↓	↓	500	poly		↓	HNO_3	↓	

FIELD WATER QUALITY TESTS:

Pore Vol. Number	pH	µS Conductivity	°C Temp	Gallons Removed	Time			
1	9.91	247	11.5	14.20	1150			
2	9.60	260	12.5	14.20	1208			
3	9.71	270	12	14.20	1230			

NOTES:

Depth To Bottom 23.82
-Depth To Water 2.62
21.20
X 0.67
Pore Volume = 14.20 gallons

Water is clear, tan and has a slight hydrocarbon like odor.

Total # of Bottles: 4

Signature: Michael Paulsen

EMCON Northwest, Inc.
18912 North Creek Parkway, Suite 100 ● Bothell, WA 98011
Office (206) 485-5000 ● FAX (206) 486-9766

Field Sampling Data

LOCATION/ADDRESS 8701 Greenwood Ave. N. Seattle, WA
PROJECT NAME Texaco-Greenwood #0368-013.09
CLIENT/CONTACT John Meyer

Well or Surface Site Number AGW-7
Sample Designation AGW-7-0295
Date, Time 2-24-95 1330
Weather showers 50°F

HYDROLOGY MEASUREMENTS:

	(Nearest .01 ft.)	Elevation	Date, Time	Method Used (M-Scope Number or Other)
DTW	1.64		2-24-95	Solinst
DTB			1133	

WELL EVACUATION:

Gallons	Pore Volumes	Method Used	Rinse Method	Date, Time
48	3	peri pump		2-24-95

Surface Water Flow Speed _____ Measurement Method _____ Date, Time _____

SAMPLING:

Sample	Date, Time	Method	Volume (ml)	Container Type	Depth Taken (feet)	Field Filtered (yes,no)	Preservative	Iced (yes,no)	Sampler Cleaning Method
BTEX	2-24-95 1330	Disp Bailer	2x40	glass		No	HCl	Yes	Non-Phosphatic detergent wash H2O rinse MeOH rinse Distilled H2O rinse
TPH-D ext	↓	p. pump	1000	↓		↓	—	↓	
Total Lead	↓	↓	500	poly		↓	HNO_3	↓	

FIELD WATER QUALITY TESTS:

Pore Vol. Number	pH	µS Conductivity	°C Temp	Gallons Removed	Time			
1	7.86	307	12.5	16	1250			
2	7.85	303	12.0	16	1304			
3	7.82	298	12.0	16	1320			

NOTES:

Depth To Bottom 25.40
-Depth To Water 1.64
23.76
X 0.67
Pore Volume = 15.9 gallons

Water is clear, colorless and has no noticeable odor

Total # of Bottles: 9 Signature: Michael Paulsen

PROJECT FILE

Columbia Analytical Services, Inc.

March 7, 1995

Service Request No.: B950145

RECEIVED
MAR 14 1995

John Meyer
EMCON Northwest
18912 N Creek Parkway
Suite 210
Bothell, WA 98011

Re: **Texaco - Greenwood/Project #0368-013.09**

Dear John:

Attached are the results of the sample(s) submitted to our laboratory on February 24, 1995. For your reference, these analyses have been assigned our service request number B950145.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results only apply to samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Colin B. Elliott
Laboratory Manager

CBE/bdr

18912 North Creek Parkway, Suite 118 • Bothell, WA 98011 • 206/486-6983 • Fax 206/486-7695

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	B950145
Project:	Texaco Greenwood	**Date Collected:**	2/24/95
Sample Matrix:	Water	**Date Received:**	2/24/95
		Date Extracted:	NA
		Date Analyzed:	3/1/95

BTEX and Total Petroleum Hydrocarbons as Gasoline
EPA Methods 5030A/8020 and Washington DOE Method WTPH-G
Units: µg/L (ppb)

Analyte:		**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**TPH as Gasoline**
Method Reporting Limit:		0.5	1	1	1	50
Sample Name	**Lab Code**					
AGW-1-0295	B950145-01	4.8	ND	6	6	180
AGW-2-0295	B950145-02	2.8	ND	2	14	110
AGW-5-0295	B950145-03	30.6	1	2	ND	ND
AGW-6-0295	B950145-04	8.3	2	8	20	460
AGW-7-0295	B950145-05	ND	ND	ND	ND	ND
AGW-8-0295	B950145-06	5.3	ND	6	7	190
Method Blank	B950145-MB	ND	ND	ND	ND	ND

