

Release 3691
Mobil 99-NWA former
Seattle.



January 30, 2001
Kleinfelder Project No: 60-5071-04

Mr. Joe Hickey
Washington Department of Ecology
Voluntary Cleanup Program
3190 – 160th Avenue SE
Bellevue, WA 98008

**Subject: Third Quarter 2000 Groundwater Monitoring Report
Former Mobil Oil Service Station #99-NWA
14357 Lake City Way, N.E.
Seattle, Washington**

FIS 453 29571 NW 0460

Dear Mr. Hickey:

This report presents the results of third quarter 2000 groundwater monitoring at former Mobil Oil Corporation (Mobil) service station #99-NWA, located in Seattle, Washington (Figure 1). Kleinfelder performs this groundwater monitoring on behalf of Mobil.

The contents of this report include the following:

- Progress Report Summary Sheet
- Table 1 Well Data Summary and Groundwater Sample Results
- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 Groundwater Elevation Contours—August 16, 2000
- Figure 4 BTEX Concentrations in Groundwater—August 16, 2000
- Figure 5 Benzene versus Groundwater Elevation Graphs
- Appendix A Site Exploration Methods
- Appendix B Laboratory Reports

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Limitations

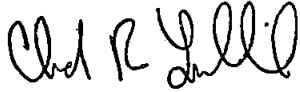
Kleinfelder has performed the services for this project in accordance with the current practices in this geographic area for site assessment sampling. No guarantees are either expressed or implied. There is no investigation that is thorough enough to preclude the presence of materials at the site

entered
am
4/5/04

that presently, or in the future, may be considered hazardous. Because regulatory criteria may change, acceptable concentrations of contaminants present at the time of investigation may in the future become subject to different regulatory standards.

Respectfully submitted,

KLEINFELDER, INC.



Chad R. Lukkarila
Environmental Engineering Staff



John Lillie
Senior Project Manager

cc: Mr. Brad Ledesma, Mobil Oil Corporation

Quarterly Monitoring Report

Summary Sheet

3rd QUARTER 2000

Former Mobil Service Station #99-NWA
14357 Lake City Way N.E.
Seattle, WA

Case # N/A
PSAPCA# N/A
DOE PERMIT# N/A

Number of water zones:		1	This Page		1
FIELD ACTIVITY:			Date Sampled: August 16, 2000		
Number of groundwater wells on-site:		6	Groundwater wells monitored:		6
Number of groundwater wells off-site:		1	Groundwater wells sampled:		6
Phase of investigation:		Monitoring	Groundwater wells with free product:		0
			Groundwater phase:		Monitoring
2000 QUARTERLY MONITORING SCHEDULE: (1)					
	<u>Well ID</u>	<u>1st Qtr</u>	<u>2nd Qtr</u>	<u>3rd Qtr</u>	<u>4th Qtr</u>
onsite:	MW-1	---	---	M/S	M/S
	MW-2	---	---	M/S	M/S
	MW-3	---	---	M/S	M/S
	MW-4	Well Abandoned 6/18/00			
	MW-5	---	---	M/S	M/S
	MW-7	---	---	M/S	M/S
	MW-8	---	---	M/S	M/S
offsite:	MW-6 (2)	---	---	---	---
M/S = Monitored and Sampled M = Monitored only (no sample) --- = Not sampled (1) Mobil Site #99-NWA was scheduled for annual sampling, no samples taken in 1st and 2nd quarters. Schedule changed to quarterly sampling in 9/00. (2) MW-6 located in 145th Street NE has been paved over, no street use permit in place.					
SITE HYDROGEOLOGY:					
Approximate depth to groundwater below ground surface:					8.63 feet
Approximate elevation of potentiometric surface above Mean Sea Level:					217.37 feet
Average increase/decrease in groundwater elevations since last sampling episode:					-1.02 feet
Approximate flow direction and hydraulic gradient:					Southwest at 0.07 ft/ft
GROUNDWATER CONTAMINATION (BENZENE WA MTCA = 5.0 ppb):					
Wells containing free product:		0	Range in thickness of free product:		No FP detected
Number of wells with concentrations below MTCA:		4	Volume of free product recovered this period:		0
Number of wells with concentrations at or above MTCA:		2	Volume of free product recovered to date:		0
			Range in concentrations of benzene:		Non-detect to 1300 ppb
Nature of contamination:		Gasoline			
GROUNDWATER REMEDIATION PERFORMANCE			Date started: December 16, 1996		
			Date removed: 1998		
			Number of wells containing ORC: 0		

Prepared by: _____ Chad R. Lukkarila

Kleinfelder Project No.

60-5071-04

Approved by: _____ John Lillie

Submittal Date:

