Table 1: **Summary of Soil Analytical Results: Subsurface Petroleum Hydrocarbon Assessment, 18 January 1995**
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-00

Sample I.D.	Date Collected	Depth Collected (feet)	OVM Reading (ppm)	WTPH-HCID Oil (ppm)	WTPH-HCID Diesel (ppm)	WTPH-HCID Gas (ppm)	WTPH-G (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	Total Lead (ppm)
MW1-5.0	28-Nov-94	5.5-6.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW1-10.0	28-Nov-94	10.5-11.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW1-15.0	28-Nov-94	15.0-16.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW2-5.0	28-Nov-94	5.5-6.5	116	NT	NT	NT	2.5	<0.05	<0.05	<0.05	<0.1	NT
MW2-10.0	28-Nov-94	10.0-11.5	0	<100	<50	<20	11	<0.05	<0.05	<0.05	1.5	<10
MW2-15.0	28-Nov-94	15.0-16.0	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW3-5.0	29-Nov-94	5.5-6.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW3-10.0	29-Nov-94	10.5-11.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW3-15.0	29-Nov-94	15.5-16.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MW4-5.0	29-Nov-94	5.5-6.5	347	<100	<50	Present	68	<0.05	0.13	<0.05	<0.1	NT
MW4-10.0	29-Nov-94	10.0-11.0	217	NT	NT	NT	13	0.06	<0.05	0.27	0.65	NT
MW4-15.0	29-Nov-94	15.0-15.6	6	NT	NT	NT	28	0.07	<0.05	<0.05	<0.1	<10
B1-5.0	28-Nov-94	5.0-6.5	679	<100	Present	Present	**6,200**	13	27	15	**48**	<10
B1-10.0	28-Nov-94	10.0-11.0	164	NT	NT	NT	3.9	<0.05	<0.05	<0.05	<0.1	NT
B1-15.0	28-Nov-94	15.0-16.0	30	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
B2-5.0	28-Nov-94	5.0-6.5	2	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
B2-10.0	28-Nov-94	10.0-15.5	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
B2-15.0	28-Nov-94	15.0-16.0	0	NT	NT	NT	<1.0	<0.05	<0.05	<0.05	<0.1	NT
MTCA Method "A" Cleanup Levels				200	200	100	100	0.5	40	20	20	250

Notes:

WTPH-HCID = Total petroleum hydrocarbons, (oil range (greater than (>)C24), diesel range (C13-C24) and gasoline range (C7-C12)) by Ecology Method WTPH-HCID.
WTPH-G = Total petroleum hydrocarbons, gasoline range, by Ecology Method WTPH-G.
OVM = Organic Vapor Meter.
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), by EPA Method 8020.
Total Lead by EPA Method 7420.
MTCA = Model Toxics Control Act, Method "A" Cleanup Guidelines.
BOLDED = Indicates concentration is above the MTCA cleanup level.
NT = sample was not tested for that compound.
All concentrations are expressed in parts per million (ppm).

AGRA
Earth & Environmental Group

Table 2: Summary of Analytical Results: Groundwater
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-01

Sample I.D.	Date Collected	WTPH-G (ppb)	WTPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	Total Lead (ppb)	Dissolved Lead (ppb)	Turbidity (NTU)
MW-1	07-Dec-94	88	NT	0.66	0.93	5.2	3	<2	<2	7.4
	08-Sep-95	<50	<250	<0.5	<0.5	<0.5	<1	<2	<2	76
MW-2	07-Dec-94	<50	NT	<0.5	<0.5	<0.5	<1	<2	<2	63
	08-Sep-95	60	<250	<0.5	<0.5	1.1	1.4	<2	<2	54
MW-3	07-Dec-94	72	NT	<0.5	<0.5	<0.5	<1	<2	<2	190
	08-Sep-95	85	540	<0.5	<0.5	<0.5	<1	**6.2**	<2	170
MW-4	07-Dec-94	100	NT	**13**	0.61	0.61	4.8	<2	<2	67
	08-Sep-95	270	790	**64**	14	17	2.6	<2	<2	150
MW-5	08-Sep-95	<50	<250	<0.5	1.2	<0.5	<1	2.9	<2	23
MW-6	08-Sep-95	<50	<250	<0.5	<0.5	<0.5	<1	3.4	<2	170
MW-7	08-Sep-95	<50	<250	<0.5	<0.5	<0.5	<1	<2	<2	46
MTCA Method "A" Cleanup Levels		1,000	1,000	5	40	30	20	5	5	N/A

Notes:

WTPH-G = Total petroleum hydrocarbons, gasoline range, by Ecology Method WTPH-G.

WTPH-D = Total petroleum hydrocarbons, diesel range, by Ecology Method WTPH-D.
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), by EPA Method 602.
Total and Dissolved Lead by EPA Method 7420.
Turbidity by EPA Method 180.1 expressed in NTU's (Nephelometer Turbidity Units).
MTCA = Model Toxics Control Act, Method "A" Cleanup Guidelines.
BOLDED = Indicates concentration is above the MTCA cleanup level.
N/A = No MTCA cleanup level applicable.
All concentrations are expressed in parts per billion (ppb).

TABLE 3: SUMMARY OF SOIL VAPOR SCREENING
1029 MARKET STREET
KIRKLAND, WASHINGTON
AGRA EARTH & ENVIRONMENTAL JOB NO. 12-1232-01

Sample ID	Date	Time	Depth (feet)	OVM (ppm)
SV1-3	07/11/95	10:20 A.M.	3	0
SV1-7	07/11/95	10:30	7	2
SV2-3	07/11/95	10:45	3	3
SV2-6	07/11/95	10:55	6	112
SV3-3	07/11/95	11:15	3	7
SV3-8	07/11/95	11:20	8	5
SV4-3	07/11/95	1:10 P.M.	3	26
SV4-7	07/11/95	1:30	7	7
SV5-3	07/11/95	2:05	3	5
SV5-7	07/11/95	2:40	7	119
SV6-3	07/11/95	3:05	3	23
SV6-5	07/11/95	3:20	5	188
SV7-3	07/11/95	3:50	3	23
SV7-7	07/11/95	4:15	7	19

Notes: OVM = Organic Vapor Meter, a type of photoionization detector (PID)
ppm = parts per million concentration units

TABLE 4: **SUMMARY OF ANALYTICAL RESULTS: SOIL VAPOR**
1029 MARKET STREET
KIRKLAND, WASHINGTON

SAMPLE NUMBER	UNITS	SV2-6	SV4-3	SV5-7	SV6-5	SV7-3
DATE COLLECTED		11 July 95	11 July 95	11 July 95	11 July 95	11 July 95
TIME COLLECTED		1055	1310	1440	1520	1550
GRPH	ppmV	99	28	130	660	23
	mg/M3	420	120	540	2800	96
BENZENE	ppmV	1.85	<0.016	1.47	15.67	0.03
	mg/M3	5.90	<0.05	4.70	50.00	0.11
TOLUENE	ppmV	<0.133	0.02	<0.133	2.92	<0.027
	mg/M3	<0.50	0.06	<0.50	11.00	<0.10
ETHYLBENZENE	ppmV	0.30	0.02	0.32	0.92	0.06
	mg/M3	1.30	0.07	1.40	4.00	0.24
TOTAL XYLENES	ppmV	0.37	0.07	0.41	1.18	0.11
	mg/M3	1.60	0.30	1.80	5.10	0.48

ppmV Parts per million by volume
mg/m3 Milligrams per cubic meter

Table 5: **Summary of Soil Analytical Results: UST Excavation**
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-01

Sample Number	Date Collected	OVM Reading (ppm)	WTPH-D (ppm)	WTPH-G (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	Total Lead (ppm)
UST4K-NSW-5.5	19-Jul-95	407	NT	**4,700**	**5.0**	18	9.8	**46**	NT
UST4K-WSW-9(1)	19-Jul-95	389	NT	**1,700**	**4.0**	<0.2	7.1	11	NT
UST4K-BTS-10	19-Jul-95	68	NT	4.8	<0.05	<0.05	0.15	0.23	NT
UST4K-SESW-9	09-Aug-95	29	NT	9.5	<0.05	<0.05	0.34	0.46	NT
UST4K-ESW-9.5	09-Aug-95	252	NT	3.0	<0.05	<0.05	0.068	<0.10	NT
UST4K-BSTA-11	10-Aug-95	59	NT	2.4	0.16	<0.052	0.23	0.38	NT
UST4K-BTW-11	10-Aug-95	28	NT	4.6	<0.05	<0.05	0.11	0.20	NT
UST4K-SSWA-9	11-Aug-95	5	NT	2.4	<0.05	<0.05	0.051	<0.10	NT
UST4K-SSWB-9	11-Aug-95	38	NT	4.9	<0.05	<0.05	0.096	0.23	NT
UST4K-WSWA-9	11-Aug-95	94	NT	22	<0.05	<0.05	0.21	0.52	NT
UST4K-WSWB-8	11-Aug-95	234	13	**850**	**0.62**	<0.08	3.4	5.8	12
UST4K-NSWA-9	11-Aug-95	37	NT	3.7	<0.05	<0.05	0.11	<0.10	NT
UST4K-NSWB-9	11-Aug-95	164	NT	9.0	<0.05	<0.05	0.10	<0.10	NT
UST4K-ESWA-9	11-Aug-95	388	NT	36	<0.08	<0.05	0.39	0.56	NT
UST4K-BTE-11	11-Aug-95	82	NT	7.9	0.086	<0.05	0.068	<0.10	NT
MTCA Method "A" Cleanup Levels			200	100	0.5	40	20	20	250

Notes:

OVM = Organic Vapor Meter, using a 1.0eV lamp.
WTPH-D = Total petroleum hydrocarbons, diesel range (C13-C24), by Washington State Method WTPH-D.
WTPH-G = Total petroleum hydrocarbons, gasoline range (C7-C12), by Washington State Method WTPH-G.
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), by EPA Method 8020.
Total Lead by EPA Method 7421.
NT = Indicates sample was not tested for this specific compound.
MTCA = Washington State, Model Toxics Control Act, Method "A" Cleanup Guidelines.
BOLDED = Indicates concentration is above MTCA Method "A" cleanup level.
All concentrations are expressed in parts per million (ppm)(mg/kg).
(1) Sample not used for closure purposes

Table 6: **Summary of Soil Analytical Results: Parking Area Excavation**
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-01

Sample Number	Date Collected	OVM Reading (ppm)	WTPH-D (ppm)	WTPH-G (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	Total Lead (ppm)
PKS-SWSW-4(1)	21-Jul-95	364	NT	**610**	<0.08	<0.08	1.5	2.2	NT
PKS-NWSW-5(1)	21-Jul-95	489	NT	**720**	0.34	<0.08	3.0	4.8	NT
PKS-SSW-6(1)	21-Jul-95	268	NT	**1,300**	**0.73**	<0.08	4.6	6.0	NT
PKS-ESW-8(1)	21-Jul-95	312	NT	**470**	0.42	0.94	2.1	3.4	NT
PKS-SSW-8W	16-Aug-95	482	NT	**370**	<0.20	0.58	1.0	<0.10	NT
PKS-WSW-7S	16-Aug-95	255	43	**560**	**0.67**	0.98	1.4	1.3	<10
PKS-SSW-8E	16-Aug-95	17	NT	2.1	<0.05	<0.05	<0.05	<0.10	NT
PKS-ESW-9.5S	16-Aug-95	13	NT	1.2	0.05	<0.05	<0.05	<0.10	NT
PKS-BTSE-10	16-Aug-95	9	NT	2.4	0.066	<0.05	<0.05	<0.10	NT
PKS-NWS-8W	17-Aug-95	11	NT	1.7	<0.05	<0.05	<0.05	<0.10	NT
PKS-BTNW-10	17-Aug-95	3	NT	2.4	<0.05	<0.05	<0.05	<0.10	NT
PKS-BTNE-10	17-Aug-95	9	NT	<1.0	<0.05	<0.05	<0.05	<0.10	NT
PKS-NSW-7E	17-Aug-95	36	NT	**350**	<0.05	0.15	0.49	<0.10	NT
PKS-ESW-8C	17-Aug-95	414	NT	<1.0	<0.05	<0.05	<0.05	<0.10	NT
PKS-NSW-7WCR	17-Aug-95	8	NT	**410**	0.20	0.27	0.91	2.2	NT
PKS-WSW-8C	18-Aug-95	224	NT	**130**	0.059	0.17	0.31	0.50	NT
PKS-WSW-7N	18-Aug-95	222	NT	**520**	0.14	0.45	1.6	2.2	NT
MTCA Method "A" Cleanup Levels			200	100	0.5	40	20	20	250

Notes:

OVM = Organic Vapor Meter, using a 1.0eV lamp.
WTPH-D = Total petroleum hydrocarbons, diesel range (C13-C24), by Washington State Method WTPH-D.
WTPH-G = Total petroleum hydrocarbons, gasoline range (C7-C12), by Washington State Method WTPH-G.
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), by EPA Method 8020.
Total Lead by EPA Method 7421.
NT = indicates sample was not tested for this specific compound.
MTCA = Washington State, Model Toxics Control Act, Method "A" Cleanup Guidelines.
BOLDED = indicates concentration is above MTCA Method "A" cleanup level.
All concentrations are expressed in parts per million (ppm)(mg/kg).
(1) Sample not used for closure purposes

Table 7: Summary of Soil Analytical Test Results
Supplemental Subsurface Petroleum Hydrocarbon Assessment
29 September 1995
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-01

Sample I.D.	Date Collected	Depth Collected (feet)	OVM Reading (ppm)	WTPH-G (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)
MW5-7.5	06-Sep-95	7.5	0	<1.0	<0.05	<0.05	<0.05	<0.10
MW5-10	06-Sep-95	10	0	<1.0	<0.05	<0.05	<0.05	<0.10
MW6-7.5	06-Sep-95	7.5	0	<1.0	<0.05	<0.05	<0.05	<0.10
MW6-10	06-Sep-95	10	0	<1.0	<0.05	<0.05	<0.05	<0.10
MW-7.5	06-Sep-95	7.5	0	<1.0	<0.05	<0.05	<0.05	<0.10
MW7-10	06-Sep-95	10	0	<1.0	<0.05	<0.05	<0.05	<0.10
B3-5	06-Sep-95	5	541	**1,600**	**3.5**	2.6	1.9	13
B3-7.5	06-Sep-95	7.5	596	**1,800**	**7.4**	3.2	7.6	12
B3-12.5	06-Sep-95	12.5	131	49	0.24	<0.05	0.23	0.39
MTCA Method "A" Cleanup Levels				100	0.5	40	20	20

Notes:

OVM = Organic Vapor Meter - Photoionization Meter.
WTPH-G = Total petroleum hydrocarbons, gasoline range (C7-C12), by Washington State Method WTPH-G.
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), by EPA Method 8020.
MTCA = Washington State, Model Toxics Control Act, Method "A" Cleanup Guidelines.
BOLDED = indicates concentration is above MTCA cleanup level.
All concentrations are expressed in parts per million (ppm).

Table 8: **Summary of Fluid Level Measurements**
1029 Market Street
Kirkland, Washington
AGRA Earth & Environmental, Inc. Project No. 12-01232-01

Well Number/ Top of Casing Elevation (ft)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft)
MW-1/ 168.30	07-Dec-94	5.29	163.01
	11-Jan-95	5.14	163.16
	24-May-95	6.30	162.00
	23-Jun-95	5.44	162.86
	24-Aug-95	7.54	160.76
	08-Sep-95	6.54	161.76
MW-2/ 169.30	07-Dec-94	6.43	162.87
	11-Jan-95	6.04	163.26
	24-May-95	6.54	162.76
	23-Jun-95	6.69	162.61
	24-Aug-95	7.65	161.65
	08-Sep-95	7.12	162.18
MW-3/ 168.10	07-Dec-94	4.19	163.91
	11-Jan-95	3.93	164.17
	24-May-95	4.03	164.07
	23-Jun-95	4.19	163.91
	24-Aug-95	4.43	163.67
	08-Sep-95	4.60	163.50
MW-4/ 166.70	07-Dec-94	3.64	163.06
	11-Jan-95	2.91	163.79
	24-May-95	6.85	159.85
	23-Jun-95	7.29	159.41
	24-Aug-95	7.33	159.37
	08-Sep-95	7.34	159.36
MW-5/ 168.12	08-Sep-95	13.12	155.00
MW-6/ 164.53	08-Sep-95	6.70	157.83
MW-7/ 167.32	08-Sep-95	7.64	159.68

Independent Remedial Action Report Summary

This report summary is an important part of the Independent Remedial Action Report. Please complete the summary and submit it with your Independent Remedial Action Report. If this document does not accompany your cleanup report, or if it is not fully completed, your report cannot enter the review process necessary for Ecology to provide you with a "no further action" determination, or to remove your site from the hazardous sites lists.

FOR ECOLOGY USE ONLY			
ERTS No.	TCP I.D. No.	Date Received	☐ NFA
			☐ SHA Referral
LUST No.	U.B. I. No.	Initial Investigation (Date)	☐ Interim Action
Reviewed by			☐ Emergency Action

PLEASE PRINT CLEARLY OR TYPE

GENERAL INFORMATION

Name of Site Owner: FORMER KELLY TRUST	Phone:
Address: 1029 MARKET STREET (Street) KIRKLAND, WA (State/Province) 98033 (Zip) KING (Country)	
Authorized Contact: MR. RUSSELL COFANO	Phone: (206) 562-0677
Name of Facility Operator: (SAME AS ABOVE)	Phone:
Address: (Street) (State) (Zip)	
Authorized Contact:	Phone:
Name of Consultant: BRUCE WILLIAMS	Phone: (509) 482-0104
Name of Firm: AGRA EARTH & ENVIRONMENTAL, INC.	
Address: 520 NORTH FOOTHILLS DRIVE, SUITE 600 (Street) SPOKANE (State) WA 99207 (Zip)	

Please indicate which of the above persons completed this report. If the report was completed by someone other than listed above, please provide their name, address, and a daytime phone.

BRUCE WILLIAMS

REPORT INFORMATION

Type of Report (*check one*)	Is this a Leaking Underground Storage Tank (LUST) report? Yes ☐ No ☒
☐ Combined release and independent remedial action report	Date release was reported to Ecology: OCTOBER 1994
☒ Independent remedial action report	
☐ Interim Action Report	Date cleanup was completed: SEPTEMBER 1995
☐ Final Cleanup Action Report	

RELEASE INFORMATION

Date of Release *(If known)*	Date of Discovery	Are there any drinking water systems affected?
UNKNOWN	OCTOBER 1994	Yes ☐ No ☒ Unknown ☐

If drinking water systems are affected, are the systems **public, private, or both**? *(circle one)*	If drinking water systems are affected, has alternate drinking water been provided? Yes ☐ No ☐ Unknown ☐

General Hazardous Substance Categories Using the contaminants listed below, complete the table.
(A more detailed description of the contaminants can be found in Appendix A of the guidance.)

Contaminants. For each of the applicable contaminants, enter the appropriate letter designating the status of the contaminants: **C = Confirmed or S = Suspected** *(Contaminant status definitions are defined in Appendix A of the guidance.)*		**Affected Media**				
		Ground Water	Surface Water	Drinking Water	Soil	Air
1.	Halogenated Organic Compounds					
2.	Metals - Priority Pollutants					
3.	Metals - Other					
4.	Polychlorinated Bi-Phenyls (PCBs)					
5.	Pesticides/Herbicides					
6. Petroleum Products	Unleaded Gas	C			C	
	Leaded Gas					
	Diesel	C				
	Waste Oil					
	Heat Fuel					
	Other (Specify)					
7.	Phenolic Compounds					
8.	Non-Halogenated Solvents					
9.	Dioxins					
10.	Polynuclear Aromatic Hydrocarbons (PAHs)					
11.	Reactive Wastes					
12.	Corrosive Wastes					
13.	Radioactive Wastes					
14.	Conventional Contaminants Organics					
15	Conventional Contaminants Inorganics					
16.	Base/Neutral Organic Compounds					
17.	Asbestos					

CLEANUP INFORMATION

Indicate cleanup level methods used by completing Table 5-A below. *(Check all that apply)*

TABLE 5-A

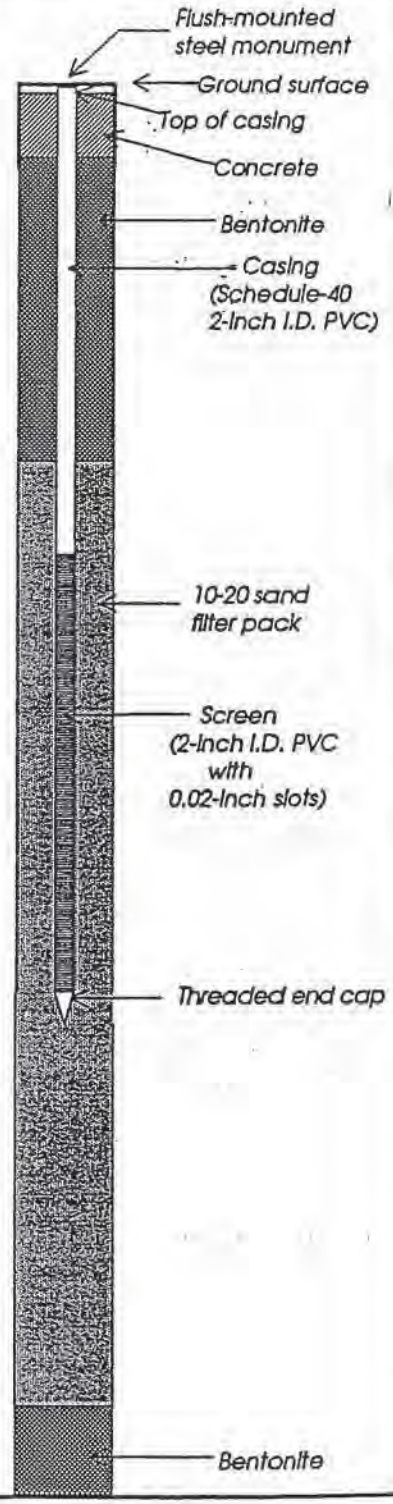
	Soil	Ground Water	Air	Surface Water
Method A	TPH - 100 ppm	Benzene 5 ppb		
B				
C				
Have these levels been met throughout the site? *(circle only one)*	YES (NO)	YES (NO)	YES NO	YES NO

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-1*

Elevation reference: *City of Kirkland* Well completed: *28 November 1994*
Ground surface elevation: *168.66 feet* Casing elevation: *168.30 feet*

AS-BUILT DESIGN

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	2" Asphalt over moist, brown, silty SAND with some gravel (Fill)						
	Hard, moist, brown to gray with some mottling, SILT with some sand and trace to some gravel						
5			MW-1/ 5.0	80	0.0	12/7/94	WTPH-G BTEX
10	Very dense, moist to slightly wet, gray, sandy SILT with trace to some gravel		MW-1/ 10.0	50/ 6"	0.0		WTPH-G BTEX
15			MW-1/ 15.0	50/ 6"	0.0		WTPH-G BTEX
	Very dense, saturated, gray, SILT with sand and trace to some gravel					ATD	
20	Very dense, damp to moist, gray, sandy SILT with trace to some gravel		MW-1/ 20.0	50/ 6"	0.0		
25			MW-1/ 25.0	100/ 6"	0.0		
30	(continued)						



LEGEND

- 3-Inch O.D. split-spoon sample
- WTPH-G BTEX — Analytical testing
- ATD — Observed groundwater level, ATD = at time of drilling
- 0/00/00 — Observed groundwater level, 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *28 November 1994* Drilling completed: *28 November 1994* Logged by: *JK*

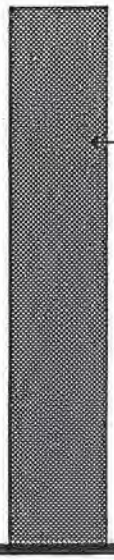
AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-1*

Elevation reference: *City of Kirkland* Well completed: *28 November 1994*
Ground surface elevation: *168.66 feet* Casing elevation: *168.30 feet*

AS-BUILT DESIGN

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
30			MW-1/ 30.0	95/ 6"	0.0		
35	*Hard, damp to moist, gray, SILT with some sand and trace to some gravel*		MW-1/ 35.0	100/ 6"	0.0		
40			MW-1/ 40.0	100/ 6"	0.0		
	Bottom of boring at 41 feet.						
45							
50							
55							
60							



LEGEND

3-Inch O.D. split-spoon sample

Observed groundwater level
ATD = at time of drilling

WTPH-G BTEX — Analytical testing

AGRA
Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *28 November 1994* Drilling completed: *28 November 1994* Logged by: *JK*

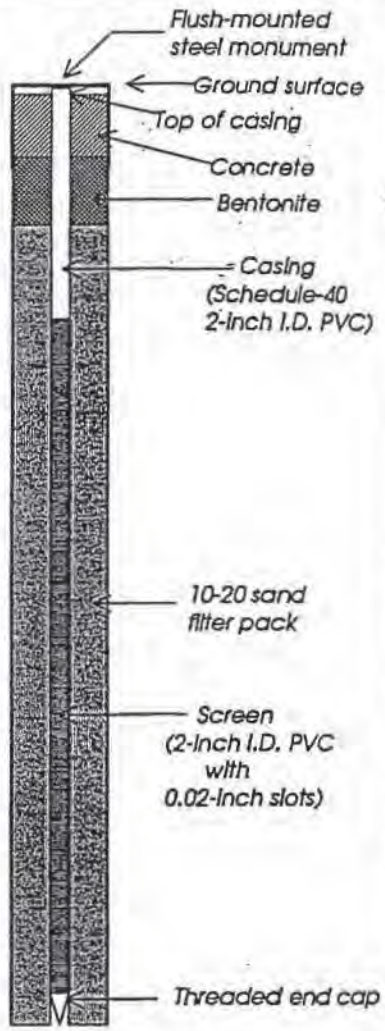
AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-2*

Elevation reference: *City of Kirkland* Well completed: *28 November 1994*
Ground surface elevation: *169.62 feet* Casing elevation: *169.30 feet*

AS-BUILT DESIGN

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	*2" Asphalt over moist, brown to gray, silty SAND with some gravel (Fill)*				115		
5	*Dense to very dense, damp to moist, gray, sandy SILT with trace to some gravel*		MW-2/ 5.0	48	116	12/7/94	WTPH-G BTEX
10	*Becomes slightly wet*		MW-2/ 10.0	60/ 4"	NT		WTPH-HCID WTPH-G BTEX Total Pb
15			MW-2/ 15.0	50/ 6"	NT	ATD	WTPH-G BTEX
	Hard, wet(saturated), gray, SILT with sand and trace to some gravel		MW-2/ 16.0	50/ 4"	NT		
			MW-2/ 17.0	100/ 4"	NT		
			MW-2/ 18.0	100/ 6"	NT		
	Hard, damp to moist, gray, SILT with some sand and trace to some gravel						
20			MW-2/ 20.0	100/ 6"	0.0		
	Bottom of boring at 21 feet.						
25							
30							



LEGEND

- 3-inch O.D. split-spoon sample
- ATD — Observed groundwater level; ATD = at time of drilling
- NT = Insufficent sample for OVM Reading
- WTPH-G BTEX — Analytical testing
- 0/00/00 — Observed groundwater level; 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *28 November 1994* Drilling completed: *28 November 1994* Logged by: *JK*

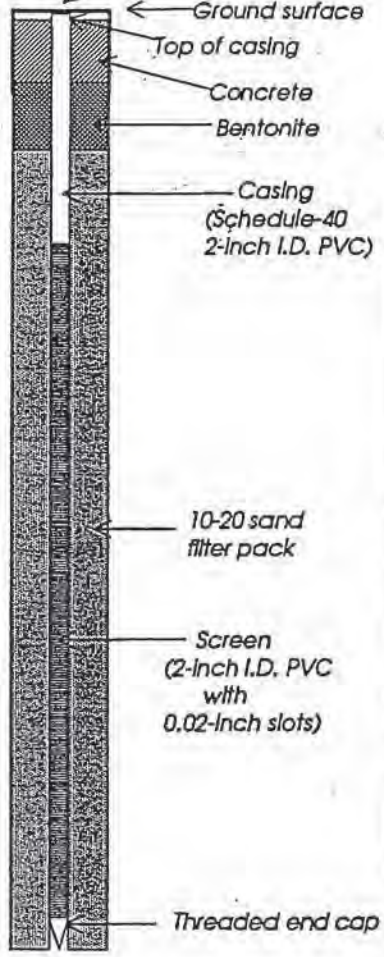
AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-3*

Elevation reference: *City of Kirkland* Well completed: *29 November 1994*
Ground surface elevation: *168.61 feet* Casing elevation: *168.10 feet*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	*Moist, brown, silty SAND with gravel (Fill)*						
	Wet, greenish/gray, SILT with sand and gravel (Fill)					12/7/94	
5	*Very dense, moist to slightly wet, gray with some mottling, sandy SILT with trace to some gravel*	I	MW-3/ 5.0	75/ 6"	0.0		WTPH-G BTEX
10	*Hard, moist, gray, SILT with some sand and trace to some gravel*	I	MW-3/ 5.0	50/ 5"	0.0		WTPH-G BTEX
15	*Very dense, moist, gray, sandy SILT with trace to some gravel*	I	MW-3/ 15.0	50/ 4"	0.0		WTPH-G BTEX
20		I	MW-3/ 20.0	84/ 6"	0.0		
	Bottom of boring at 21 feet.						
25							
30							

AS-BUILT DESIGN



LEGEND

I 3-inch O.D. split-spoon sample

▼ 0/00/00 Observed groundwater level 0/00/00 = date observed

WTPH-G BTEX Analytical testing

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *29 November 1994* Drilling completed: *29 November 1994* Logged by: *JK*

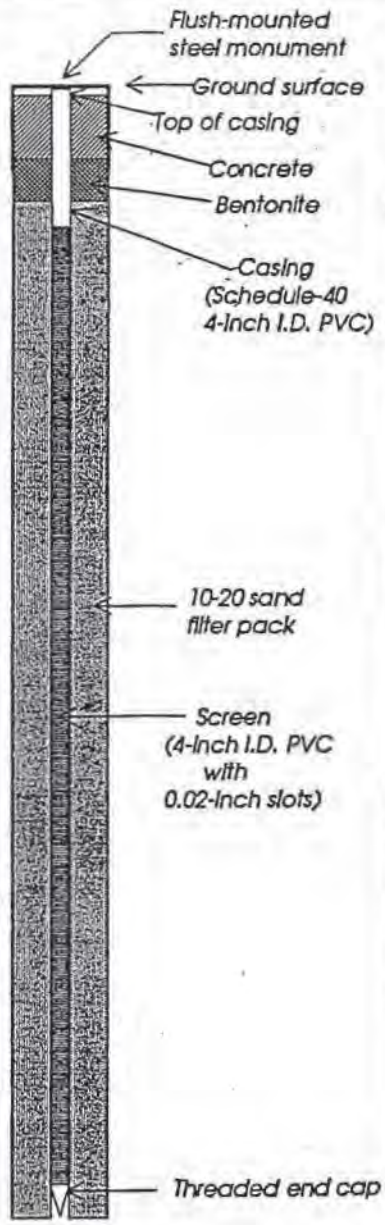
AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-4*

Elevation reference: *City of Kirkland* Well completed: *29 November 1994*
Ground surface elevation: *167.23 feet* Casing elevation: *166.70 feet*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	*Moist, brown, silty SAND with gravel (Fill)*				3	ATD 12/7/94	
	Becomes gray, water seeps into borehole						
	Very dense, wet, gray, sandy SILT with some gravel						
5			MW-4/ 5.0	67	347		WTPH-HCID WTPH-G BTEX
10			MW-4/ 5.0	90/ 6"	217		WTPH-G BTEX
	Hard, saturated, gray, SILT with sand and trace to some gravel					ATD	
15	*Hard, moist, gray, SILT with some sand and trace to some gravel*		MW-4/ 15.0	100/ 6"	6.0		WTPH-G BTEX Total Pb
20			MW-4/ 20.0	70/ 6"	12		
25			MW-4/ 25.0	100/ 6"	6.0		
	Bottom of boring at 24 feet.						
30							

AS-BUILT DESIGN



LEGEND

- 3-Inch O.D. split-spoon sample
- WTPH-G BTEX — Analytical testing
- ATD — Observed groundwater level, ATD = at time of drilling
- 0/00/00 — Observed groundwater level, 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *29 November 1994* Drilling completed: *29 November 1994* Logged by: *JK*

AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* BORING NO. *B-1*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *169 feet*	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Medium dense, moist to wet, gray, sandy SILT with some gravel (TP-2 Backfill)*			368			
5	*Very dense, damp to moist, gray, sandy SILT with trace to some gravel*		B-1/ 5.0	679			WTPH-HCID WTPH-G BTEX Total Pb
10			B-1/ 10.0	164		50/4"	WTPH-G BTEX
15	*Very dense, saturated, gray, SILT with sand and trace to some gravel*		B-1/ 15.0	30	ATD	50/5"	WTPH-G BTEX
	Very dense, damp to moist, gray, sandy SILT with trace to some gravel		B-1/ 17.0	2.6		75/6"	
			B-1/ 19.0	0.0		90/6"	
20	*Boring terminated at approximately 20 feet*						
25							
30							

Page 1 of 1

0 10 20 30 40 50

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

3-inch OD split-spoon sample

WTPH-G BTEX — Analytical testing

ATD — Groundwater level at time of drilling

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *28 November 1994* Drilling completed: *28 November 1994* Logged by: *JK*

AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* BORING NO. *B-2*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *167.3 feet*	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
0	*Moist, brown, silty SAND with gravel (Fill)*						
	Hard, moist, brown to gray with some mottling, SILT with some sand and trace to some gravel						
5			B-2/ 5.0	2.0		50/4"	WTPH-G BTEX
10	*Becomes slightly wet*		B-2/ 10.0	0.0		50/6"	WTPH-G BTEX
15	*Very dense, moist, gray, sandy SILT with trace to some gravel*		B-2/ 15.0	0.0		75/6"	WTPH-G BTEX
			B-2/ 17.5	0.0		50/6"	
20	*Becomes damp*		B-2/ 20.0	0.0		100/6"	
25			B-2/ 25.0	0.0		100/6"	
			B-2/ 30.0 (Interval from 30.0-31.0 ft)	0.0		100/6"	
30	*Boring terminated at approximately 31 feet*						

Page 1 of 1

MOISTURE CONTENT: Plastic limit — Natural — Liquid limit

LEGEND

3-inch OD split-spoon sample

WTPH-G BTEX — Analytical testing

Groundwater level at time of drilling

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *28 November 1994* Drilling completed: *28 November 1994* Logged by: *JK*

AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* BORING NO. *B-3*

Page 1 of 1

DEPTH (feet)	SOIL DESCRIPTION Location: *Unknown* Approximate ground surface elevation: *167 feet*	SAMPLE TYPE	SAMPLE NUMBER	OVM READING	GROUND WATER	PENETRATION RESISTANCE (▲ Standard, △ Other; Blows per foot)	TESTING
0	*Medium dense, moist, brown SAND and GRAVEL with some 4" - 6" cobbles and some silt (Fill)*			0			
5	*Hard, moist, mottled brown and gray, SILT with some medium sand and trace to some gravel*		B-3/ 5.0	541		77	WTPH-G/ BTEX
			B-3/ 7.5.	596		80/5"	WTPH-G/ BTEX
10	*Becomes wet and gray (no mottling)*		B-3/ 10.0	-	ATD	100/4"	
			B-3/ 12.5	131		100/4"	WTPH-G/ BTEX
	Boring terminated at approximately 13 feet						
15							
20							
25							
30							

MOISTURE CONTENT (0, 20, 40, 60, 80, 100): Plastic limit — Natural — Liquid limit

LEGEND

I 3.00-inch OD split-spoon sample

WTPH-G/ BTEX Analytical testing

ATD Groundwater level at time of drilling

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

AGRA Earth and Environmental, Inc.

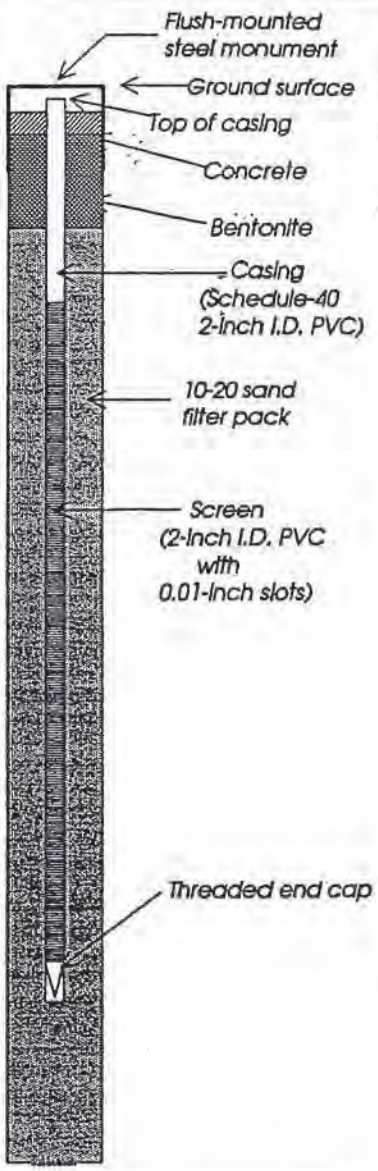
Drilling method: *HSA* Hammer type: *Automatic* Date drilled: *06 September 1995* Logged by: *JK*

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-5*

Elevation reference: *170.55 feet* Well completed: *06 September 1995*
Ground surface elevation: *168.62 feet* Casing elevation: *168.12 feet*

AS-BUILT DESIGN

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	*2" Asphalt over 10" Subbase*						
	Medium dense, moist, brown to gray, silty, fine SAND with some gravel				0.0		
5	*Very stiff, moist, tan to gray, SILT with some fine sand and trace to some gravel*		MW-5/ 5.0	40	0.0		
			MW-5/ 7.5	49	0.0		WTPH-G/ BTEX
	Becomes gray						
10			MW-5/ 10.0	61	0.0		WTPH-G/ BTEX
	Becomes hard		MW-5/ 12.5	50/ 6"	0.0	9/8/95	
15			MW-5/ 15.0	50/ 6"	0.0		
			MW-5/ 17.5	50/ 4"	0.0		
	Sand content increases						
20			MW-5/ 20.0	50/ 4"	0.0		
			MW-5/ 22.5	50/ 5"	0.0		
25	*Bottom of boring at 22.5 feet.* *Department of Ecology ID Number ACD-017*						
30							



LEGEND

- 3.00-inch OD split-spoon sample
- WTPH-G/ BTEX — Analytical testing
- ATD — Groundwater level at time of drilling
- 0/00/00 — Observed groundwater level 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *06 September 1995* Drilling completed: *06 September 1995* Logged by: *JK*

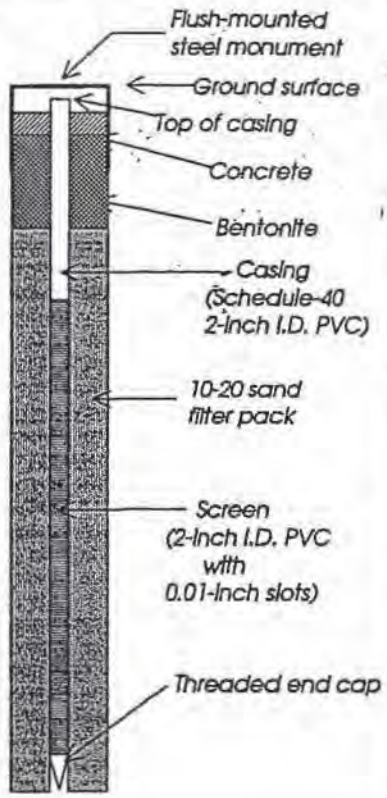
AGRA Earth and Environmental, Inc.

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-6*

Elevation reference: *170.55 feet* Well completed: *06 September 1995*
Ground surface elevation: *164.84 feet* Casing elevation: *164.53 feet*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	3" Concrete over medium dense, moist, brown, fine SAND and GRAVEL with some silt and some roots systems (Fill)				0.0		
5	Very stiff, moist, mottled brown and orange, SILT with some fine sand and trace gravel		MW-6/ 5.0	32	0.0	9/8/95	
	Becomes sandier		MW-6/ 7.5	48	0.0		WTPH-G/ BTEX
10	Medium dense, wet, brown, white and gray, medium to coarse SAND with some gravel and trace silt		MW-6/ 10.0	41	0.0	ATD	WTPH-G/ BTEX
			MW-6/ 12.5	50	0.0		
15	Hard, moist, gray SILT with some sand and trace gravel		MW-6/ 15.0	60/ 6"	0.0		
	Bottom of boring at 16.5 feet. Department of Ecology ID Number ACD-018						
20							
25							
30							

AS-BUILT DESIGN



LEGEND

- 3.00-inch OD split-spoon sample
- WTPH-G/ BTEX — Analytical testing
- ATD — Groundwater level at time of drilling
- 0/00/00 — Observed groundwater level 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

AGRA Earth and Environmental, Inc.

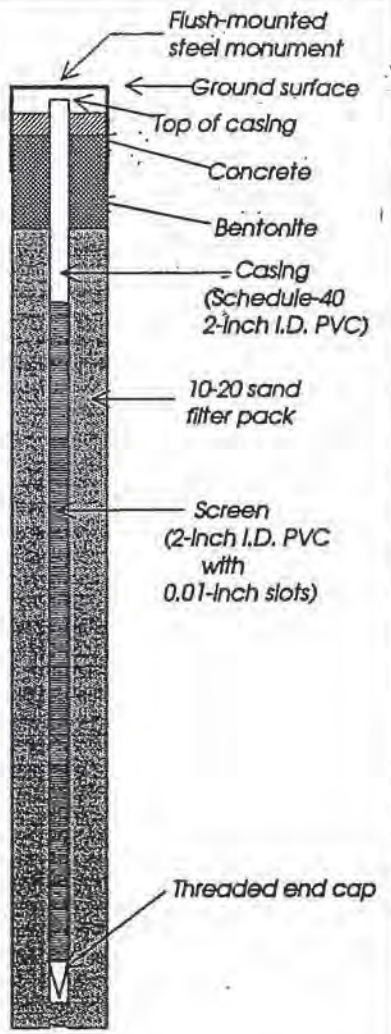
Drilling started: *06 September 1995* Drilling completed: *06 September 1995* Logged by: *JK*

PROJECT: *1029 Market Street* W.O. *12-01232-00* WELL NO. *MW-7*

Elevation reference: *170.55 feet* Well completed: *06 September 1995*
Ground surface elevation: *167.80 feet* Casing elevation: *167.32 feet*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	3" Concrete over medium dense, moist, brown, medium SAND and GRAVEL with some silt (Fill)				0.0		
5			MW-7/ 5.0	47	0.0		
	Very stiff, moist, gray SILT with some sand and trace to some gravel					9/8/95	
			MW-7/ 7.5	64	0.0		WTPH-G, BTEX
10			MW-7/ 10.0	62	0.0	ATD	WTPH-G, BTEX
	Medium dense, wet, gray, fine to medium SAND with some silt						
	Very stiff to hard, damp to moist, gray SILT with some fine sand		MW-7/ 12.5	59	0.0		
15			MW-7/ 15.0	50/ 6"	0.0		
			MW-7/ 17.5	43	0.0		
20			MW-7/ 20.0	50/ 4"	0.0		
	Bottom of boring at 21.5 feet. Department of Ecology ID Number ACD-019						
25							
30							

AS-BUILT DESIGN



LEGEND

- 3.00-inch OD split-spoon sample
- WTPH-G/ BTEX — Analytical testing
- ATD — Groundwater level at time of drilling
- 0/00/00 — Observed groundwater level 0/00/00 = date observed

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

AGRA Earth and Environmental, Inc.

Drilling started: *06 September 1995* Drilling completed: *06 September 1995* Logged by: *JK*

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

May 20, 1996

Mr. Bruce Williams
AGRA Earth and Environmental
520 North Foothills Dr., STE. 600
Spokane, Washington 99207

Dear Mr. Williams:

RE: Request for No Further Action at the Former Time Oil Site
1029 Market Street, Kirkland, Washington

Thank you for submitting the results of your independent remedial actions for the Department of Ecology's (Ecology's) review. Ecology appreciates your initiative in pursuing this administrative option under the Model Toxics Control Act (MTCA).

Ecology's Toxics Cleanup Program has reviewed the information contained in the Independent Remedial Action Program Report, dated September 29, 1995. Ecology has also reviewed the documents listed below regarding the Former Time Oil Site, located at 1029 Market Street, in Kirkland:

1. 3rd Party Site Assessments' Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment Report, dated June 1994.

2. AGRA Earth and Environmental's Subsurface Petroleum Hydrocarbon Assessment Report, dated January 18, 1995.

3. AGRA Earth and Environmental's Supplemental Phase I Assessment Report, dated July 7, 1995.

4. AGRA Earth and Environmental's Soil Vapor Survey Status Letter, dated August 16, 1995.

5. AGRA Earth and Environmental's Underground Storage Tank Closure Assessment and Remediation Report, dated September 6, 1995.

6. AGRA Earth and Environmental's Supplemental Subsurface Petroleum Hydrocarbon Assessment Report, dated September 22, 1995.

7. A copy of a Restrictive Covenant, recorded at the King County on May 8, 1996.

Based upon the contents of the above listed reports Ecology has determined that, at this time, the release of petroleum hydrocarbon compounds into the soil no longer poses a threat to human health or the environment.

Therefore, Ecology is issuing this determination that no further action is necessary at this site under the Model Toxics Control Act (MTCA), Chapter 70.105D Revised Code of Washington (RCW). However, please note that because your actions were not conducted under a consent decree with Ecology, this letter is not a settlement by the state under Ch. 70.105D.040(4) RCW.

This determination is made only with respect to the release to soil identified in the remedial action reports listed above. This no further action determination applies only to the area of the property at 1029 Market Street affected by the release identified in the reports. It does not apply to any other release or potential release at the property, any other areas on the property, nor any other properties owned or operated by the owners of this property.

Ecology does not assume any liability for any release, threatened release or other conditions at the site, or for any actions taken or omitted by any person or his/her agents or employees with regard to the release, threatened release, or other conditions at the site.

Ecology will update its database to reflect this "No Further Action" determination. Your site will not appear in future publications of Leaking Underground Storage Tank (LUST) database

Please contact me at (206) 649-7099 if you have any questions.

Sincerely,

Ben Amoah-Forson
Toxics Cleanup Program.

BA-F:bf

cc: Mr. Russell G. Cofano

The Riley Group, Inc.
17522 Bothell Way NE, Suite A
Bothell, Washington 98011
phone: 425.415.0551 fax: 425.415.0311

LETTER OF TRANSMITTAL

Date:	09/06/07	Project #	2006-271C
RE:	Groundwater Monitoring		

TO: Dibble Engineers, Inc.
Attn: Robb Dibble
25 Central Way
Suite 210
Kirkland, WA 98033

WE ARE SENDING YOU: ☒ Attached ☐ Under separate cover the following item(s):

☒ Report ☐ Plans ☐ Drawings ☐ Specifications ☐ Copy of Letter

☐ _____

COPIES	DATE	NO.	DESCRIPTION
2	09/06/07		Homes & Land Building
			1029 Market Street
			Kirkland, WA
			Groundwater Monitoring – 3rd Quarter 2007
1			Invoice

THESE ARE TRANSMITTED as checked below:

☒ For Approval ☐ Approved as Submitted ☒ As Requested

☐ For Your Use ☐ Approved as Noted ☐ For Review and Comment

REMARKS:

Copies To: _____

Signed: May Argueta

The Riley Group Inc.

The Riley Group, Inc.
17522 Bothell Way NE
Suite A
Bothell, WA 98011
Ph: 425-415-0551 Fx: 425-415-0311

Invoice

Date	Invoice #
9/6/2007	4185

Bill To
Dibble Engineers, Inc. Robb Dibble 25 Central Way Suite 210 Kirkland, WA 98033

P.O. No.	Terms	Project
	Due on receipt	2006-271C

Qty	Description	Rate	Amount
	Homes & Land Building 1029 Market Street Kirkland, WA		
	Dibble Engineers Loan # 211227 & 211355		
1	Groundwater Monitoring - 3rd Quarter 2007 Project considered 100% complete.	3,950.00	3,950.00
	cc: Lehman Brothers		
		Payments/Credits	$0.00
		Balance Due	$3,950.00

Thank you for your business.

Total $3,950.00

THE RILEY GROUP INC.

September 6, 2007

Mr. Robb Dibble
Dibble Engineers, Inc.
25 Central Way - Suite #210
Kirkland, WA 98033

RE: Groundwater Monitoring Event – 3rd Quarter 2007
Homes and Land Building
1029 Market Street, Kirkland, Washington
RGI Project # 2006-271 C

Dear Mr. Dibble:

This letter report documents The Riley Group Inc.'s (RGI's) findings regarding our recent sampling of seven groundwater-monitoring wells at the Homes & Land Building property, located at 1029 Market Street, Kirkland, Washington (referred to herein as the site), Figure 1.

SITE LOCATION

The Homes and Land Building subject site is bound on the south by 3rd Street West, on the north by 11th Avenue West, on the east by Market Street, and an alley right-of-way and existing single family residence on the west.

SCOPE OF WORK

The scope of work performed during this project was in accordance with *Groundwater Monitoring Proposal dated* August 22, 2007 and executed by Dibble Engineers on August 22, 2007.

Static Water Levels and Groundwater Flow Direction

On August 24th, 2007, depth to water measurements were recorded using an electronic water level indicator. Depth to groundwater ranged from 4.32 to 7.25 feet below top of well casing (TOC). Corresponding groundwater elevations, based on a previously reported reference datum, ranged from 157.99 to 163.88 feet above mean sea level (amsl) and were used to approximate groundwater flow direction and hydraulic gradient. Based on water level measurements recorded on August 24, 2007, the groundwater flow direction was easterly with an approximate gradient of 0.050 to 0.83 foot/foot. Water level elevations recorded at each well location are summarized in Table 1 and Figure 2.

Groundwater Sample Collection

On August 24th, 2007, RGI purged and sampled the wells. Purging and sampling protocols for this project are discussed below.

RGI used a clear bailer to determine the presence, or absence, of free product. Visible free product was not encountered in any of the wells.

All groundwater-monitoring wells were purged using a submersible pump with dedicated disposable polyethylene tubing. At least three well casing volumes were removed from each well prior to sampling. Development and purge water was placed in a labeled 55-gallon drum and left on-site pending profiling and off-site disposal.

Following purging activities, each well was left to recharge to at least 80% of its original water level prior to sampling. Wells were sampled using a submersible pump using low flow sampling techniques.

Groundwater samples were collected in laboratory-supplied 40-milliliter (ml) vials with Teflon caps (no headspace) and 500 ml or 1-liter (L) amber glass bottles. Sample containers were placed in an ice-chilled cooler and transported to the analytical laboratory under proper chain-of-custody documentation (included in Appendix A).

Laboratory Analysis

Groundwater samples were submitted to Friedman & Bruya, Inc. of Seattle, Washington, and analyzed for the following:

- Gasoline TPH using Ecology Test Method NWTPH-G;
- Diesel and heavy oil TPH using Ecology Test Method NWTPH-Diesel extended with silica gel cleanup[1]; and
- Volatile organic compounds (VOCs) using EPA Test Method 8260.

Findings

Analytical results and the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels (WAC 173-340-720) are summarized in Table 1 and discussed below. A copy of the laboratory report and sample chain-of-custody are included in Appendix A.

Groundwater samples collected on August 24, 2007 from wells MW2, MW3, MW5, and MW7 had non-detectable concentrations of TPH and VOCs.

The groundwater sample collected on August 24, 2007 from well MW1 had a gasoline TPH concentration of 310 ug/L and benzene concentration of 2.2 ug/L, below their respective MTCA Method A Groundwater Cleanup Levels of 800 ug/L and 5 ug/L, respectively. No other VOCs were detected at the analytical detection limits, or were detected at concentrations below the applicable MTCA Method A Groundwater Cleanup Levels.

---

[1] Silica gel cleanup removes naturally occurring biogenic material, which can result in artificially increased diesel and oil range TPH results.

The groundwater sample collected on August 24, 2007 from well MW4 had a gasoline TPH and benzene concentration of 300 ug/L and 21 ug/L, respectively. The MTCA Method A Groundwater Cleanup Levels are 800 ug/L and 5 ug/L, respectively. The sample exceeded the benzene MTCA Method A Groundwater Cleanup Level.

Well MW4 historically has been the only monitoring well that has shown TPH and/or benzene concentrations in groundwater above the MTCA Method A Groundwater Cleanup Levels. Historically, gasoline TPH concentrations detected at well MW4 have ranged from 140 ug/L (in 12/2006) to 790 ug/L (in 9/1995) Historically, benzene concentrations detected at well MW4 have ranged from 2 ug/L (in 12/2006) to 64 ug/L (in 9/1995).

Our August 2007 groundwater sampling results from well MW4 showed a benzene concentration (21 ug/L) less than, but similar in magnitude to, the concentration detected in September 1995 (64 ug/L). Both sampling events were performed in late summer, which corresponds to lower groundwater elevations. In general, seasonally low groundwater elevations typically show higher contaminant concentrations. All things considered, naturally occurring degradation of the TPH and benzene appears to be occurring, albeit perhaps, at a rate not as rapid as anticipated.

To the best of our knowledge and experience, the contaminants and their concentrations in groundwater detected at well MW4 do not pose a threat to human health or the environment. Furthermore, the contaminants will continue to degrade and attenuate overtime. Based on our recent groundwater monitoring results, RGI recommends additional groundwater monitoring.

PROJECT LIMITATIONS

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of work completed in same or similar locations at the present time. RGI's results and findings from the select area do not necessarily reflect soil or groundwater conditions underlying other areas of the Site not investigated. RGI reserves the right to modify its conclusions and/or recommendations as new data and information is made available. No legal or other warranty, expressed or implied, is made.

Any questions regarding our work or this report, the presentation of information, or interpretation of data are welcome and should be referred to the undersigned.

Sincerely yours,
THE RILEY GROUP, INC.

for Tamara Adams
Staff Geologist

Paul D. Riley, LG, LHG
Principal

Attachments: *Figures 1 and 2*
Tables 1
Appendix A: Analytical Laboratory Report

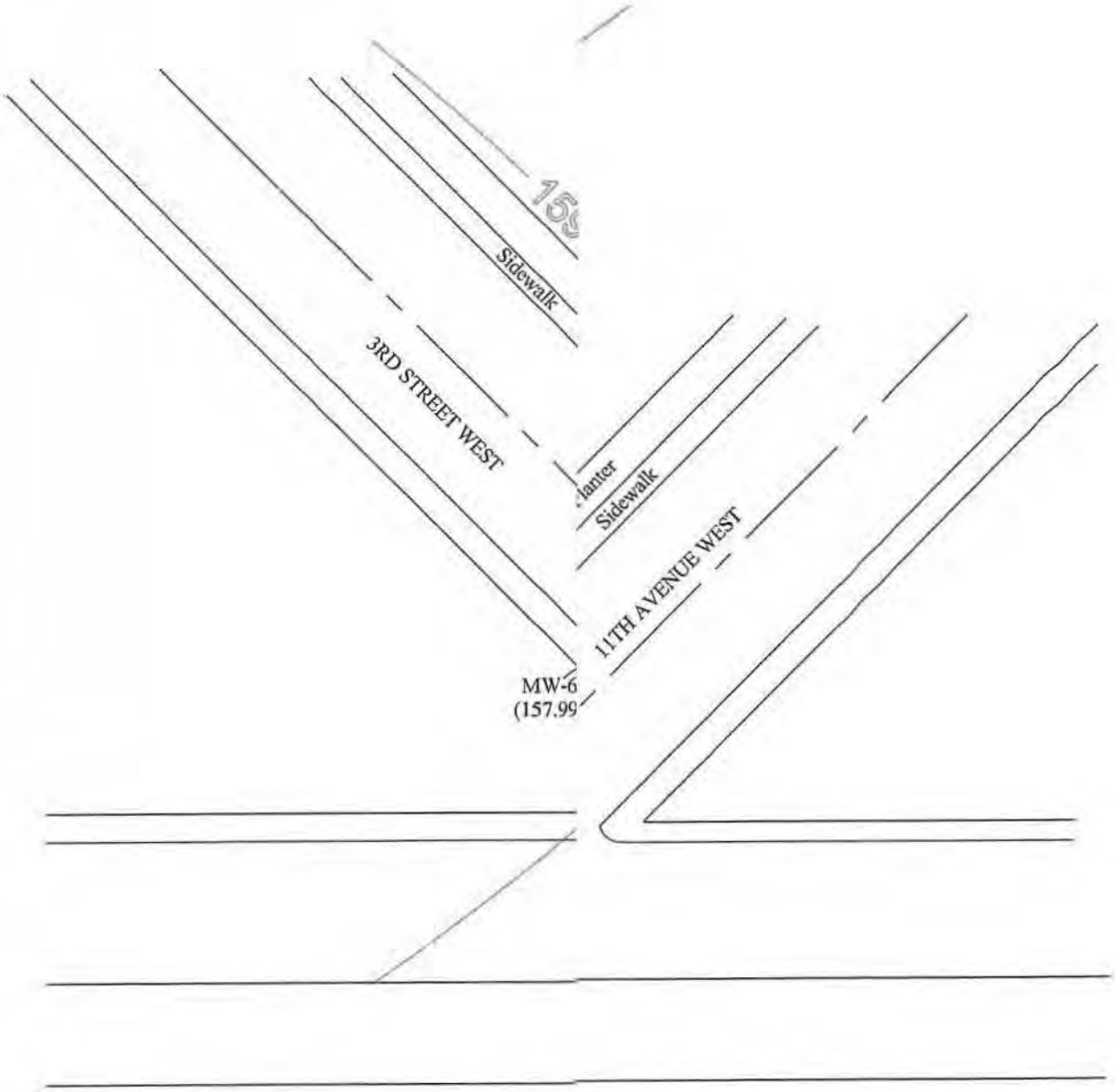
Scale
0' 300' 600' 1200'

USGS, 1979, Bellevue North, Washington,
7.5x15-Minute Quadrangle

N

The Riley Group, Inc.
17522 BOTHELL WAY NE
BOTHELL, WASHINGTON 98011

Homes & Land Building		
Project #2006-271C	Site Vicinity Map	Figure 1
Site Address: 1029 Market Street, Kirkland, Washington		



Legend:

- B-2 Boring Number and Location (By AGRA, Sept, 1995)
- MW-1 2" Monitoring Well Number and Location (By AGRA, Nov. 1994 & Sept. 1995)
- MW-4 4" Monitoring Well Number and Location (By AGRA, Nov. 1994)
- Test Pit Number and Location, (performed by others, June 1994)
- CB Catch Basin
- Closed In-Pla
- Indoor Air S 12/28/06 & 3
- Outdoor Air - 3/13/07 (pe
- (160.53) Groundwater by RGI on 8-
- ---166--- Approximate Elevation Co

N

Approximate Scale 1" = 30'

0 15 30 60

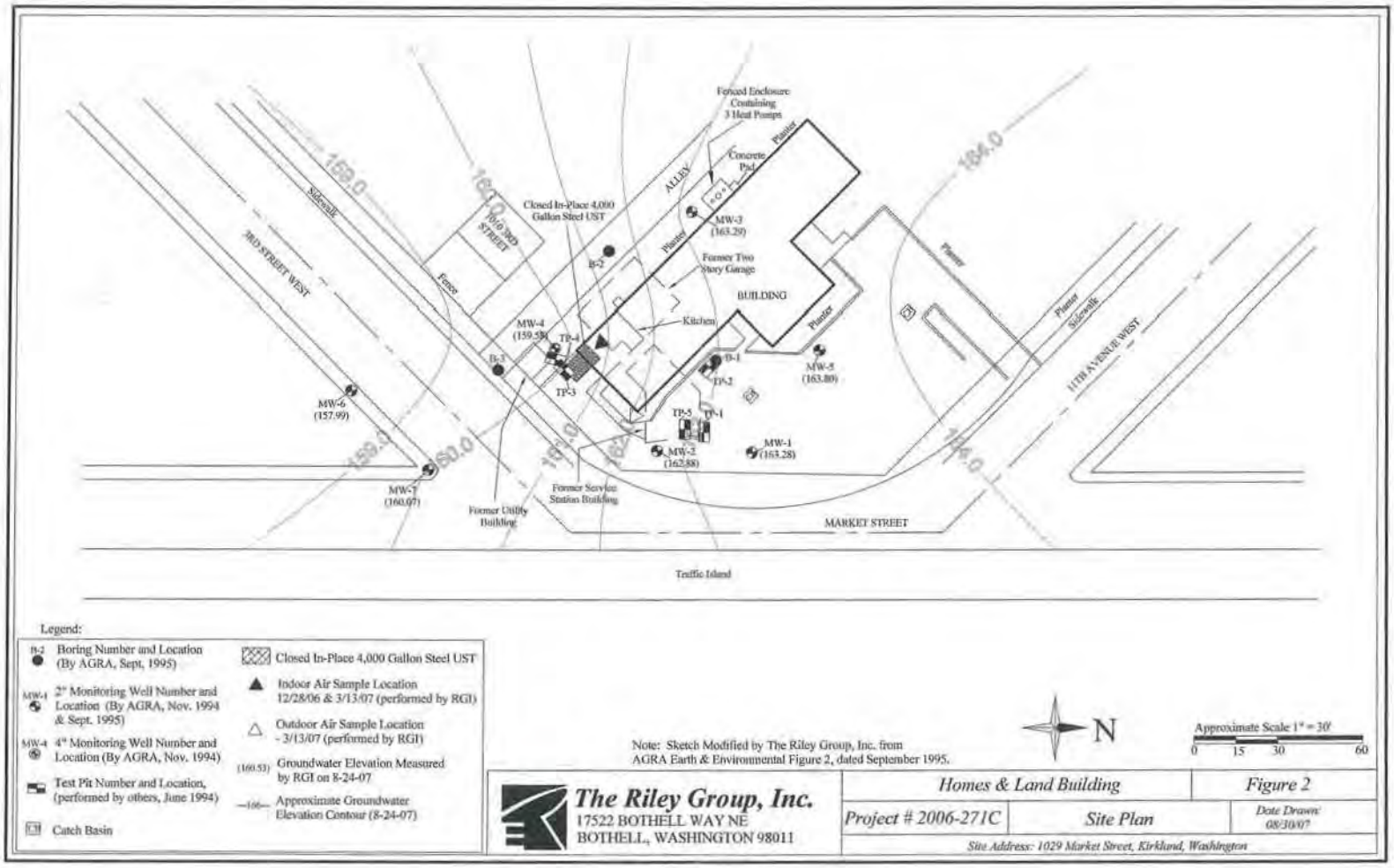
Building	*Figure 2*
Site Plan	*Date Drawn: 08/30/07*

9 Market Street, Kirkland, Washington

Table 1. Summary of Groundwater Sample Analytical Laboratory Results
Homes & Land Building
1029 Market Street, Kirkland, Washington
The Riley Group, Inc. Project #2006-271C

Well ID / Number	Sample Date	Top of Casing Elevation (ft)	Depth to Water (ft)	Ground-water Elevation (ft)	TPH-HCID			BTEX				Other VOCs
					Gas TPH	Diesel TPH	Oil TPH	B	T	E	X	
MW1	8/24/07	168.30	5.02	163.28	310	ND < 50	ND < 250	2.2	1.2	8.4	2.4	Isopropylbenzene = 3.5 n-Propylbenzene = 2.4 1,2,4-Trimethylbenzene = 1.8 Naphthalene = 1.6
	12/28/06		3.50	164.80	180	ND < 130	ND < 250	2	ND < 1	6	ND < 3	---
	9/8/95		6.54	161.76	< 50	ND < 250	---	< 0.5	< 0.5	< 0.5	< 1	---
	12/7/94		5.29	163.01	88	---	---	0.66	0.93	5.2	3	---
MW2	8/24/07	169.30	6.42	162.88	ND < 100	ND < 50	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	ND
	12/28/06		2.00	167.30	ND < 50	ND < 130	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	---
	9/8/95		7.12	162.18	60	ND < 250	---	< 0.5	< 0.5	1.1	1.4	---
	12/7/94		6.43	162.87	< 50	---	---	< 0.5	< 0.5	< 0.5	< 1	---
MW3	8/24/07	168.10	4.81	163.29	ND < 100	ND < 50	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	ND
	12/28/06		5.40	162.70	ND < 50	ND < 130	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	---
	9/8/95		4.60	163.50	85	540	---	< 0.5	< 0.5	< 0.5	< 1	---
	12/7/94		4.19	163.91	72	---	---	< 0.5	< 0.5	< 0.5	< 1	---
MW4	8/24/07	166.70	7.12	159.58	300	ND < 50	ND < 250	21	1.5	1.3	1	1,2 Dichloroethane (EDC) = 1.0 Isopropylbenzene = 1.5 1,2,4-Trimethylbenzene = 1.1
	12/18/06		n/a	n/a	ND < 50	140	ND < 250	2	ND < 1	ND < 1	ND < 3	---
	9/8/95		7.34	159.36	270	790	---	64	14	17	2.6	---
	12/7/94		3.64	163.06	100	---	---	13	0.61	0.61	4.8	---
MW5	8/24/07	168.12	4.32	163.80	ND < 100	ND < 50	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	ND
	12/28/06		3.90	164.22	ND < 50	ND < 130	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	---
	9/8/95		13.12	155.00	ND < 50	ND < 250	---	ND < 0.5	1.2	ND < 0.5	ND < 1	---
MW6	8/24/07	164.53	6.54	157.99	ND < 100	ND < 50	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	ND
	12/28/06		4.00	160.53	ND < 50	ND < 130	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	---
	9/8/95		6.70	157.83	ND < 50	ND < 250	---	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1	---
MW7	8/24/07	167.32	7.25	160.07	ND < 100	ND < 50	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	ND
	12/28/06		5.60	161.72	ND < 50	ND < 130	ND < 250	ND < 1	ND < 1	ND < 1	ND < 3	---
	9/8/95		7.64	159.68	ND < 50	ND < 250	---	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1	---
MTCA Method A Cleanup Levels					**800/1,000 [1]**	**500**	**500**	**5**	**40**	**30**	**20**	**varies**

Groundwater samples collected in 2006 and 2007 were collected by RGI.
Groundwater samples collected in 1994 and 1995 were collected by AGRA Earth & Environmental, Inc.
Unless otherwise noted, all analytical results are given in micrograms per liter (ug/L), equivalent to parts per billion (ppb).
Gas TPH, Gasoline total petroleum hydrocarbons determined using Ecology Test Method NWTPH-Gx
BTEX, Benzene, Toluene, Ethyl Benzene, and Total Xylenes determined using EPA Test Method 8260B.
Diesel & oil TPH, diesel and oil range total petroleum hydrocarbons (TPH) determined using Ecology Test Method NWTPH-Dx with silica gel acid cleanup.
Other VOCs, other VOCs determined using EPA Test Method 8260B. Only contaminants detected and the result are shown in table. All detected concentrations shown for other VOCs are below the applicable MTCA Method A or B Groundwater Cleanup Level.
ND, non-detect, contaminant not detected at noted analytical detection limit.
---, Not analyzed or not applicable.
[1] the higher cleanup level is applicable if no benzene is detected in groundwater.
MTCA, Washington State Department of Ecology Model Toxics Control Act. **Bold** and shaded concentrations, if any, are above MTCA Method A Cleanup Levels for Ground Water (WAC 173-340-900, Table 720-1).



Fenced Enclosure Containing 3 Heat Pumps
Concrete Pad
Planter
ALLEY
MW-3 (163.29)
Closed In-Place 4,000 Gallon Steel UST
1010 3RD STREET
Sidewalk
3RD STREET WEST
Fence
B-2
Former Two Story Garage
BUILDING
Kitchen
MW-4 (159.58)
TP-4
B-3
TP-3
B-1
TP-2
MW-5 (163.80)
MW-6 (157.99)
TP-5
TP-1
MW-2 (162.88)
MW-1 (163.28)
MW-7 (160.07)
Former Utility Building
Former Service Station Building
MARKET STREET
11TH AVENUE WEST
Traffic Island
159.0
160.0
161.0
162.0
163.0
164.0
Legend:
B-2 Boring Number and Location (By AGRA, Sept, 1995)
MW-1 2" Monitoring Well Number and Location (By AGRA, Nov. 1994 & Sept. 1995)
MW-4 4" Monitoring Well Number and Location (By AGRA, Nov. 1994)
Test Pit Number and Location, (performed by others, June 1994)
Catch Basin
Closed In-Place 4,000 Gallon Steel UST
Indoor Air Sample Location 12/28/06 & 3/13/07 (performed by RGI)
Outdoor Air Sample Location - 3/13/07 (performed by RGI)
(160.53) Groundwater Elevation Measured by RGI on 8-24-07
—166— Approximate Groundwater Elevation Contour (8-24-07)
Note: Sketch Modified by The Riley Group, Inc. from AGRA Earth & Environmental Figure 2, dated September 1995.
N
Approximate Scale 1" = 30'
0 15 30 60
The Riley Group, Inc.
17522 BOTHELL WAY NE
BOTHELL, WASHINGTON 98011
Homes & Land Building
Figure 2
Project # 2006-271C
Site Plan
Date Drawn: 08/30/07
Site Address: 1029 Market Street, Kirkland, Washington

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
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FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 4, 2007

Paul Riley, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE, Suite A
Bothell, WA 98011

Dear Mr. Riley:

Included are the results from the testing of material submitted on August 27, 2007 from the Homes and Land 2006-271c, F&BI 708336 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
TRG0904R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 27, 2007 by Friedman & Bruya, Inc. from the The Riley Group, Inc. Homes and Land 2006-271c, F&BI 708336 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group, Inc.
708336-01	MW-1-H2O
708336-02	MW-2-H2O
708336-03	MW-3-H2O
708336-04	MW-4-H2O
708336-05	MW-5-H2O
708336-06	MW-6-H2O
708336-07	MW-7-H2O

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336
Date Extracted: 08/28/07
Date Analyzed: 08/28/07, 08/29/07, and 08/31/07

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 54-134)
MW-1-H2O 708336-01	310	98
MW-2-H2O 708336-02	<100	114
MW-3-H2O 708336-03	<100	119
MW-4-H2O 708336-04	300	105
MW-5-H2O 708336-05	<100	122
MW-6-H2O 708336-06	<100	117
MW-7-H2O 708336-07	<100	118
Method Blank	<100	115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336
Date Extracted: 08/28/07
Date Analyzed: 08/29/07

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx Sample Extracts Passed Through a Silica Gel Column Prior to Analysis

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{24})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 52-134)
MW-1-H2O 708336-01	<50	<250	125
MW-2-H2O 708336-02	<50	<250	120
MW-3-H2O 708336-03	<50	<250	128
MW-4-H2O 708336-04	<50	<250	107
MW-5-H2O 708336-05	<50	<250	121
MW-6-H2O 708336-06	<50	<250	121
MW-7-H2O 708336-07	<50	<250	118
Method Blank	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-1-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-01
Date Analyzed:	08/29/07	Data File:	082920.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	85	55	118
1,2-Dichloroethane-d4	88	53	121
Toluene-d8	88	55	121
4-Bromofluorobenzene	85	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	8.4
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	2.4
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	3.5
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	2.4
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	2.2	1,2,4-Trimethylbenzene	1.8
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	1.2	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	1.0
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-2-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-02
Date Analyzed:	08/29/07	Data File:	082921.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	86	55	118
1,2-Dichloroethane-d4	85	53	121
Toluene-d8	86	55	121
4-Bromofluorobenzene	85	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-3-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-03
Date Analyzed:	08/29/07	Data File:	082922.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	87	55	118
1,2-Dichloroethane-d4	80	53	121
Toluene-d8	88	55	121
4-Bromofluorobenzene	86	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-4-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-04
Date Analyzed:	08/30/07	Data File:	082923.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	85	55	118
1,2-Dichloroethane-d4	86	53	121
Toluene-d8	86	55	121
4-Bromofluorobenzene	86	25	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	1.3
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	1.0
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	1.5
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	1.0	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	21	1,2,4-Trimethylbenzene	1.1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	1.5	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-5-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c; F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-05
Date Analyzed:	08/30/07	Data File:	082924.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	87	55	118
1,2-Dichloroethane-d4	85	53	121
Toluene-d8	86	55	121
4-Bromofluorobenzene	86	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-6-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-06
Date Analyzed:	08/30/07	Data File:	082929.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethene	86	55	118
1,2-Dichloroethane-d4	86	53	121
Toluene-d8	86	55	121
4-Bromofluorobenzene	85	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 J	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	MW-7-H2O	Client:	The Riley Group, Inc.
Date Received:	08/27/07	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	708336-07
Date Analyzed:	08/30/07	Data File:	082930.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	80	55	118
1,2-Dichloroethane-d4	86	53	121
Toluene-d8	85	55	121
4-Bromofluorobenzene	85	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	Method Blank	Client:	The Riley Group, Inc.
Date Received:	Not Applicable	Project:	2006-271c, F&BI 708336
Date Extracted:	08/29/07	Lab ID:	071315 mb
Date Analyzed:	08/29/07	Data File:	082918.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	87	55	118
1,2-Dichloroethane-d4	88	53	121
Toluene-d8	88	55	121
4-Bromofluorobenzene	86	29	181

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	Tetrachloroethene	<1
Chloromethane	<1	Dibromochloromethane	<1
Vinyl chloride	<0.2 j	1,2-Dibromoethane (EDB)	<1
Bromomethane	<1	Chlorobenzene	<1
Chloroethane	<1	Ethylbenzene	<1
Trichlorofluoromethane	<1	1,1,1,2-Tetrachloroethane	<1
Acetone	<10	m,p-Xylene	<2
1,1-Dichloroethene	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1
1,3-Dichloropropane	<1		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 708331-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	77	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	87	105	73-142	19

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: 708319-09 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	<1	<1	nm
Chloromethane	ug/L (ppb)	<1	<1	nm
Vinyl chloride	ug/L (ppb)	<0.2	<0.2	nm
Bromomethane	ug/L (ppb)	<1	<1	nm
Chloroethane	ug/L (ppb)	<1	<1	nm
Trichlorofluoromethane	ug/L (ppb)	<1	<1	nm
Acetone	ug/L (ppb)	<10	<10	nm
1,1-Dichloroethene	ug/L (ppb)	<1	<1	nm
Methylene chloride	ug/L (ppb)	<5	<5	nm
trans-1,2-Dichloroethene	ug/L (ppb)	<1	<1	nm
1,1-Dichloroethane	ug/L (ppb)	<1	<1	nm
2,2-Dichloropropane	ug/L (ppb)	<1	<1	nm
cis-1,2-Dichloroethene	ug/L (ppb)	<1	<1	nm
Chloroform	ug/L (ppb)	<1	<1	nm
2-Butanone (MEK)	ug/L (ppb)	<10	<10	nm
1,2-Dichloroethane (EDC)	ug/L (ppb)	<1	<1	nm
1,1,1-Trichloroethane	ug/L (ppb)	<1	<1	nm
1,1-Dichloropropene	ug/L (ppb)	<1	<1	nm
Carbon Tetrachloride	ug/L (ppb)	<1	<1	nm
Benzene	ug/L (ppb)	0.1	0.1	0
Trichloroethene	ug/L (ppb)	<1	<1	nm
1,2-Dichloropropane	ug/L (ppb)	<1	<1	nm
Bromodichloromethane	ug/L (ppb)	<1	<1	nm
Dibromomethane	ug/L (ppb)	<1	<1	nm
4-Methyl-2-pentanone	ug/L (ppb)	<10	<10	nm
cis-1,3-Dichloropropene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
trans-1,3-Dichloropropene	ug/L (ppb)	<1	<1	nm
1,1,2-Trichloroethane	ug/L (ppb)	<1	<1	nm
2-Hexanone	ug/L (ppb)	<10	<10	nm
1,3-Dichloropropane	ug/L (ppb)	<1	<1	nm
Tetrachloroethene	ug/L (ppb)	<1	<1	nm
Dibromochloromethane	ug/L (ppb)	<1	<1	nm
1,2-Dibromoethane (EDB)	ug/L (ppb)	<1	<1	nm
Chlorobenzene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	1.3	1.3	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	<1	<1	nm
m,p-Xylene	ug/L (ppb)	<2	<2	nm
p-Xylene	ug/L (ppb)	<1	<1	nm
Styrene	ug/L (ppb)	<1	<1	nm
Isopropylbenzene	ug/L (ppb)	4.0	4.0	0
Bromoform	ug/L (ppb)	<1	<1	nm
n-Propylbenzene	ug/L (ppb)	7.0	7.0	0
Bromobenzene	ug/L (ppb)	<1	<1	nm
1,3,5-Trimethylbenzene	ug/L (ppb)	<1	<1	nm
1,1,2,2-Tetrachloroethane	ug/L (ppb)	<1	<1	nm
1,2,3-Trichloropropane	ug/L (ppb)	<1	<1	nm
2-Chloroethane	ug/L (ppb)	<1	<1	nm
4-Chlorotoluene	ug/L (ppb)	<1	<1	nm
tert-Butylbenzene	ug/L (ppb)	<1	<1	nm
1,2,4-Trimethylbenzene	ug/L (ppb)	<1	<1	nm
sec-Butylbenzene	ug/L (ppb)	2.7	2.7	0
p-Isopropyltoluene	ug/L (ppb)	<1	<1	nm
1,3-Dichlorobenzene	ug/L (ppb)	<1	<1	nm
1,4-Dichlorobenzene	ug/L (ppb)	<1	<1	nm
1,2-Dichlorobenzene	ug/L (ppb)	<1	<1	nm
1,2-Dibromo-3-chloropropane	ug/L (ppb)	<1	<1	nm
1,2,4-Trichlorobenzene	ug/L (ppb)	<1	<1	nm
Hexachlorobutadiene	ug/L (ppb)	<1	<1	nm
Naphthalene	ug/L (ppb)	<1	<1	nm
1,2,3-Trichlorobenzene	ug/L (ppb)	<1	<1	nm

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/07
Date Received: 08/27/07
Project: Homes and Land 2006-271c, F&BI 708336

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	95	91	30-130	2
Chloromethane	ug/L (ppb)	50	93	89	35-134	3
Vinyl chloride	ug/L (ppb)	50	97	96	36-144	1
Bromomethane	ug/L (ppb)	50	111	113	36-145	2
Chloroethane	ug/L (ppb)	50	95	86	33-144	9
Trichlorofluoromethane	ug/L (ppb)	50	90	110	34-132	7
Acetone	ug/L (ppb)	50	88	94	32-142	2
1,1-Dichloroethene	ug/L (ppb)	50	108	108	38-133	0
Methylene chloride	ug/L (ppb)	50	102	102	64-132	0
trans-1,2-Dichloroethene	ug/L (ppb)	50	106	108	56-137	2
1,1-Dichloroethane	ug/L (ppb)	50	106	108	63-133	2
2,2-Dichloropropane	ug/L (ppb)	50	96	101	42-143	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	103	106	73-127	1
Chloroform	ug/L (ppb)	50	98	99	63-137	1
2-Butanone (MEK)	ug/L (ppb)	50	108	103	77-133	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	90	87	67-131	3
1,1,1-Trichloroethane	ug/L (ppb)	50	95	95	63-134	0
1,1-Dichloropropene	ug/L (ppb)	50	103	102	62-132	0
Carbon Tetrachloride	ug/L (ppb)	50	95	97	63-135	2
Benzene	ug/L (ppb)	50	102	101	75-134	1
Trichloroethene	ug/L (ppb)	50	99	98	75-131	0
1,2-Dichloropropane	ug/L (ppb)	50	102	102	75-129	0
Bromodichloromethane	ug/L (ppb)	50	96	98	69-129	2
Dibromomethane	ug/L (ppb)	50	107	103	68-137	4
4-Methyl-2-pentanone	ug/L (ppb)	50	84	82	68-124	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	99	98	64-133	1
Toluene	ug/L (ppb)	50	104	102	70-140	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	97	96	71-124	1
1,1,2-Trichloroethane	ug/L (ppb)	50	101	100	66-132	1
2-Hexanone	ug/L (ppb)	50	96	101	66-129	5
1,3-Dichloropropane	ug/L (ppb)	50	101	102	71-125	1
Tetrachloroethene	ug/L (ppb)	50	102	104	73-134	2
Dibromochloromethane	ug/L (ppb)	50	104	102	75-125	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	103	72-134	2
Chlorobenzene	ug/L (ppb)	50	105	103	72-135	2
Ethylbenzene	ug/L (ppb)	50	98	100	76-125	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	99	98	69-132	1
m,p-Xylene	ug/L (ppb)	100	96	101	69-140	5
o-Xylene	ug/L (ppb)	50	101	103	68-135	2
Styrene	ug/L (ppb)	50	102	103	75-129	1
Isopropylbenzene	ug/L (ppb)	50	106	102	66-132	4
Bromoform	ug/L (ppb)	50	103	104	70-137	1
n-Propylbenzene	ug/L (ppb)	50	101	103	67-138	1
Bromobenzene	ug/L (ppb)	50	102	104	71-124	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	100	103	69-136	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	101	102	57-128	1
1,2,3-Trichloropropane	ug/L (ppb)	50	97	99	64-126	2
2-Chlorotoluene	ug/L (ppb)	50	99	100	66-131	1
4-Chlorotoluene	ug/L (ppb)	50	100	101	67-127	1
tert-Butylbenzene	ug/L (ppb)	50	102	101	65-121	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	97	98	66-133	1
sec-Butylbenzene	ug/L (ppb)	50	102	103	73-128	1
p-Isopropyltoluene	ug/L (ppb)	50	101	102	72-130	1
1,3-Dichlorobenzene	ug/L (ppb)	50	102	104	76-124	2
1,4-Dichlorobenzene	ug/L (ppb)	50	102	103	73-123	1
1,2-Dichlorobenzene	ug/L (ppb)	50	103	103	76-125	0
1,3-Dichloro-2-chloropropane	ug/L (ppb)	50	102	97	54-135	5
1,2,4-Trichlorobenzene	ug/L (ppb)	50	102	102	72-123	0
Hexachlorobutadiene	ug/L (ppb)	50	108	103	60-137	5
Naphthalene	ug/L (ppb)	50	102	98	61-137	4
1,2,3-Trichlorobenzene	ug/L (ppb)	50	107	106	74-126	1

Note: The calibration verification result for chlorobenzene exceeded 15% deviation. The average deviation for all compounds was not greater than 15% therefore, the calibration is considered valid. This applies to samples 708336-01, -02.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - The sample was diluted due to insufficient sample volume. Detection limits are raised due to dilution

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

fp - Compounds in the sample matrix interfered with quantitation of the analyte. The reported concentration may be a false positive.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

708336

SAMPLE CHAIN OF CUSTODY

ME 08/27/07 V2/ D04

Page # 1 of 1

Send Report To Paul Riley

Company The Riley Group

Address 17522 Bothell Way NE

City, State, ZIP Bothell, WA 98011

Phone # (425) 415-0551 Fax # (425) 415-0311

SAMPLERS (signature) Tamara Adams / Rian Skov

PROJECT NAME/NO. Homes and Land 2006-2716

PO #

REMARKS

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by: By Friday 8/31/07

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel*	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						Notes
MW-1-H_2O	01 A-E	8/24	3:25	H_2O	5	X	X		X								*analyze w/
MW-2-H_2O	02 A-E	↓	1:30	↓	↓	X	X		X								silica gel cleanup
MW-3-H_2O	03 A-E		4:20			X	X		X								± report diesel
MW-4-H_2O	04 A-E		5:30			X	X		X								+ oil TPH
MW-5-H_2O	05 A-E		1:15			X	X		X								
MW-6-H_2O	06 A-E		10:30			X	X		X								
MW-7-H_2O	07 A-E	↓	11:30	↓	↓	X	X		X								

Samples received at 8 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	M. ARGUETA	TRG, Inc.	8/27	1:00 PM
Received by:	[signature] #203		CHAMPION		
Relinquished by:					
Received by:	[signature]	Nhan Phan	FeBI	8/27/07	2:15

REPORT DATED
SEPT. 1995

INDEPENDENT REMEDIAL ACTION PROGRAM REPORT
1029 MARKET STREET
KIRKLAND, WASHINGTON

Submitted To:

Washington State Department of Ecology
Northwest Regional Office

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Commercial Lending Division
America's Partner for Growing Businesses

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7TH Report
29TH Sept 95

Tim Moriarty (206) 646-3356

File #12-01232-01

AGRA
Earth & Environmental

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12-01232-01

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SECTION ONE - REQUIRED INFORMATION

1.0 Project Background/Site Description

1.0.1 Location and Description

The subject site is referred to as 1029 Market Street, which corresponds to the site address. The site is located on the southwest corner of 11th Avenue West and Market Street in Kirkland, Washington. Specifically, the site is located in the southeast quarter of Section 6, Township 26N, Range RE, 47.68 degrees North Latitude, and 122.21 Longitude. Figure 1 depicts the approximate location of the site.

Presently the site includes a one-story office building occupying approximately 3,867 square feet of the total 14,889 square feet comprising the property. The building is currently owned by several members of the former Kelly Trust who lease office space to several tenants. The tenants primarily consist of several counselors and vendors. Figure 2 depicts the current site features.

The utility services for the site consist of electric heating, a sanitary sewer system, City of Kirkland provided water, and U S WEST telephone service. Additional utilities including natural gas and storm sewer lines are also present either on the site itself, or within the right-of-ways bordering the site. Figure 6 depicts the approximate locations of the known utilities, based upon the former earthwork activities and utility location services.

Surrounding properties are residential, however several small businesses exist within ¼ to ½ mile of the site. The residences in the vicinity of the site were not observed to include basements, and no known drinking water wells were found. The nearest sensitive receptor to the subject site is a 30-foot deep domestic water well located at 405 Lake Avenue West, approximately ¼ to ½ mile southwest of the site (NW Regional Office of Ecology well log database).

1.0.2 Site Topography and Geology

The site was surveyed by Horton Dennis and Associates, Inc. of Kirkland, Washington in December 1994. Based upon an established benchmark of 170.55 feet of elevation, set at 3rd Street West and Market Street, and subsequent measurements of ground surface elevations at the exploration locations (test pits/borings/monitoring wells), the relief across the site from east to west decreases approximately 2 to 3 feet. The site slopes down from the west side of Market Street (benchmark elevation 170.6) to the alley, west of the building (elevation 167.1 feet).

Subsurface conditions were interpreted based upon the results of AEE's boring explorations and remedial excavation activities.

1.1 Release Information/Site Characterization

Prior to its use as an office building, the site was utilized as an automobile service station with retail gasoline sales from before 1946 through 1977 (Supplemental Phase I Assessment, 7 July 1995). Several underground storage tanks (USTs) were known to exist at the site including: one 285-gallon UST, one 550-gallon UST; one 1,000-gallon UST, three 3,000-gallon USTs; and one 4,000-gallon UST. The contents of these tanks is unknown due to the absence of any records pertaining to their use or location at the site. It is also known that at least one set of dispensers was present on the site, located somewhere in the vicinity of the current parking area.

Evidence of a petroleum release was first discovered in June 1994 during a Limited Phase II Environmental Site Assessment (3rd Party Site Assessments) performed in response to the prospective sale of the property. Results of the assessment indicated the presence of petroleum hydrocarbon concentrations in soil, exceeding Washington's Model Toxics Control Act (MTCA) Method A cleanup criteria in the vicinity of test pit exploration TP-3, located near the south corner of the building. Additionally, a steel, 4,000-gallon UST was encountered in this area. Portions of the UST were beneath the building and the building footing was found to have been formed around the UST itself. Detectable concentrations of petroleum hydrocarbons were also identified in soils associated with test pit explorations TP-1 and TP-2.

On 20 November 1994, AGRA Earth & Environmental, Inc. (AEE) was contracted to initiate a more detailed characterization investigation of the lateral and vertical extent of the petroleum affected media and develop a remedial action plan. During the initial Subsurface Petroleum Hydrocarbon Assessment:

- A Ground Penetrating Radar (GPR) survey was performed across the entire site and within the accessible areas of the interior of the building. Numerous small reflectors were identified in the vicinity of the front parking area, however no apparent evidence of additional USTs was indicated.

- Four groundwater monitoring wells were installed to depths of 20 to 24 feet below grade (MW-1 through MW-4). Additionally, two soil borings were drilled to depths of 20 feet (B-1) and 31 feet (B-2) below grade.

- Soils analyses indicated concentrations of petroleum hydrocarbons in excess of MTCA Method A cleanup criteria for soil were present in the vicinity of boring B-1, located in the front parking area (in the vicinity of the former test pit exploration TP-2). Detectable concentrations of petroleum hydrocarbons were also present in the samples obtained from explorations MW-2 and MW-4. Washington Department of Ecology Method WTPH-HCID analyses performed on soil samples containing the highest concentrations of petroleum hydrocarbons indicated the presence of gasoline and diesel range petroleum hydrocarbons (GRPH and DRPH) but no indications of oil range petroleum hydrocarbons. Complete details of the soil analyses are found in Table 1.

- Groundwater analyses indicated concentrations of petroleum hydrocarbons exceeding MTCA Method A cleanup criteria for groundwater were present in the sample obtained from MW-4 only (13 ppb benzene). Detectable concentrations of petroleum hydrocarbons were also present in samples from MW-1 and MW-3. At the time of this sampling event, TPH data from the soil analyses was not yet available. All samples were therefore analyzed for GRPH, volatile aromatic compounds (benzene, toluene, ethylbenzene, xylenes BTEX), and lead only. Groundwater analyses are summarized in Table 2.

The results of this initial assessment indicated the vertical extent of petroleum impact was less than 15 feet below grade for soils in the vicinity of the UST and the front parking area. The lateral extent of petroleum affected soils was not determined but was not anticipated to be extensive based upon the soil analytical results obtained from explorations MW-1, MW-2, MW-4, and B-1. Based upon the results of this investigation, a remedial action plan was proposed which included:

- An initial soil vapor survey along the utility corridors and perimeter of the property to estimate the lateral extent of petroleum impact;

- In-place-closure of the existing 4,000-gallon UST; and
- Remedial over excavation of accessible soils in the vicinity of both the UST and the front parking area.
- Supplemental subsurface investigation to include installation and sampling of groundwater monitoring wells, and performance of an aquifer test to determine of the aquifer could be considered a future drinking water source as defined in WAC 173-340-720(1)(a)(ii)(A).

The soil vapor survey was performed on 11 July 1995. Samples were collected from seven soil vapor points (SV-1 through SV-7) at depths of 3 feet and 5 to 8 feet. Figure 3 depicts the locations of these sampling points. The soil vapor survey indicated that the utility corridors, which were less than 4 feet in depth, were not acting as apparent conduits for petroleum migration. It was therefore hypothesized, based upon shallow groundwater levels existing in wells on the site, that groundwater was the major transportation agent for contaminant migration. The results of the investigation also indicated that the lateral extent of petroleum impacted soils in the vicinity of the UST area was likely to be restricted to the planter area. The lateral extent of petroleum impacted soils in the front parking area was concluded to be restricted to the area within the confines of MW-1, MW-2, and SV-1. Screening and analytical data from the soil vapor survey are summarized in Tables 3 and 4.

On 17 July 1995, the 4,000-gallon UST was closed-in-place by filling the UST with a grout mix following inerting, pumping, rinsing, and cleaning activities. No apparent holes or punctures were noted in the UST during the closure. This indicated that the source of the release was not likely to be the UST itself. Other possibilities therefore included: an overfilling event(s); a leak in the product lines; or was associated with one or more of the other UST systems which had been present at the site.

Following closure of the UST, over excavation of the accessible petroleum impacted soils surrounding the UST was performed. A significant portion of the planter area, including the sprinkler system, landscaping, trees, and building walkways were removed. The storm sewer system was the only utility which could be safely removed and temporarily repaired on a daily basis. Excavation was continued until the lateral limits of petroleum hydrocarbons impact exceeding MTCA Method A soil cleanup criteria was reached or the existing utilities which would require re-routing were approached (phone, electric, & sanitary sewer). Figure 4 depicts the approximate limits of excavation including sample locations. Areas where concentrations of petroleum hydrocarbons exceed MTCA cleanup criteria are shown on Figure 5. A total of 383 tons of petroleum impacted soils were removed from this excavation area.

Remedial excavation of petroleum affected soils was also performed in the front parking area. Soils were removed until either the extent of petroleum impact was reached or the risk to the building structure/existing storm sewer system warranted stopping excavation. Approximately 537 tons of petroleum affected soil was removed from the front parking area excavation. The excavation limits, sample locations, and areas where petroleum hydrocarbon concentrations exceed MTCA cleanup criteria area also depicted on Figure 4 and 5, respectively.

Results of the remedial excavation indicated the vertical extent of petroleum impact was predominantly between approximately 5 and 10 feet below grade, for both the areas. Soils in most of the front parking area were reworked within the upper 3 to 4 feet. This made the exact determination of the origin of the initial release difficult to ascertain. In both cases, the petroleum affected soils were within the glacial till, rather than the overlying fill materials. Additionally, the

petroleum impacted soils were observed to decrease significantly at an approximate depth of 10 to 11 feet below grade, corresponding with the perched groundwater occurrence noted in both excavations.

The lateral extent of petroleum impact was confirmed within the UST excavation area in all directions but the southwest corner and the northwest corner (Figure 5). The lateral extent of petroleum impact was confirmed within the front parking area in all directions but the west sidewall, and to a lesser extent on the east side of the catch basin. The vertical extent of petroleum impact was also confirmed with successful closure samples in both excavations. Summaries of the soil analytical results for the UST and front parking area excavations are located in Tables 5 and 6, respectively.

All soil generated during characterization and remediation activities was removed to TPS Technologies, Inc. of Tacoma, Washington. TPS Technologies, Inc. is a licensed remediation facility for petroleum affected soils. The soils are recycled into an asphalt matrix, after incineration.

Following completion of the remedial excavation activities, a second subsurface environmental assessment was performed at the subject site to fill in data gaps, primarily in respect to groundwater quality downgradient from the former source areas. The second assessment was initiated on 6 September 1995 and included the installation of three additional groundwater monitoring wells (MW-5, MW-6, MW-7) to depths ranging from 15 to 20 feet and one additional soil boring (B-3) to an approximate depth of 13 feet. Figure 7 depicts the locations of these explorations.

Soil analyses from the four explorations indicated petroleum hydrocarbon compounds in concentrations which exceeded MTCA Method A cleanup criteria for soil were present in the vicinity of exploration B-3 only. Boring B-3 was located approximately 10 feet southwest of the impacted portion of the west sidewall of the former UST remedial excavation. The vertical extent of petroleum impact was similar to that encountered within the excavation, extending from depths of approximately 5 feet to 10 feet below grade. Due to overhead and utility constraints, no additional borings were installed to estimate the lateral extent of petroleum impact in this area.

The installation of exploration MW-5 confirmed the soil vapor survey data from SV-1 which indicated no apparent petroleum hydrocarbon impact north of the catch basin/front parking area excavation. Soil analytical data from the supplemental subsurface assessment is summarized in Table 7.

Groundwater analyses continued to indicate samples from monitoring well MW-4 contained the only concentrations of petroleum hydrocarbons exceeding MTCA Method A criteria for groundwater. The benzene concentration was 64 ppb and the sum of the GRPH and DRPH concentrations was 1,060 ppb. Detectable concentrations of petroleum hydrocarbons were also contained in samples obtained from monitoring wells MW-2, MW-3, and MW-5. The groundwater analytical data is summarized in Table 2.

Based upon the site observations and analytical data collected throughout the site investigations, the origin of the release could not be determined based upon existing site conditions and the available historical site information. The existing 4,000-gallon UST does not appear to have been directly responsible for the release, based upon the condition of the tank and the lateral extent of petroleum impact. The origin(s) of the release can not be conclusively determined since the uppermost fill soils overlying the petroleum hydrocarbon impacted soils have been significantly reworked. Based upon the lateral extent of observed petroleum impacted soils, it is possible there may have been multiple sources of petroleum releases from the components of the former UST system; however, sufficient evidence does not exist to support this conclusion.

Based upon the analytical data from both soil and groundwater, the petroleum hydrocarbon source is primarily weathered gasoline. Minor concentrations of diesel range petroleum hydrocarbons have been detected in both soil and groundwater samples, however all concentrations have been below MTCA Method A cleanup levels for both soil and groundwater.

The remedial excavation action in both the UST area and front parking area has successfully removed the accessible petroleum impacted soils. The remaining petroleum impacted soils in the vicinity of the south corner of the site could not be removed without re-routing the existing utilities, including telephone, electric, sanitary sewer, and storm sewer systems. The cost of the removal in comparison to the remaining volume (<10% of original volume) was considered substantially disproportionate; therefore, continued excavation was halted. The petroleum impacted soils remaining beneath the building also could not be accessed without removal of the structure itself and were therefore left in place.

The primary areas of residual petroleum hydrocarbon concentrations remaining in the front parking area are located along the west sidewall of the excavation. The excavation was extended to within approximately 3 feet of the building footing. Further excavation was terminated due to the potential risk to the building structure. A second area of residual petroleum concentrations was adjacent to the east end of the catch basin. Further excavation on this side of the catch basin was terminated to avoid completely undermining the basin which extended from the surface to approximately 8 feet below grade. Based upon adjacent closure samples, the residual petroleum concentrations in this area are not considered to constitute a significant volume of material.

Results of both boring exploration programs indicated soils containing concentrations of petroleum hydrocarbons exceeding MTCA Method A criteria were found in borings B-1 and B-3 only. The soils associated with boring B-1 have been removed during the remedial excavation. The soils associated with B-3 are located approximately 10 feet southwest of the UST excavation's southwestern limit. These residual soils are also considered inaccessible due to the elevated cost of re-routing the existing utilities. Soils in all other boring/monitoring well explorations contained concentrations of petroleum hydrocarbons below MTCA Method A cleanup criteria.

Two groundwater sampling events have been performed, one in December 1994 and a second in September 1995. These two sampling events represent times of seasonal high and low fluctuations in water levels as is shown in Table 8. During both of these sampling events, samples obtained from MW-4 contained concentrations of benzene (13 ppb and 64 ppb, respectively) exceeding MTCA Method A criteria. Samples from all other monitoring wells have contained either no detectable petroleum compounds concentrations or low-level concentrations below regulatory criteria. Due to the removal of the primary source areas, groundwater quality should improve without the necessity for any remedial action. Section 2 should be referenced for additional information regarding groundwater conditions at the site.

The results of the Phase I Investigation(s) in combination with site observations have indicated no apparent sensitive receptors that are anticipated to be or which have been affected by the petroleum affected media at the site. Based upon the groundwater and soil analytical results of explorations/monitoring wells MW-1, MW-2, MW-6, and MW-7, it is unlikely that petroleum migration has exceeded the perimeters of the property boundaries or the adjacent right-of-ways. Additionally, no evidence of distressed vegetation was observed in either the planter areas or the adjacent properties, indicating that the underlying petroleum hydrocarbon concentrations had not affected the native flora. The adjacent properties were not observed to include basements. This therefore precludes any potential threat of vapor migration into a potentially sensitive area.

1.2 Previous Investigations

The following section includes a listing of the site investigations/assessments conducted to date:

- *Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment*, (3rd Party Site Assessments, Inc.) dated June 1994;
- *Subsurface Petroleum Hydrocarbon Assessment*, dated 18 January 1995;
- *Supplemental Phase I Assessment*, dated 7 July 1995;
- *Soil Vapor Survey Status Letter*, dated 16 August 1995;
- *Underground Storage Tank Closure Assessment and Remediation Report*, dated 6 September 1995; and
- *Supplemental Subsurface Petroleum Hydrocarbon Assessment*, dated 29 September 1995.

The contents of each of these reports should be referred to for more specific details of each phase of this site investigation. The contents of this IRAP report are intended to meet the minimum requirements of Ecology's Guidance on preparing Independent Remedial Action Reports Under the Model Toxics Control Act Chapter 70.105 D RCW, dated 9 March 1994. Copies of each of the above referenced reports have been submitted to Ecology, as attachments to this report.

1.3 Selection of Cleanup Standards

For the purpose of this investigation, the MTCA Method A cleanup levels, as defined in WAC 173-340-700 through WAC 173-340-750 were selected. Method A cleanup levels were chosen on the basis that the site falls under the classification of a "routine cleanup action" as defined in WAC 173-340-130. Additionally, due to the relative simplicity of the number of contaminants of concern, which include GRPH, DRPH, and BTEX compounds only, the site meets the criteria for this selection under WAC 173-340-704.

For the purpose of this investigation, Points of Compliance for the soil remediation were selected based upon areas which were safely accessible and not capped with a relatively impermeable surface cover. This included all areas which would not be re-surfaced with asphalt such as the planter areas, and all areas which could be accessed without risk to either the existing building structure or utilities.

Groundwater quality in the vicinity of monitoring wells MW-1 through MW-3 and MW-5 through MW-7 are in compliance with the cleanup standards selected. Groundwater quality in the 4-inch diameter well (MW-4) exceeds compliance levels for total petroleum hydrocarbons (GRPH and DRPH) and benzene; however, groundwater quality is expected to improve now that the majority of the source area (soils) has been removed, provided leaching from the upgradient, residual petroleum concentrations beneath the building is minimal.

1.4 Explanation of Remedial Actions Taken and Rationale for Selection

In respect to remediation of the petroleum affected soils on site, removal of the soil from the subsurface and subsequent recycling of the soil at the TPS Technologies, Inc. facility in Tacoma, Washington was selected. This option was the most viable remedial option given the necessity for a rapid solution due to the potential sale of the property.

The primary areas of impacted soil were generally between 5 to 10 feet below grade in a hard, dense, glacial till horizon comprised mainly of silt with disjointed lenses and small horizons of fine to medium sand. The nature of these soils eliminated several in-situ remedial options due to cost, the time factors involved, and the technical feasibility of in-situ remediation. Removal of these materials was therefore the most viable remedial option which would result in both the remediation of the site soils and removal of the source area for potential groundwater impact.

As mentioned in the previous sections, petroleum impacted soils which could be removed without risk to the building structure or the critical utilities (power, phone, gas, and sanitary sewer) were overexcavated and removed to TPS Technologies, Inc. for incineration and subsequent recycling. Areas of residual petroleum hydrocarbon impacted soils remain beneath the building in the vicinity of the UST, along the south corner of the site, in the vicinity of the former UST remedial excavation and, along the west sidewall of the former front parking area excavation, and adjacent to the east side of the existing catch basin in the former front parking area excavation. These areas are depicted graphically on Figure 5.

The volume of soil removed from the UST area was approximately 383 tons. The volume of soil removed from the front parking area was approximately 537 tons. The remaining impacted soils, based upon the results of all site investigations conducted to date, is estimated to be less than 10 percent of the original volume and remains in areas which are not safely accessible or cost effective to warrant removal.

No groundwater remedial action is proposed due to the improvement to groundwater quality which is anticipated with the removal of the bulk of the source area. Groundwater quality data has also indicated that with the exception of monitoring well MW-4, concentrations of petroleum compounds in the remaining six wells do not exceed MTCA Method A groundwater cleanup levels. Monitoring well MW-4, located adjacent to the western sidewall of the former UST remedial excavation, has contained concentrations of benzene of 13 ppb and 64 ppb during the two sampling events (December 1994 and September 1995).

A brief aquifer yield test was performed on MW-4 on 8 September 1995 to determine whether the perched aquifer on site would fall under the classification of a potable drinking water aquifer. MW-4 was chosen based upon its design as a potential recovery well in the event that groundwater remediation was required and since it was the only groundwater monitoring well with concentrations of TPH and/or BTEX above the groundwater cleanup standards listed in Method A of MTCA. The results of the testing indicated that the 4-inch diameter recovery well could not sustain a yield of 0.5 gallons per minute, and the well casing and annular sand pack were purged dry in approximately 45 minutes. The water level in the well was observed to continuously fall with no measurable recharge occurring during the test after the groundwater from the annular sand pack and well casing was removed. The water level in the well only recharged within 73 percent of the original column height after 5 hours of termination of the test. The location of the site in an established residential area with an existing water utility service in combination with inability to maintain a 0.5 gpm yield over a reasonable time frame exempt the groundwater present at the site from being a potential drinking water source (WAC 173-340-720).

Overall, the groundwater quality at the site, including MW-4, is not anticipated to affect the environment or human health. The age of the release could have occurred from 18 to 50 years ago, and yet, the results of the investigation(s) have indicated minimal affect upon the existing groundwater system(s) as well as human health or the environment. Additionally, the absence of sensitive receptors which could be affected also support the decision for no groundwater

remediation. The boring exploration and excavation data indicate that the groundwater system(s) in the area are likely to be discontinuous with groundwater occurrence being dictated by the nature of glacial till in the area. Groundwater remediation could therefore affect a limited area of influence and thus, would not be a cost effective option. AEE therefore proposes to allow the existing compounds to naturally biodegrade over time.

1.5 Institutional Controls

Due to the remaining petroleum hydrocarbon impacted soils and groundwater at the site, institutional controls will be implemented as required under WAC 173-340-440. At this time, AEE proposes that restrictive covenant on the property be registered with the deed of the property. A copy of the restrictive covenant is presented in Appendix C.

1.6 Sampling and Analysis

A. Field Screening Techniques

The initial exploration locations (MW-1, MW-2, M W-3, MW-4, B-1 and B-2) were selected on the basis of the historical data available as well as upon the observations and analytical data obtained from reviewing the initial investigation conducted by 3rd Party Site Assessments. The configuration of the site itself also dictated the most accessible areas for AEE's initial explorations. The location of the potential recovery well, MW-4 was selected based upon the location of the existing UST corresponding to the most probable area of potential groundwater impact. Surface topography was also used to estimate an inferred groundwater migration direction to the west, towards Lake Washington. MW-1 was originally intended as the upgradient monitoring well, based upon topographic assumptions.

B. Sampling Procedures

B.1 Soil Sampling Procedures

During drilling activities, soil samples were obtained using a modification of the Standard Penetration Test Procedure as described in ASTM:D-1586. The testing and sampling consisted of driving a standard 3-inch outside diameter split barrel sampler a distance of 18 inches into the soil below the auger bit with a 140-pound hammer free falling a distance of 30 inches. The blow count, or "N" value consisting of the number of blows required to drive the sampler the final 12 inches, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. The high gravel, cobble and boulder content of some fluvial and glacial soils often yields unrepresentatively high blow counts due to oversized material. The soil samples retrieved from the split-spoon sampler were classified in the field and a representative portion placed in laboratory prepared glass containers.

The soil samples were recovered at each interval using procedures designed to minimize the risk of cross contamination. Prior to the drilling of the boring, the drilling equipment and sample tools were cleaned using a steam cleaner. Between each sampling attempt, the sampling tools were scrubbed with a stiff brush and a detergent solution consisting of Liquinox and warm water, and then rinsed with potable water and liberal quantities of distilled water. The samples were classified in the field and immediately transferred to laboratory prepared containers, and tightly sealed with a teflon-lined threaded cap. Samples were screened in the field with an organic vapor meter (OVM). Samples were stored and transported in a chilled ice chest throughout the field investigation. Selected soil samples were subsequently transferred to the analytical laboratory in accordance with AEE chain-of-custody procedures.

Soil samples collected during the remedial excavation activities were collected using a backhoe due to the depth of the excavations. This involved removing only those soils which were not in direct contact with any surface of the backhoe bucket. AEE field personnel collected all samples from a minimum of 4 to 6 inches within each sidewall to ensure a fresh sample which was not exposed to the atmosphere would be obtained. Several areas at various depths and lateral locations in the desired sampling zone were screened using a PID and observations of the soils physical characteristics prior to deciding upon a final sampling location. Discrete samples were then obtained using the same procedure described above.

B.2 Well Installation Procedures

All monitoring wells were constructed in accordance with the minimum standards for construction and maintenance of wells (WAC 173-160). Monitoring wells construction details have been included with the boring logs in Appendix B.

B.3 Well Development and Purging Techniques

Following installation of the monitoring well, each well was developed in order to improve the hydraulic connection between the annular sand pack and the formation, which in turn enhances the well yield and decreases turbidity. Monitoring wells installed during this investigation were developed using a hand-operated surge block and a hand bailer. Development continued until the well was purged dry, the turbidity was observed to decrease significantly, or 6 to 10 well casing volumes of groundwater were removed. All wells were allowed a minimum of 24 to 48 hours to equilibrate prior conducting additional purging and sampling activities.

Prior to sampling, the existing column height of groundwater present in the well casing was measured and a well casing volume of water was calculated based upon the diameter of the well casing. Approximately 3 to 5 well casing volumes were removed using a hand bailer. Bailing is performed in a manner which minimized any surging of the well. All non-disposable bailers were decontaminated between each well by scrubbing with a stiff brush and solutions of isopropyl alcohol, Liquinox/potable water, and a deionized water rinse. Purging is performed in the order of least impacted to most impacted well when this data is available.

B.4 Groundwater Sampling Methods

Prior to sampling, depth to water measurements are taken in all wells to the nearest 0.01 foot, using an electronic well probe. The elevations of the tops of the well casings were established based upon survey data conducted by Horton Dennis and Associates, Inc. of Kirkland, Washington. A summary of the historical water level data, including depth to water and groundwater elevations is presented in Table 8. The required purge volumes are then calculated based upon the water level data collected.

Monitoring wells are purged of approximately three to five well casing volumes (see Section B.3) prior to performing sampling, or until the well is purged dry. Water levels are allowed to recharge to 80 to 90 percent of the original column height in the wells which are not purged dry prior to sampling. In the wells which are purged dry, sampling is performed once enough water is present to fill the sample containers. Groundwater samples are collected using dedicated, disposable plastic bailers (single check-valve). The bailer is slowly lowered into the water column to avoid surging and the groundwater sample is collected from the upper 2 to 3 feet of the water column. Groundwater samples are decanted into laboratory prepared containers in order of highest to lowest analyte volatility. All samples are labelled, placed into a chilled cooler (where applicable), and transported to the analytical laboratory under AEE chain-of-custody procedures.

C. Analytical Data

Summaries of both soil and groundwater analytical data performed throughout this study have been provided in Tables 1, 2, 4, 5, 6, and 7. Copies of all available laboratory test certificates have been provided with the reports listed in Section 1.2.

D. Sample Locations and Depths

The locations of samples obtained from the boring exploration program can be seen on Figures 2 and 7. Sample locations for the remedial over excavation and UST closure are depicted on Figure 4. Figure 5 depicts sample locations where residual petroleum concentrations exceeding MTCA Method A criteria exist for site soils. Figure 3 depicts the soil vapor survey sample points, including field screening data and laboratory analytical data. Figure 14 depicts the analytical data for both groundwater sampling events and the well locations.

Sample depths are indicated by the numerical suffix attached to each sample identification. The depths are also listed in each table containing the analytical data, as well as the corresponding boring logs.

E. Justification of Sample Selection

The sample locations which were selected for analysis from each boring exploration were based upon the depth to groundwater at the time of drilling; field headspace measurements utilizing a photoinization detector (PID), and observations of the physical characteristics of each sample. Based upon the contaminant type, at least one soil sample was selected which would correspond to the capillary fringe zone. Secondary samples were chosen to characterize the vertical extent of petroleum impact, where present.

Sample locations selected during the remedial over excavation of petroleum impacted soils in the vicinity of the existing UST and the front parking area were selected based upon several criteria. The sample locations in the UST area were chosen based the depth to groundwater, field headspace readings and the bottom depth of the UST itself. The Ecology guidance document for UST Site Checks and Site Assessments was followed where possible. All samples were discrete samples. Field headspace readings were used to select the depth from which the samples were obtained, which generally corresponded with the zone immediately above the groundwater occurrence of 10 to 11 feet below grade. A closure sample(s) could not be obtained immediately beneath the UST due to groundwater entering the UST once a hole was placed in the base of the UST. Several samples were collected from the base of the UST excavation to confirm successful containment removal at the vertical extent of the remedial action. Sample locations are shown on Figure 4. The numerical suffix following each sample identification corresponds to the approximate depth below grade at which each sample was obtained.

F. Soil Profile Information

The site soil profiles in the vicinity of each boring exploration are presented on the boring logs in Appendix B. A detailed discussion of the geology of the site was presented in Section 1.0.2. Geologic Cross Sections depicting general soil conditions across the site are presented on Figure 15 and 16.

G. Groundwater Data

Historically, depths to groundwater as measured in respect to the top of well casings have ranged from 2.91 feet to 7.65 feet below the top of casing in all wells but MW-5. The static water level in MW-5 was 13.12 feet prior to sampling in September 1995. The average depth to groundwater

based upon the historical data, presented in Table 8, is approximately 5.8 feet below top of well casing.

H. Residual Concentrations

The residual concentrations of petroleum hydrocarbons in soil are referenced in several sections of this report and are depicted along with the analytical data on Figure 5. The only area of groundwater containing residual petroleum hydrocarbons in excess of MTCA Method A cleanup criteria is in the vicinity of MW-4. MW-4 is depicted on Figure 14 along with the analytical results of the two sampling events.

SECTION TWO - ADDITIONAL INFORMATION

2.1 Groundwater Investigation

The first assessment of groundwater conditions and quality at the subject site was performed during AEE's Subsurface Petroleum Hydrocarbon Assessment in November 1994. During this assessment, three, 2-inch diameter groundwater monitoring wells (MW-1, MW-2, & MW-3) were installed to depths of approximately 20 feet below grade. One 4-inch diameter groundwater monitoring well (MW-4) was installed west of the existing UST, to an approximate depth of 24 feet below grade. Monitoring wells MW-2 through MW-4 were installed such that the well screen extended from 5 feet below grade to the bottom of each well. MW-1 was screened from 10 feet below grade to the bottom of the well. Well construction diagrams are presented in Appendix B.

Groundwater was encountered during the boring exploration program at depths ranging from 15 to 16.5 feet below grade within a saturated zone of silt in the glacial till underlying the site. Groundwater was not encountered during the installation of MW-3. This exploration program indicated that the occurrence of groundwater at the site was dictated by the geology of the glacial till.

Subsequent fluid level measurements indicated water levels ranged from 3.64 to 6.43 feet below the tops of the surveyed well casing elevations. At this time, it was uncertain as to whether groundwater was entering the wells at depths above that identified during drilling activities or whether some degree of confining pressure existed due to the overlying glacial till. Fluid level data is summarized in Table 8.

Based upon the groundwater data collected on 7 December 1994, and 11 January 1995, potentiometric surface maps (Figures 8 & 9) were constructed. An inferred groundwater flow direction to the east was interpreted.

During groundwater development and sampling activities, most of the monitoring wells could be purged dry following the removal of 3 to 6 well casing volumes of water. Groundwater quality data included testing for gasoline range petroleum hydrocarbons (GRPH), volatile aromatic compounds (BTEX), lead (total and dissolved), and turbidity. Diesel range petroleum hydrocarbons (DRPH) were not tested during the initial screening due to the absence of soil analytical data confirming its presence at the time of sampling. The laboratory analysis indicated that only the sample obtained from MW-4 contained concentrations of petroleum hydrocarbons in excess of MTCA Method A cleanup levels for groundwater. MW-4 contained a benzene concentration of 13 parts per billion (ppb). This was the only compound which exceeded MTCA criteria. Detectable concentrations of petroleum hydrocarbons were also present in samples obtained from MW-1 and MW-3. A complete summary of the analytical data is presented in Table 2.

Groundwater level measurements were collected on a monthly basis from May to September 1995. Potentiometric surface maps were constructed, and are included as Figures 10 through 13. The data presented in these figures indicates a general trend to the south for the inferred groundwater migration direction.

Observations of the groundwater conditions encountered during the excavation of the petroleum impacted soils associated with the UST area and front parking area indicated no apparent groundwater occurrence above a depth of 10 to 11 feet below grade. The groundwater encountered was observed to slowly seep into the excavations from a more permeable, sandier horizon within the glacial till. The groundwater encountered appeared to be perched upon a denser, less permeable silt layer underlying the water-bearing horizon above. This water bearing unit was less than 2 feet in thickness. No evidence of any groundwater above 10 feet was noted during the extent of the excavation activities.

The groundwater data collected through August 1995 indicated that the occurrence of groundwater at the site was dictated by the geology of the glacial till. The data also indicated that groundwater at the site was unlikely to occur above a depth of 10 feet below grade, and is likely to be perched. The depths to water within the wells are inferred to occur at shallower depths than what would be expected due to confining pressures of the overlying glacial till. This pressure was released during installation of the wells resulting in a rise of the water level.

In September 1995, AEE installed three additional 2-inch monitoring wells (MW-5, MW-6, & MW-7). MW-5 was installed as an upgradient well location in the front parking area. Monitoring wells MW-6 and MW-7 were installed as downgradient monitoring wells for the site in general. The location of these wells was based upon the potential age of the release and upon right-of-way constraints which prohibited installation of the wells in Market Street or 3rd Street West. Due to the potential age of the release, AEE installed these wells to confirm the absence of any dissolved petroleum hydrocarbon plume extending from the site.

Analytical data of groundwater samples from the 8 September 1995 sampling event indicated that the sample from MW-4 contained the only exceedance of the MTCA Method A groundwater cleanup levels for benzene (64 ppb) and total petroleum hydrocarbons (GRPH + DRPH = 1,060 ppb). Detectable concentrations of petroleum hydrocarbons were also present in samples obtained from MW-2, MW-3, and MW-5.

2.1.1 Hydrogeological Investigations (No Groundwater Contamination)

(Not applicable as groundwater contamination was detected.)

2.1.2 Hydrogeological Investigations (With Groundwater Contamination)

A. Potentiometric surface maps are presented in Figures 8 through 13; a summary of fluid level measurements is presented in Table 8.

B. Based upon the soil types observed during the drilling activities and the excavation program, the hydraulic conductivity (K) values were estimated at 10^{-6} cm/sec, which is an average for glacial till soils. Assuming an aquifer thickness of 10 feet (b), transmissivity (T) equals 3.049 x 10^{-4} cm^2/sec (T=Kb). Based upon the hydraulic conductivity value calculated for glacial tills, a known groundwater gradient (h) of 0.04 ft/ft, and an assumed effective soil porosity (n) of 15% , or 0.15, a groundwater velocity was calculated at 2.66 x 10^{-7} cm/sec or 0.275 feet/year, using the equation V = Kh/n.