Approved By: Lin. Elliott Date: 3/7/95

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	B950145
Project:	Texaco Greenwood	**Date Collected:**	2/24/95
Sample Matrix:	Water	**Date Received:**	2/24/95
		Date Extracted:	3/1/95
		Date Analyzed:	3/2/95

Total Petroleum Hydrocarbon as Diesel and Oil
Washington DOE Method WTPH-D
Units: µg/L (ppb)

Analyte:		**Diesel**	**Oil***
Method Reporting Limit:		250	750
Sample Name	**Lab Code**		
AGW-1-0295	B950145-01	ND	ND
AGW-2-0295	B950145-02	ND	ND
AGW-5-0295	B950145-03	ND	ND
AGW-6-0295	B950145-04	ND	ND
AGW-7-0295	B950145-05	ND	ND
Method Blank	B950145-MB	ND	ND

* Quantified using 30 weight motor oil as a standard.

Approved By: _____ Date: 3/7/95

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	B950145
Project:	Texaco Greenwood	**Date Collected:**	2/24/95
Sample Matrix:	Water	**Date Received:**	2/24/95
		Date Extracted:	NA
		Date Analyzed:	3/1/95

Surrogate Recovery Summary
BTEX and Total Petroleum Hydrocarbons as Gasoline
EPA Methods 5030A/8020 and Washington DOE Method WTPH-G

Sample Name	Lab Code	Percent Recovery 4-BFB (PID - BTEX)	Percent Recovery 4-BFB (FID - GAS)
AGW-1-0295	B950145-01	104	98
AGW-2-0295	B950145-02	103	101
AGW-5-0295	B950145-03	104	100
AGW-6-0295	B950145-04	103	103
AGW-7-0295	B950145-05	103	102
AGW-8-0295	B950145-06	102	99
Method Blank	B950145-MB	102	101
CAS Acceptance Limits:		86-116	86-116

Approved By: C. Elliott Date: 3/7/95

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: Texaco Greenwood
Sample Matrix: Water

Service Request: B950145
Date Collected: 2/24/95
Date Received: 2/24/95
Date Extracted: 3/1/95
Date Analyzed: 3/2/95

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery p-Terphenyl
AGW-1-0295	B950145-01	87
AGW-2-0295	B950145-02	87
AGW-5-0295	B950145-03	83
AGW-6-0295	B950145-04	80
AGW-7-0295	B950145-05	91
Method Blank	B950145-MB	84

CAS Acceptance Limits: 59-124

Approved By: C. Elliott Date: 3/7/95

EMCON Northwest, Inc.

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

DATE 2/24/95 PAGE 1 OF 1

PROJECT NAME Texaco - Greenwood #0368 - 013.09

PROJECT Manager: John Meyer

COMPANY/ADDRESS 8701 Greenwood Ave. N.
Seattle, WA

PHONE 206 485-5000

SAMPLERS SIGNATURE Michael Paulsen

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUEST: PETROLEUM HCS: TPH - HCID State:	TPH - G State: WA	BTEX X	TPH - D State: WA	OIL X	TPH - 418.1 State: WA	TPH - Other	ORGANIC: Halogenated or Aromatic Volatiles 601/8010 ___ 602/8020 ___	Volatile Organics GC/MS 624-8240	Base/Neu/Acid Organics GC/MS 625/8270	Pesticides/PCBS 8080 PCB ONLY	PAH 8100 GC ___ 8310 HPCL ___	TCLP Metals ___ Semi VOA ___ VOA ___ Pest/Herb	Metals Total X DISS ___ List Below Lead	Cyanide	ORGANIC METALS/INORGANICS: pH, Cond Cl, SO_4, PO_4 F, Br	NO_2 NO_3 (Circle)	NH_3 - N, COD, Total-P TKN, TOC, TOX (Circle)	REMAR.
AGW-1-0295	2/24/95	1430	1	Water			X		X										X					
-2-		1210	2				X		X										X					
-5-		1400	3				X		X										X					
-6-		1235	4				X		X										X					
-7-		1330	5				X		X										X					
-8-		1420	6				X																	

RELINQUISHED BY:
Signature: Michael Paulsen
Printed Name: Michael Paulsen
Firm: EMCON
Date/Time: 2-24-95 1536