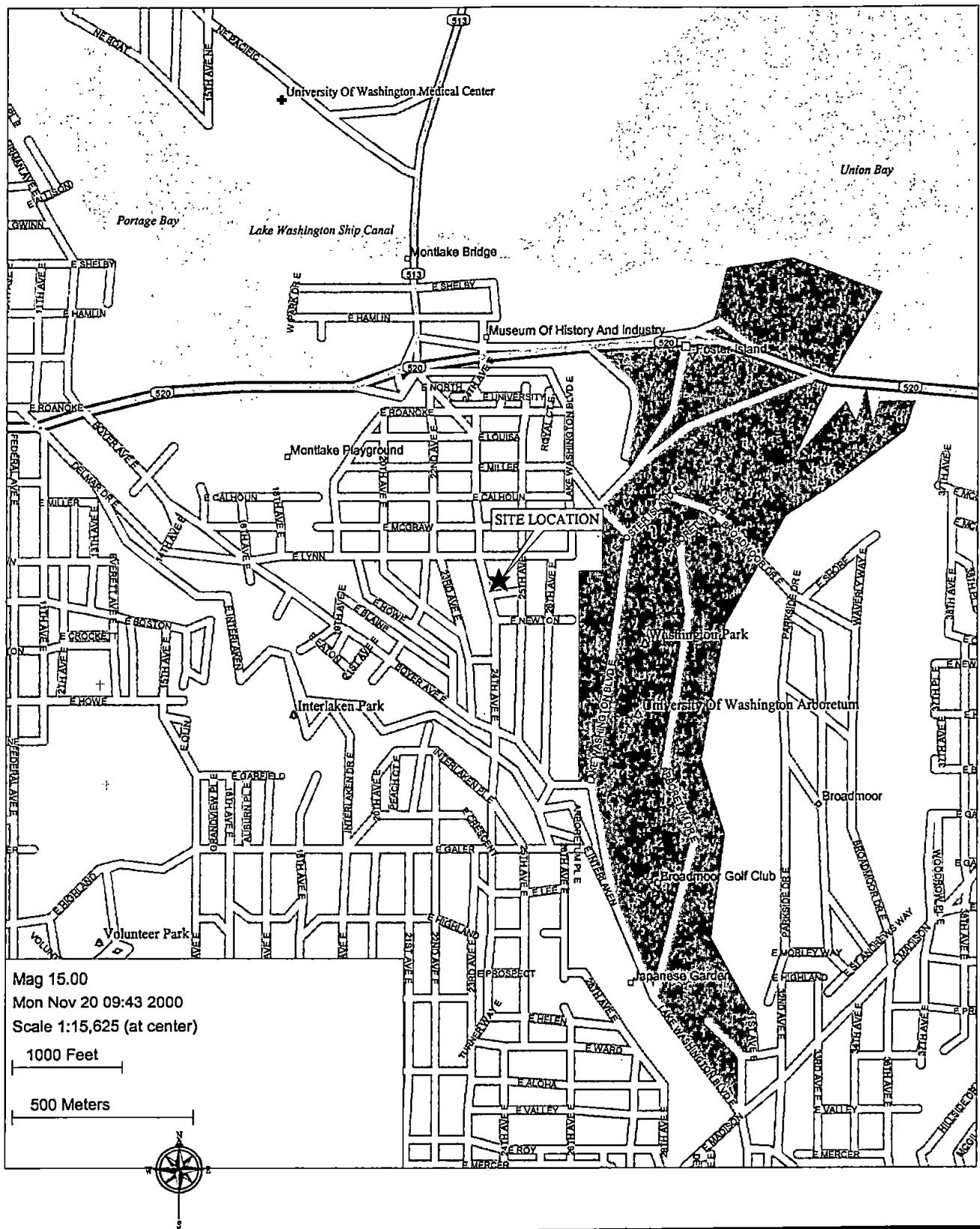
November 17, 2000

TABLE 1
WELL DATA SUMMARY AND GROUNDWATER SAMPLE RESULTS
VOCs AND DISSOLVED LEAD
FORMER MOBIL STATION 99-NWA
14357 LAKE CITY WAY NE
SEATTLE, WASHINGTON

Well Number Elevation [1] Screen Interval [2] Diameter [3] Well Depth [2]	Sample Date	Sample Identification Number	Depth to Ground Water [2]	Ground Water Elevation [4]	Product Thickness [5]	NWTPH-Gx [6] (ug/l)	NWTPH-Ox Diesel Range [7] (mg/l)	NWTPH-Dx Heavy Oil Range [7] (mg/l)	BENZENE [8] (ug/L)	TOLUENE [8] (ug/L)	ETHYL BENZENE [8] (ug/L)	TOTAL XYLENES [8] (ug/L)	DISSOLVED LEAD [9] (ug/L)
MW1 226.55 (6.5-16.5) 4 16.5	9/26/92 11/18/94 12/16/96 12/13/97 12/17/98 8/16/00	MW0109262 MW0111184 MW01-12166 MW01-12137 MW-1 MW-1-81600	- 7.30 8.53 8.90 8.56 10.50	- 219.25 218.02 217.65 217.99 216.05	--- --- --- --- --- ---	3,100 1,900 2,680 5,000 860 630	- 0.38 0.516 0.25 - 0.56	- - - 0.5 - 0.45J	840 4.5 59.9 14.8 2 4.7	7 4.3 10 2.86 3 2	230 88 290 21.2 37 3.3	90 90 54 21.2 4 7	30 150 - 1.1 - 38.5
MW2 226.01 (4-13) 4 13	9/26/92 11/18/94 12/16/96 12/13/97 12/17/98 8/16/00	MW0209262 MW0211184 MW02-12166 MW02-12137 Not Sampled MW-2-81600	- 5.92 5.51 8.49 8.34 9.50	- 220.09 220.50 217.52 217.67 216.51	--- --- --- --- --- ---	140,000 75,000 55,100 80.0 - 13000	- 4.30 2.45 0.25 - 1.8J	- - - 0.5 - 4.0	710.0 780.0 387.0 0.5 - 170.0	3,500 720 216 0.5 - 37.0	3,800 2,100 1,310 0.5 - 350.0	23,000 12,000 6,500 1.0 - 1,700	19 410 - 1.0 1.0 226.0
MW3 226.35 (4-13) 4 13	9/26/92 11/18/94 12/17/96 12/13/97 12/17/98 8/16/00	MW0309262 MW0311184 MW03-12176 MW03-12137 MW-3 MW-3-81600	- 6.28 5.89 7.88 7.98 8.70	- 220.07 220.46 218.47 218.37 217.65	--- --- --- --- --- ---	16,000 4,500 3,960 153 680 770	- 4.3 0.972 0.25 - 0.22J	- - - 0.5 - 0.28J	42 38 20.2 1.14 2 3.4	10 17 1.3 0.5 2 1.2	980 50 15.9 0.869 11 5.7	430 200 4.12 1.0 1.4 1.9J	10 60 - 1.0 - 2.4J
MW4 226.34 (5-15) 4 15	9/26/92 9/26/92 11/18/94 12/17/96 12/13/97 12/17/98 Abandoned 6/19/00, Drilled MW8 as Replacement	MW0409262 MW0409262-DUP* MW0411184 MW04-12176 (Damaged) (Damaged)	- - 6.78 8.31 - -	- - 219.56 220.03 - -	--- --- --- --- --- ---	33,000 27,000 9,600 6,350 - -	- - 2 1.95 - -	- - - - - -	400 420 840 732 - -	670 720 280 359 - -	2,100 2,200 1,000 494 - -	3,200 3,300 580 700 - -	11 7.9 11 - - -
MW5 225.16 (5-15) 4 15	9/26/92 11/18/94 12/16/96 12/13/97 12/17/98 8/16/00	MW0509262 MW0511184 MW05-12166 MW05-12137 MW-5 MW-5-81600	- 5.38 6.83 7.46 8.17 8.82	- 218.78 218.33 217.70 216.99 216.34	--- --- --- --- --- ---	<50 50 128 18,800 48 48	- 0.05 0.25 0.25 - 0.096J	- - - 0.922 - 0.20	<0.5 0.5 0.5 33.4 0.2 0.20	<0.5 0.5 0.5 21 0.2 0.20	<0.5 0.5 1.53 28.4 0.2 0.20	<1.0 0.5 14.7 2,110 0.6 0.60	<2.0 74 - 7.6 - 17.8
MW6 224.71 (5-15) 4 15	9/26/92 11/18/94 12/17/96 12/13/97 12/17/98 8/16/00	MW0609262 MW0611184 MW06-12176 (Not Sampled) MW-6 Not Sampled	- 8.02 5.8 - 5.78 -	- 218.69 218.91 - 218.93 -	--- --- --- --- ---	630 50 85 - 83 -	- 0.3 0.757 - - -	- - - - - -	<0.5 0.5 0.5 - 0.2 -	2.8 0.5 0.5 - 0.3 -	9.3 0.5 0.5 - 0.2 -	82 0.5 1.0 - 0.6 -	17 9.6 - - - -
MW7 225.58 (3-14.5) 4 14.5	9/26/92 11/18/94 12/17/96 12/13/97 12/17/98 8/16/00	MW0709262 MW0711184 MW07-12176 MW07-12137 MW-7 MW-7-81600	- 4.56 4.49 5.2 5.15 8.7	- 221.02 221.09 220.38 220.43 218.88	--- --- --- --- --- ---	15,000 8,800 1,230 236 780 1,500	- 0.92 0.933 0.25 - 0.19J	- - - 0.5 - 0.21J	<0.5 12 0.662 5.05 0.2 0.82J	2.8 68 1.54 0.835 4 3	23 49 9.32 5.36 4 1.4	12 81 1.0 2.6 0.6 0.60	8.7 2.0 - 1.0 0.6 31.4
MW8 226.34 (5-17.5) 2 17.5	Drilled 6/19/00 to replace MW4 8/16/00	MW-8-81600	7.54	218.8	---	51,000	2.2	2	1,300	1,500	2,900	10,000	68.6
CLEANUP LEVEL (10)						1,000	1	1	5	40	30	20	5

1. Mean Sea Level elevation in feet, surveyed to top of PVC well casing.
2. Depth in feet, measured from top of PVC well casing.
3. Diameter in inches.
4. Mean Sea Level elevation in feet corrected for floating product, if applicable.
5. Non-aqueous phase floating product thickness in feet.
6. NWTPH-Gx Method- Gasoline range.
7. NWTPH-Dx Method- Diesel and Heavy Oil range.
8. EPA Method 8020.
9. EPA 200 Series Methods.
10. Method "A" Groundwater Cleanup Levels, MTCA, February 28, 1991.

ug/L. Micrograms per Liter, parts per billion.
mg/L. Milligrams per liter, parts per million.
< Concentration less than laboratory detection limit listed (non-detect).
- Not Analyzed
- Not Encountered
- Duplicate sample collected for QA/QC purposes.
VOCs Volatile Organic Compounds
NCA #P712256
Note: Prior to 1997, gasoline and diesel analyzed using Washington method J = Estimated value
Bold = Greater than MTCA Cleanup Levels



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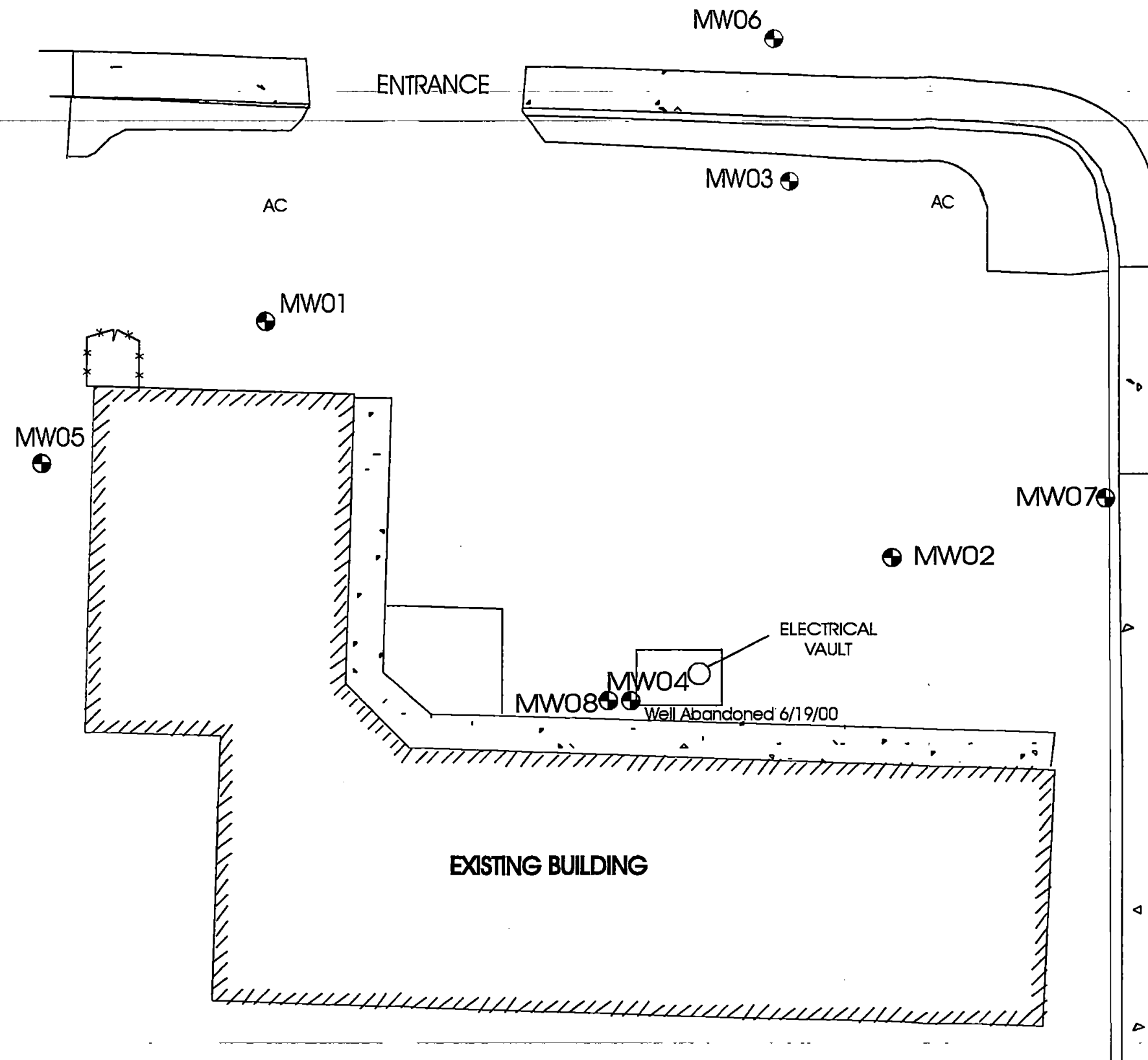
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SITE LOCATION MAP
 FORMER MOBIL STATION #99-NWA
 14357 LAKE CITY WAY NE.
 SEATTLE, WASHINGTON

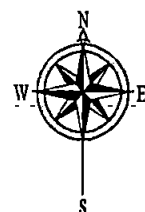
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FIGURE 1



LEGEND

MW-03  MONITORING WELL LOCATION



0 10 20 40

SCALE: 1 INCH = 20 FEET



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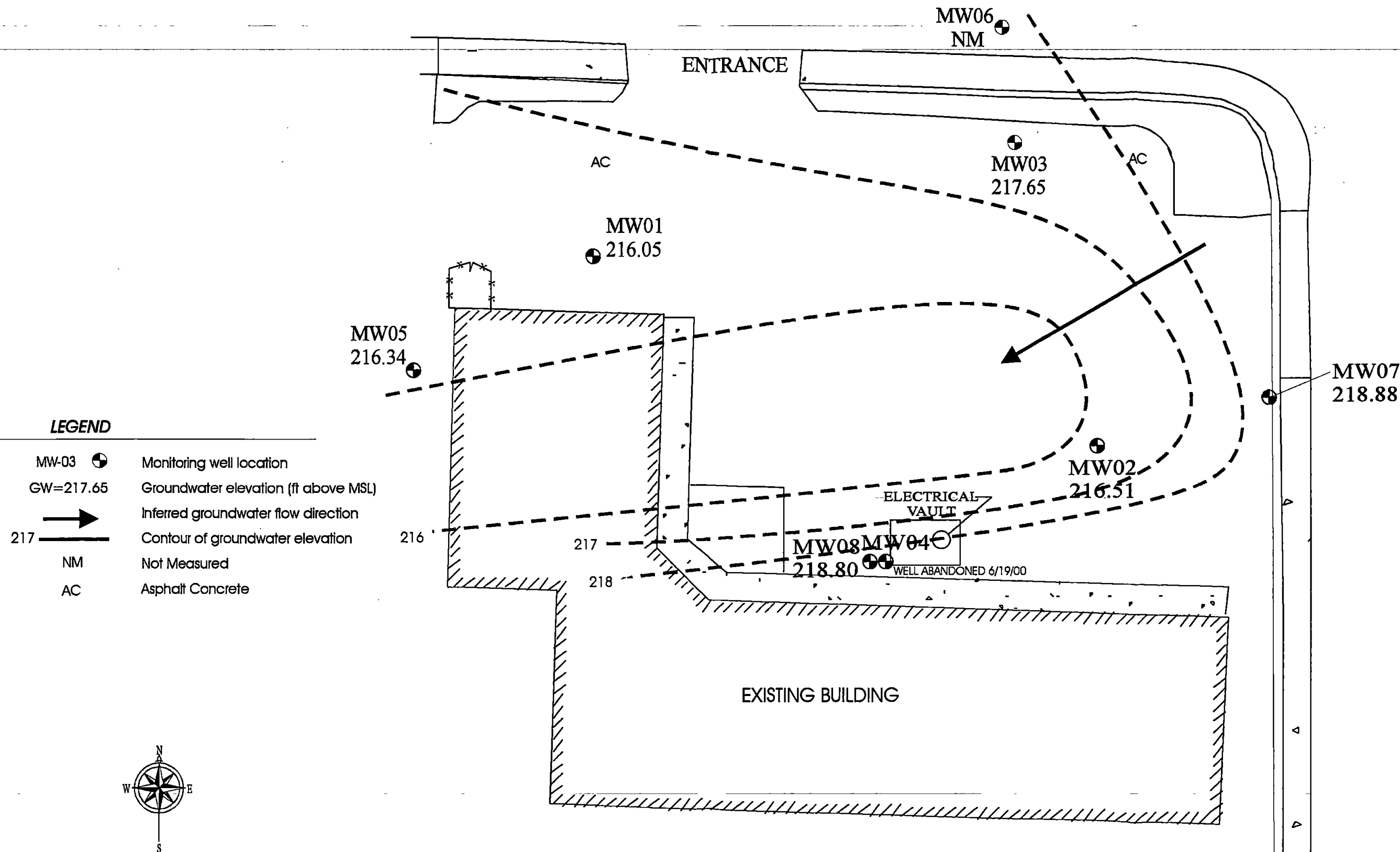
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SITE PLAN
FORMER MOBIL STATION #99-NWA
14357 LAKE CITY WAY NE
SEATTLE, WASHINGTON

Project # 60-5071-04

FIGURE 2



KLEINFELDER

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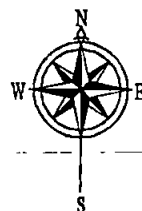
GROUNDWATER ELEVATION CONTOURS - AUGUST 16, 2000
FORMER MOBIL STATION #99-NWA
14357 LAKE CITY WAY NE
SEATTLE, WASHINGTON

Project # 60-5071-04

FIGURE 3

LEGEND

- MW-03  Monitoring well location
 B = 3.40 ug/l Benzene concentration in ug/L or ppb
 T = 1.20 ug/l Toluene concentration in ug/L or ppb
 E = 5.70 ug/l Ethylbenzene concentration in ug/L or ppb
 X = 1.91 ug/l Xylene (Total) concentration in ug/L or ppb
 NS Not sampled
 AC Asphalt Concrete



0 10 20 40
 SCALE: 1 INCH = 20 FEET

MW05

B = <0.2 ug/L
 T = <0.2 ug/L
 E = <0.2 ug/L
 X = <0.6 ug/L

MW01

B = 4.7 ug/L
 T = 2.0 ug/L
 E = 3.3 ug/L
 X = 7.0 ug/L

MW06

B = NS
 T = NS
 E = NS
 X = NS

MW03

B = 3.4 ug/L
 T = 1.2 ug/L
 E = 5.7 ug/L
 X = 1.91 ug/L

MW02

B = 170.0 ug/L
 T = 37.0 ug/L
 E = 350.0 ug/L
 X = 1,700 ug/L

MW07

B = 0.82 ug/L
 T = 3.0 ug/L
 E = 1.4 ug/L
 X = <0.6 ug/L

MW08

B = 1300 ug/L
 T = 1500 ug/L
 E = 2900 ug/L
 X = 10,000 ug/L

ELECTRICAL
 VAULT

ABANDONED 6/19/00

MW04

EXISTING BUILDING

ENTRANCE

AC

AC



KLEINFELDER

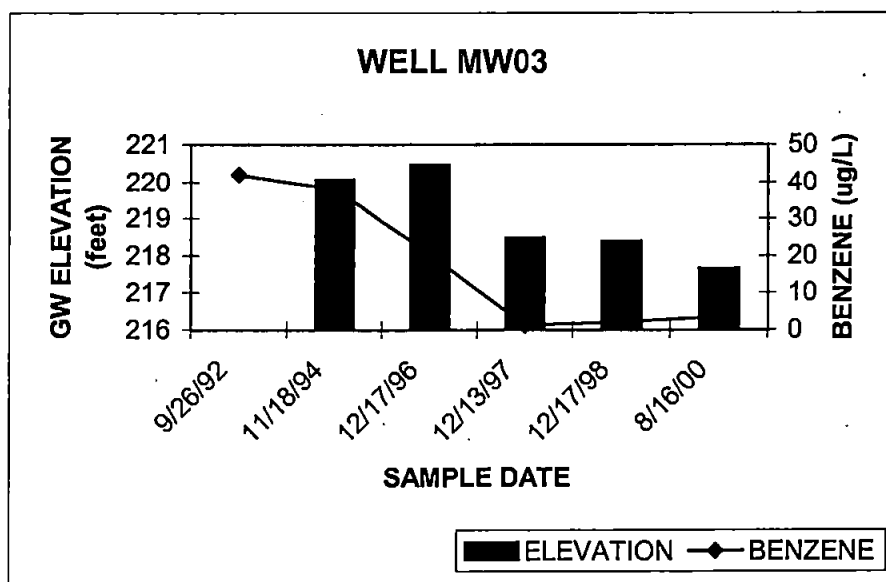
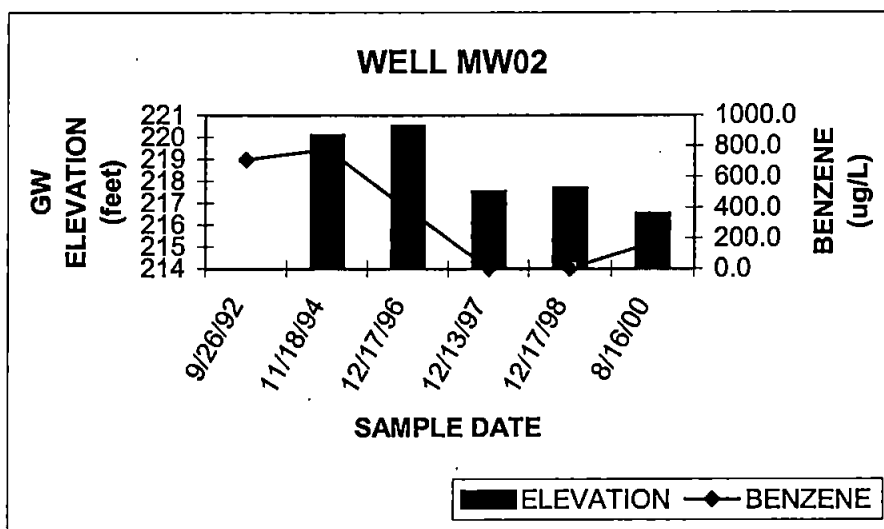
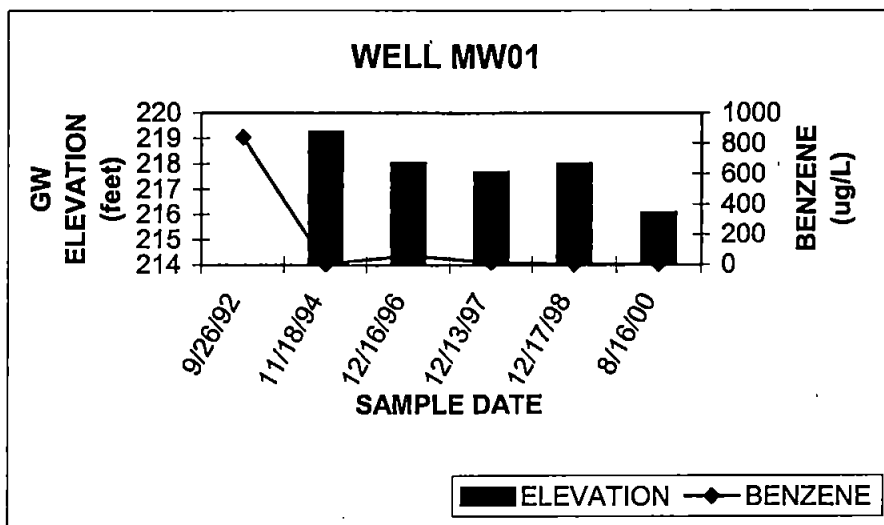
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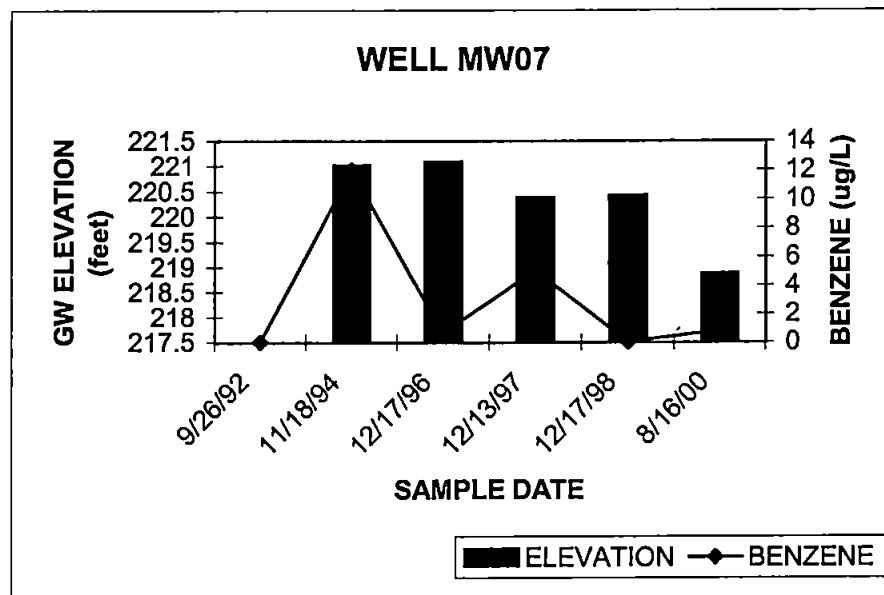
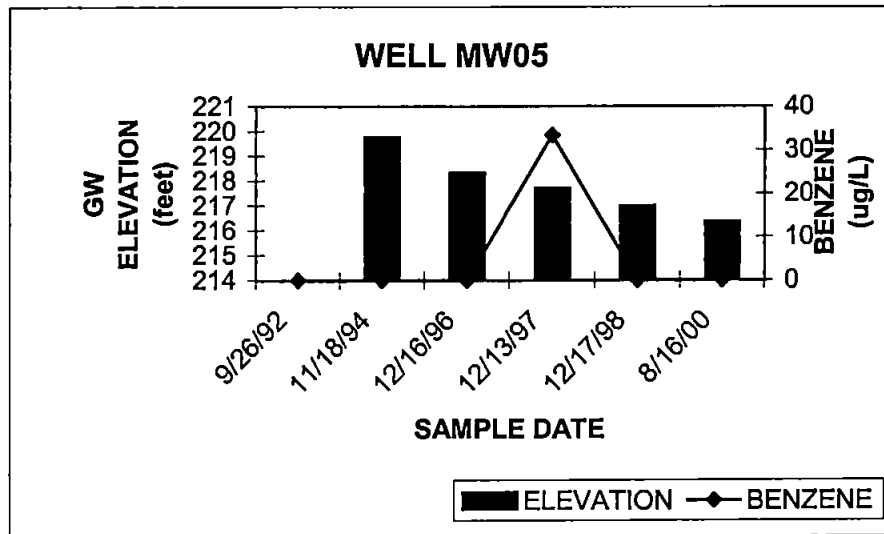
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BTEX CONCENTRATIONS IN GROUNDWATER-AUGUST 16, 2000
 FORMER MOBIL STATION #99-NWA
 14357 LAKE CITY WAY NE
 SEATTLE, WASHINGTON

Project # 60-5071-04

FIGURE 4





APPENDIX A SITE EXPLORATION METHODS

WATER LEVEL MEASUREMENTS

Water level measurements were referenced to the surveyed elevation at the top of the well casing. The static water level and product thickness (when present) were measured in each monitoring well using a Marine Moisture Control model FlexiDip oil/water interface tape. The probe of the oil/water interface tape operates on a dual principle: sonic for liquid level indication, and conductivity for water sensing. The instrument emitted a steady tone when the probe encountered oil and an intermittent beep when it encountered water.

The probe on the oil/water interface tape was lowered into the well until the instrument detected floating product (if present). The tape connected to the probe was used to obtain a depth to product measurement, from the reference point, to within 0.01 feet. The probe was lowered further into the well until the instrument detected water. The depth-to-water, relative to the same reference point, was recorded. Subtracting the first measurement from the second yields thickness of free product floating on top of the water column in the well.

Water elevations were corrected for floating product by the following equation:

$$h_c = h + (d_H/d_W)b$$

Where h_c = Corrected Water Elevation

h = Depth to Water

d_H = Density of Hydrocarbon

gasoline d_H = 0.73 grams/cubic centimeter

diesel d_H = 0.83 grams/cubic centimeter

d_W = Density of Water (1 gram/cubic centimeter)

b = Hydrocarbon Thickness

MONITOR WELL SAMPLING

Kleinfelder personnel sampled groundwater monitoring wells in accordance with the following protocol:

- The height of the water column within the well was calculated by subtracting the depth to water from the total depth of the well. The volume of this water column was calculated using the relationship $V = 3.142r^2h$. Where V is the volume of water in cubic feet, r is the radius of the well in feet and h is the height of the water column in feet.

- A minimum of three casing volumes of water was removed from the well using a submersible electric pump (Purger-ES40) or disposable bailer. Temperature, pH, and specific conductivity were monitored during the well purge. Standards of known pH and specific conductivity were used to calibrate the field meter prior to use.
- The contract laboratory prepared sample containers to conform with EPA-recommended preservation techniques for the analytes of concern.
- The groundwater sample was collected with a disposable bailer. Sample containers were open only as long as necessary to collect the samples.
- Sample containers were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing ice. Chain-of-custody procedures documented sample handling.
- To reduce the potential for cross-contamination, developing and sampling equipment were washed in a trisodium phosphate solution, rinsed with tap water, and given a final rinse with distilled water. Clean latex gloves were worn when handling sample bottles.



ANALYTICAL RESULTS

Prepared for:

ExxonMobil
Remediation Engineering Dept.
3700 West 190th St., TPT-2
Torrance, CA 90509-2929

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 727517. Samples arrived at the laboratory on Friday, August 18, 2000. The PO# for this group is 4500446506-0509 and the release number is 00380.

Client Description

MW-03-81600 Grab Water Sample
MW-01-81600 Grab Water Sample
MW-05-81600 Grab Water Sample
MW-08-81600 Grab Water Sample
MW-07-81600 Grab Water Sample
MW-02-81600 Grab Water Sample

Lancaster Labs Number

3441786
3441787
3441788
3441789
3441790
3441791

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

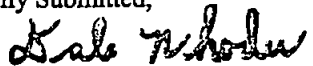
1 COPY TO

Kleinfelder, Inc.

Attn: John Lillie

Questions? Contact your Client Services Representative
Tan H. Vo at (717) 656-2300.

Respectfully Submitted,





Lancaster Laboratories
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories is a subsidiary of Thermo TerraTech Inc., a Thermo Electron Company.
See reverse side for explanation of symbols and abbreviations.

2216 Rev. 3/23/99

Mobil Western Region Analysis Request/Chain of Custody



For Lancaster Laboratories use only
Acct. #: 9728 Sample #: 3441786-0

Please print.

SCR#:

Mobil Consultant/Office: <u>KLEINFELDER BELLEVUE</u>				Matrix		Analyses Requested										List total number of containers in the box under each analysis.										Remarks		Temperature of samples upon receipt
Consultant Prj. Mgr: <u>JOHN LILLIE</u> Prj. #: <u>60-5071-04</u> Consultant Phone #: <u>425-562-4200</u> Fax #: <u>425-562-4201</u> Location Code #: <u>99-NWA</u> PRC/AWF/Release #: <u>WBS</u> Commitment Code #: <u>WBS</u> Phase Code: <u>.56</u> Site Address: <u>14357 LAKE CITY WAY, SEATTLE</u> State: <u>WA</u> Sampler: <u>CHAD LYKKARIU, SHEILA DAVIS</u> Mobil Engineer: <u>BRAD LEDESMA</u>				☐ Potable ☐ NPDES ☐ Water ☐ Oil ☐ Air ☐ Composite		Total # of Containers MWTPH-GX/BTEX (VOL) MWTPH-DX (L. AMBER) TOTAL Pb (500 mL poly)																						
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Oil	Air	Composite	Total # of Containers	MWTPH-GX/BTEX (VOL)	MWTPH-DX (L. AMBER)	TOTAL Pb (500 mL poly)											Remarks	Temperature of samples upon receipt			
MW-03-81600	8/16/00	11:30	X			X				7	4	2	1											*VOASE 1 L AMBER				
MW-01-81600	8/16/00	12:00	X			X				7	4	2	1											PRESERVED W/HCl				
MW-05-81600	8/16/00	12:30	X			X				7	4	2	1											*500 mL poly				
MW-08-81600	8/16/00	12:45	X			X				7	4	2	1											PRESERVED w/				
MW-07-81600	8/16/00	13:00	X			X				7	4	2	1											HNO3				
MW-02-81600	8/16/00	13:30	X			X				7	4	2	1											*MAJORITY OF				
TRIP BLANKS	—	—				X				4											SAMPLES ARE							
by did not receive																						SILTY.						
more																						*TOTAL OF						
8/21/00																						2 COOLERS						
																						*2 TRIP BLANKS IN						
																						EACH COOLER						
Turnaround Time Requested (TAT) (please circle):				Relinquished by:				Date		Time		Received by:				Date		Time										
MOBIL STD. TAT 72 hour 48 hour 24 hour other ____ day				[Signature] 8/17 8:00AM				8/17		8:00AM																		
Data Package Options (please circle if requested)				Relinquished by:				Date		Time		Received by:				Date		Time										
QC Summary GLP Type I (Tier I) Other Type III (NJ Red. Del.) Disk Type IV (CLP) Type VI (Raw Data) WIP				Relinquished by: Relinquished by: Relinquished by:																								
SDG Complete? Yes No Site-specific QC required? Yes No (If yes, indicate QC sample and submit triplicate volume.) Internal Chain of Custody required? Yes No																												



Lancaster Laboratories Sample No. WW 3441786

Collected: 08/16/2000 11:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-03-81600 Grab Water Sample

ExxonMobil

Remediation Engineering Dept.

3700 West 190th St., TPT-2

Torrance, CA 90509-2929

LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

03--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.0024 J	0.0019	mg/l	1
08208	BTEX (8020)					
00776	Benzene	71-43-2	3.4	0.20	ug/l	1
00777	Toluene	108-88-3	1.2	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	5.7	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	1.9 J	0.60	ug/l	1
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	0.77	0.048	mg/l	1
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	0.22 J	0.080	mg/l	1
02096	Heavy Range Organics	n.a.	0.26 J	0.20	mg/l	1

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/24/2000 22:45	Heidi L. Ortenzi	1
08208	BTEX (8020)	SW-846 8020A	1	08/21/2000 16:04	K. Robert James	1
08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/21/2000 16:04	K. Robert James	1
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602(modified)	1	08/23/2000 10:37	Robert G. Brown	1
05704	WW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/22/2000 09:45	Amanda E. Wade	1



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Lancaster Laboratories Sample No. WW 3441786

Collected: 08/16/2000 11:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-03-81600 Grab Water Sample

ExxonMobil

Remediation Engineering Dept.

3700 West 190th St., TPT-2

Torrance, CA 90509-2929

LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

03--0



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Lancaster Laboratories Sample No. WW 3441787

Collected: 08/16/2000 12:00 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-01-81600 Grab Water Sample

ExxonMobil

Remediation Engineering Dept.

3700 West 190th St., TPT-2

Torrance, CA 90509-2929

LOC#99-NWA

WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

01--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.0385	0.0019	mg/l	1
08208	BTEX (8020)					
00776	Benzene	71-43-2	4.7	0.20	ug/l	1
00777	Toluene	108-88-3	2.0	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	3.3	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	6.5	0.60	ug/l	1
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	0.63	0.048	mg/l	1
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	0.56	0.080	mg/l	1
02096	Heavy Range Organics	n.a.	0.45 J	0.20	mg/l	1

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/24/2000 22:56	Heidi L. Ortenzi	1
08208	BTEX (8020)	SW-846 8020A	1	08/21/2000 16:35	K. Robert James	1
08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/21/2000 16:35	K. Robert James	1
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602 (modified)	1	08/23/2000 10:57	Robert G. Brown	1
05704	WW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/22/2000 09:45	Amanda E. Wade	1



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Lancaster Laboratories Sample No. WW 3441787

Collected: 08/16/2000 12:00 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

ExxonMobil

Reported: 09/04/00 at 12:17 PM

Remediation Engineering Dept.

Discard: 10/5/00

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MW-01-81600 Grab Water Sample

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LOC#99-NWA WBS#56

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Lancaster Laboratories Sample No. WW 3441788

Collected: 08/16/2000 12:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-05-81600 Grab Water Sample

ExxonMobil

Remediation Engineering Dept.

3700 West 190th St., TPT-2

Torrance, CA 90509-2929

LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

05--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.0178	0.0019	mg/l	1
08208	BTEX (8020)					
00776	Benzene	71-43-2	N.D.	0.20	ug/l	1
00777	Toluene	108-88-3	N.D.	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	N.D.	0.048	mg/l	1
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	0.096 J	0.080	mg/l	1
02096	Heavy Range Organics	n.a.	N.D.	0.20	mg/l	1

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/24/2000 23:06	Heidi L. Ortenzi	1
08208	BTEX (8020)	SW-846 8020A	1	08/21/2000 17:07	K. Robert James	1
08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/21/2000 17:07	K. Robert James	1
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602 (modified)	1	08/23/2000 11:17	Robert G. Brown	1
05704	WW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/22/2000 09:45	Amanda E. Wade	1



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Collected: 08/16/2000 12:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

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Reported: 09/04/00 at 12:17 PM

Remediation Engineering Dept.

Discard: 10/5/00

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LOC#99-NWA WBS#56

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Lancaster Laboratories Sample No. WW 3441789

Collected: 08/16/2000 12:45 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-08-81600 Grab Water Sample

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Torrance, CA 90509-2929

LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

08--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.0686	0.0095	mg/l	5
08208	BTEX (8020)					
00776	Benzene	71-43-2	1,300.	4.0	ug/l	20
00777	Toluene	108-88-3	1,500.	4.0	ug/l	20
00778	Ethylbenzene	100-41-4	2,900.	4.0	ug/l	20
00779	Total Xylenes	1330-20-7	10,000.	12.	ug/l	20
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	51.	1.0	mg/l	20
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	2.2	0.080	mg/l	1
02096	Heavy Range Organics	n.a.	2.0	0.20	mg/l	1

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/24/2000 23:27	Heidi L. Ortenzi	5
08208	BTEX (8020)	SW-846 8020A	1	08/21/2000 17:38	K. Robert James	20
08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/21/2000 17:38	K. Robert James	20
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602(modified)	1	08/23/2000 11:37	Robert G. Brown	1
05704	WW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/22/2000 09:45	Amanda E. Wade	1



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Lancaster Laboratories Sample No. WW 3441789

Collected: 08/16/2000 12:45 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

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Reported: 09/04/00 at 12:17 PM

Remediation Engineering Dept.

Discard: 10/5/00

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MW-08-81600 Grab Water Sample

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LOC#99-NWA

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Lancaster Laboratories Sample No. WW 3441790

Collected: 08/16/2000 13:00 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-07-81600 Grab Water Sample

ExxonMobil

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3700 West 190th St., TPT-2

Torrance, CA 90509-2929

LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

07--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.0314	0.0019	mg/l	1
08208	BTEX (8020)					
00776	Benzene	71-43-2	0.82 J	0.20	ug/l	1
00777	Toluene	108-88-3	3.0	0.20	ug/l	1
00778	Ethylbenzene	100-41-4	1.4	0.20	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.60	ug/l	1
The vial submitted for volatile analysis did not have a pH < 2 at the time of analysis. Due to the volatile nature of the analytes, it is not appropriate for the laboratory to adjust the pH at the time of sample receipt.						
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	1.5	0.048	mg/l	1
Due to the nature of the sample matrix, the surrogate standard recovery is above the range of specifications.						
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	0.19 J	0.080	mg/l	1
02096	Heavy Range Organics	n.a.	0.21 J	0.20	mg/l	1

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/24/2000 23:37	Heidi L. Ortenzi	1
08208	BTEX (8020)	SW-846 8020A	1	08/21/2000 18:09	K. Robert James	1

MEMBER

ACIL

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Lancaster Laboratories Sample No. WW 3441790

Collected: 08/16/2000 13:00 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-07-81600 Grab Water Sample

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LOC#99-NWA

WBS#56

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07--0

08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/21/2000 18:09	K. Robert James	1
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602(modified)	1	08/23/2000 11:56	Robert G. Brown	1
05704	WW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/22/2000 09:45	Amanda E. Wade	1



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Lancaster Laboratories Sample No. WW 3441791

Collected: 08/16/2000 13:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

Reported: 09/04/00 at 12:17 PM

Discard: 10/5/00

MW-02-81600 Grab Water Sample

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LOC#99-NWA WBS#56

MOBIL: 14357 Lake City Way - Seattle, WA

02--0

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01055	Lead (furnace method)	7439-92-1	0.226	0.0190	mg/l	10
08208	BTEX (8020)					
00776	Benzene	71-43-2	170.	1.0	ug/l	5
00777	Toluene	108-88-3	37.	1.0	ug/l	5
00778	Ethylbenzene	100-41-4	350.	1.0	ug/l	5
00779	Total Xylenes	1330-20-7	1,700.	3.0	ug/l	5
08274	Gx by 8015B Modified - water					
01648	Gx by 8015B Modified - water	n.a.	13.	0.24	mg/l	5
08271	TPH by NWTPH-Dx (waters)					
02095	Diesel Range Organics	n.a.	1.8 J	1.6	mg/l	20
02096	Heavy Range Organics	n.a.	N.D.	4.0	mg/l	20
The quantitation limits were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.						

State of Washington Lab Certification No. C259

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01055	Lead (furnace method)	SW-846 7421	1	08/25/2000 11:40	Heidi L. Ortenzi	10
08208	BTEX (8020)	SW-846 8020A	1	08/22/2000 01:33	K. Robert James	5
08274	Gx by 8015B Modified - water	Gx by SW-846 8015B Modified	1	08/22/2000 01:33	K. Robert James	5
08271	TPH by NWTPH-Dx (waters)	NWTPH-Dx, ECY 97-602 (modified)	1	08/23/2000 17:17	Robert G. Brown	20
05704	MW/TL SW 846 GFAA Digest tot	SW-846 3020A	1	08/23/2000 18:15	Julie A. Slaughenhaupt	1



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Lancaster Laboratories Sample No. WW 3441791

Collected: 08/16/2000 13:30 by CL

Account Number: 09728

Submitted: 08/18/2000 09:40

ExxonMobil

Reported: 09/04/00 at 12:17 PM

Remediation Engineering Dept.

Discard: 10/5/00

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MW-02-81600 Grab Water Sample

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LOC#99-NWA WBS#56

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07003 Extraction - DRO (Waters)

NWTPH-Dx, ECY 97-602,
6/97

1

08/22/2000 09:45

Amanda E. Wade

1



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Quality Control Summary

Client Name: ExxonMobil

Group Number: 727517

Reported: 09/04/00 at 12:18 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 002340020A D235	Sample number(s): 3441786-3441791							
Diesel Range Organics	N.D.	.08	mg/l	88	92	60-120	4	20
Heavy Range Organics	N.D.	.2	mg/l					
Batch number: 00234A16	Sample number(s): 3441786-3441791							
Benzene	N.D.	.2	ug/l	107	106	79-119	1	30
Toluene	N.D.	.2	ug/l	107	105	81-118	2	30
Ethylbenzene	N.D.	.2	ug/l	107	106	80-118	1	30
Total Xylenes	N.D.	.6	ug/l	109	108	81-118	1	30
Gx by 8015B Modified - water	N.D.	.048	mg/l	94	93	63-130	1	30
Batch number: 002365704005	Sample number(s): 3441786-3441791							
Lead (furnace method)	N.D.	.0019	mg/l	100		80-117		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 00234A16	Sample number(s): 3441786-3441791								
Benzene	108	110	77-129	2	30				
Toluene	108	110	77-131	1	30				
Ethylbenzene	109	110	80-130	1	30				
Total Xylenes	110	111	75-133	1	30				
Gx by 8015B Modified - water	96	104	70-130	4	30				
Batch number: 002365704005	Sample number(s): 3441786-3441791								
Lead (furnace method)	80	83	80-120	3	20	N.D.	N.D.	4 (1)	20

Surrogate Quality Control

Analysis Name: TPH by NWTPH-Dx (waters)

Batch number: 002340020A D235

Orthoterphenyl

3441786	104
3441787	111
3441788	101
3441789	114
3441790	112
3441791	142
Blank	98
LCS	86
LCSD	89

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.


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Quality Control Summary

Client Name: ExxonMobil
 Reported: 09/04/00 at 12:18 PM

Group Number: 727517

Surrogate Quality Control

Limits: 50-150

Analysis Name: BTEX (8020)

Batch number: 00234A16

	Trifluorotoluene-P	Trifluorotoluene-F
3441786	110	109
3441787	101	119
3441788	99	91
3441789	104	103
3441790	122	219*
3441791	105	110
Blank	98	90
LCS	98	90
LCSD	99	90
MS	97	90
MSD	98	90
Limits:	69-132	65-131

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.



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K KLEINFELDER
2405 140th Avenue NE
Suite A101
Bellevue, WA 98005
Tel. 206-562-4200

Fax. 206-562-4201

Transmittal

Date: January 30, 2001
Kleinfelder File No.: 60-5071-04

TO:

Mr. Joe Hickey
Washington Department of Ecology
Voluntary Cleanup Program
3190 - 160th Avenue SE
Bellevue, WA 98008

Subject:

THIRD QUARTER 2000 GROUNDWATER MONITORING REPORT
FORMER MOBIL OIL SERVICE STATION #99-NWA
14357 LAKE CITY WAY, N.E.
SEATTLE, WASHINGTON

FIS 453 29571

NW 0460

We are sending the following:

One copy of the above referenced report.

Remarks:

If you have any questions, please contact me at (425)-562-4200.

Thank you.

By:

Chad R. Lukkarila

Chad R. Lukkarila
Environmental Engineering Staff

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