RECEIVED BY:
Signature: DJ MOSIER
Printed Name: DJ MOSIER
Firm: CAS
Date/Time: 022495 1537

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. ___ 5 day
X Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes DUP.MAS. MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O.# ___
Bill To ___

SAMPLE RECEIPT:
Shipping VIA: ___
Shipping to: ___
Condition: ___
Lab No: B950145

RELINQUISHED BY:
Signature: B. Regan
Printed Name: B. Regan
Firm: CAS Bothell
Date/Time: 02/24/95 1700

RECEIVED BY:
Signature ___
Printed Name ___
Firm ___
Date/Time ___

SPECIAL INSTRUCTIONS/COMMENTS:

Columbia Analytical Services inc.

March 10, 1995

Service Request No.: K9501137B

John Meyer
EMCON
18912 North Creek Parkway, Suite 210
Bothell, WA 98011

Re: **Texaco-Greenwood/Project #0368-013.09/B95-0145**

Dear John:

Enclosed are the results of the sample(s) submitted to our laboratory on February 25, 1995. For your reference, these analyses have been assigned our service request number K9501137.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 269.

Respectfully submitted,

Columbia Analytical Services, Inc.

Joe Wiegel
Project Chemist

JW/td

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
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
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
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 MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	K9501137
Project:	Texaco-Greenwood /# 0368-013.09	**Date Collected:**	2/24/95
Sample Matrix:	Water	**Date Received:**	2/25/95
		Date Extracted:	3/3/95
		Date Analyzed:	3/5/95

Total Lead
EPA Method 7421
Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
AGW-1-0295	K9501137-001	2	ND
AGW-2-0295	K9501137-002	2	ND
AGW-5-0295	K9501137-003	2	ND
AGW-6-0295	K9501137-004	2	ND
AGW-7-0295	K9501137-005	2	ND
Method Blank	K9501137-MB	2	ND

Approved By: _____ Date: 3/6/95

EMCON Northwest, Inc.

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

DATE 2/24/95 PAGE 1 OF 1

0004

PROJECT NAME Texaco - Greenwood #0368-013.09

PROJECT Manager - John Meyer

COMPANY/ADDRESS 8701 Greenwood Ave. N.
Seattle, WA

PHONE 206 485-5000

SAMPLERS SIGNATURE Michael Paulsen

NUMBER OF CONTAINERS

ANALYSIS REQUEST

					PETROLEUM HCS					ORGANIC								ORGANIC METALS/INORGANICS						
SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	TPH - HCID State:	TPH - G State: WA BTEX X	TPH - D State: WA OIL X	TPH - 418.1 State:	TPH - Other	Halogenated or Aromatic Volatiles 601/8010 ___ 602/8020 ___	Volatile Organics GC/MS 624-8240	Base/Neu/Acid Organics GC/MS 625/8270	Pesticides/PCBS 8080 PCB ONLY	PAH 8310 8100 GC ___ HPCL ___	TCLP Metals ___ Semi VOA ___ VOA ___ Pest/Herb	Metals Total X DISS ___ List Below Lead	Cyanide	pH, Cond Cl, SO_4, PO_4 F, Br	NO_2 NO_3 (Circle)	NH_3 - N, COD, Total-P TKN, TOC, TOX (Circle)				REMARKS
FGW-1-0295	3/24/95	1430	K01137-1	Water		X	X									X								
-2-		1210	-2			X	X									X								
-5-		1400	-3			X	X									X								
-6-		1235	-4			X	X									X								
-7-		1330	-5			X	X									X								
-8-		1420	-6			X																		

RELINQUISHED BY:
Michael Paulsen
Signature
Michael Paulsen
Printed Name
EMCON
Firm
2-24-95 1536
Date/Time

RECEIVED BY:
DJ MOSIER
Signature
DJ MOSIER
Printed Name
CAS
Firm
022495 1537
Date/Time

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. ___ 5 day
X Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes DUP.MAS. MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O.# ___
Bill To ___

SAMPLE RECEIPT:
Shipping VIA: ___
Shipping to: ___
Condition: K9501137B
Lab No: B950145

RELINQUISHED BY:
B. Reagan
Signature
B. Reagan
Printed Name
CAS Bothell
Firm
02/24/95 1700
Date/Time

RECEIVED BY:
D STORMS
Signature
D STORMS
Printed Name
CAS
Firm
2/27/95 0800
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS: