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February 1, 2011

Paresh C. Khatri
Hazardous Materials Specialist
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT*:* **Fuel Leak Case No. RO0000022**
1310 Central Avenue
Alameda, CA
Report Submittal – *Semi-Annual Groundwater Monitoring Report, First Quarter 2011*

Dear Mr. Khatri:

Please find enclosed the *Semi-Annual Groundwater Monitoring Report, First Quarter 2011* prepared by Matriks for Nissan Saidian, Joe Zadik, and Leon Zektser

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Please call me at 530-406-1760 or email thenderson@matrikscorp.com if you have any questions.

Sincerely,

Tom Henderson
President

SEMI-ANNUAL GROUNDWATER MONITORING REPORT
First Quarter 2011

Alaska Gas
1310 Central Avenue
Alameda, California 94501
LOP Case No. RO0000022

PREPARED FOR:
Nissan Saidian
5733 Medallion Court
Castro Valley, California 94552

SUBMITTED TO:
Alameda County Environmental Health Services
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

February 1, 2011

Project No. 6022

PREPARED BY:
Matriks Corporation
321 Court Street
Woodland, California 95695

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First Quarter 2011

Alaska Gas
1310 Central Avenue
Alameda, California 94501
LOP Case No. RO0000022

Project No. 6022

Matriks Corporation prepared this document under the professional supervision of the person whose seal and signature appears below. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analysis, conclusions, and recommendations contained in this document are based upon site conditions at the time of the investigation, which are subject to change.

The conclusions presented in this document are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this report. The limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other regulatory agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of said user.

Tom Henderson
President

REGISTERED PROFESSIONAL ENGINEER
FRED CHARLES MUELLER
64231
Exp. 6/30/11
CIVIL
STATE OF CALIFORNIA

Fred Mueller, P.E.
Senior Engineer

ACRONYMS AND ABBREVIATIONS

ACEHS	Alameda County Environmental Health Services
AEI	All Environmental, Inc.
amsl	above mean sea level
ASE	Aqua Science Engineers, Inc.
BTEX	benzene, toluene, ethyl-benzene, xylenes
COC	chain-of-custody
DCA	1,2-dichloroethane
DIPE	di-isopropyl ether
EDB	ethylene di-bromide
EDF	electronic data file
ESL	Environmental Screening Level
EtBE	ethyl tert-butyl ether
FS/CAP	Feasibility Study/Corrective Action Plan
Geotracker	Geographical Information Management System
Matriks	Matriks Corporation
MtBE	methyl tert-butyl ether
O&G	oil and grease
µg/L	micrograms per liter
mg/Kg	milligrams per kilogram
ml	milliliter
MW	monitoring well
PDF	portable document format
RWQCB	Regional Water Quality Control Board
SC	specific conductance
tAME	tert-amyl methyl ether
tBA	tert butyl alcohol
UST	underground storage tank
VOA	volatile organic analysis

INTRODUCTION

This report presents the results of the first semi-annual groundwater monitoring event for 2011 conducted by Matriks at Alaska Gas (the "Site"), located at 1310 Central Avenue in Alameda, California. The semi-annual groundwater monitoring event (monitoring event) described in this report was conducted on January 20, 2011 and is part of an ongoing subsurface investigation of petroleum hydrocarbons in soil or groundwater that was caused by an unauthorized release of petroleum fuels from the UST system (tanks, associated piping and dispensers) formerly located at the Site. Matriks is conducting this investigation on behalf of the responsible parties, Mr. Leon Zektser, Mr. Nissan Saidian, and Mr. Joe Zadik. The Alameda County Environmental Health Services (ACEHS) is the lead regulatory agency overseeing Site investigation and remediation and the ACEHS case number is RO0000022. The semi-annual groundwater monitoring program consists of the collection and laboratory analysis of groundwater samples from five groundwater monitoring wells in order to assess concentrations of petroleum hydrocarbon compounds in shallow groundwater.

Site Description and Physical Setting

The Site is currently a retail gasoline fueling station located in an area of mixed commercial and residential properties in the south-central part of the island of Alameda. The Site is located at the intersection of Encinal Avenue, Sherman Street, and Central Avenue. A Site location map is shown on **Figure 1** and a Site plan showing physical features and groundwater monitoring well locations is shown on **Figure 2**.

The Site is relatively flat and the investigation area has a surface elevation of approximately 25 feet amsl. San Francisco Bay and the Alameda Estuary are located approximately one-half mile to the south.

Site History

In May 1996, Petrotek removed three gasoline USTs including one 10,000-gallon, one 7,500-gallon and one 5,000-gallon UST from the western corner of the Site. A 500-gallon waste oil UST adjacent to the building, was also removed from the southern portion of the Site. Fuel dispensers and associated product piping were also removed.

Free-phase petroleum hydrocarbons were observed floating on the groundwater surface in the gasoline UST excavation following removal of the USTs. According to the laboratory analysis, a groundwater sample collected from the gasoline UST excavation contained 2,800 micrograms per liter (µg/L) of total petroleum hydrocarbons as gasoline (TPH-g) and 100 µg/L benzene. Soil samples collected from the same excavation contained up to 5,000 milligrams per kilogram (mg/Kg) of THP-g and 31mg/Kg benzene. Soil samples collected beneath the former dispenser

island contained up to 6,800 mg/Kg TPH-g and 63 mg/Kg benzene. A ground water sample collected in the waste oil UST excavation contained 35,000 µg/L of total petroleum hydrocarbons as diesel (TPH-d) and motor oil range hydrocarbons, and 1,300 µg/L of TPH-g. These results are documented in a *UST Closure Report* submitted by Petrotek in May 1996.

Petrotek reportedly excavated and disposed of approximately 600 cubic yards of petroleum hydrocarbon-impacted soil from the UST excavations. It does not appear that confirmation soil samples were collected following removal of the petroleum hydrocarbon-impacted soil. Approximately 15,000 gallons of ground water were also removed from the excavations, treated and discharged to the sanitary sewer. Two new gasoline USTs, dispensers and product piping were installed in the same UST excavation after the petroleum hydrocarbon-impacted soil and ground water were removed.

In November 1998, All Environmental Inc. (AEI) advanced 14 soil borings on the Site and collected soil and groundwater samples for analysis. Up to 5,900 mg/Kg of TPH-g was detected in soil samples collected from the borings. Up to 120,000 µg/L TPH-g and 7,200 µg/L benzene were detected in groundwater samples from the borings.

In October 1999, HerSchy Environmental installed three monitoring wells at the Site. The initial sampling yielded up to 43,000 µg/L TPH-g, 8,700 µg/L total petroleum hydrocarbons as diesel (TPH-d), 480 µg/L benzene, and 1,600 µg/L methyl tert-butyl ether (MtBE) were detected in groundwater samples from the wells. The groundwater flow direction was southwesterly under a gradient of 0.0085. Well construction details are presented in **Table 1**.

On May 16, 2000, Aqua Science Engineers (ASE) began quarterly monitoring at the Site. Groundwater samples collected from MW-1 contained 20,000 µg/L TPH-g, 38 µg/L benzene, 6.3 µg/L toluene, 740 µg/L ethyl benzene, and 1,600 µg/L total xylenes. No MtBE or other oxygenates were detected in the sample from MW-1. No hydrocarbons were detected in the groundwater sample taken from MW-2. The groundwater sample from MW-3 contained 17,000 µg/L TPH-g, 2,800 µg/L benzene, 60 µg/L toluene, 380 µg/L ethyl benzene, 190 µg/L total xylenes, 990 µg/L MtBE, 9.1 µg/L tert-amyl methyl ether (TAME), and 350 µg/L tert butyl alcohol (tBA).

On July 28, 2000, ASE advanced 12 Geoprobe borings (borings BH-A through BH-L) to further delineate the lateral and vertical extent of petroleum hydrocarbons and collected soil and grab groundwater samples from each borings. Laboratory analysis detected 0.00061 mg/Kg of MtBE in a soil samples collected from 3.0 feet (ft) below ground surface in boring BH-J. There were no petroleum hydrocarbons or oxygenates detected in soil samples from the other 11 borings, however, petroleum hydrocarbons and oxygenates were detected in grab groundwater samples collected from borings BH-A, B, C, D, I, J, K, and L.

In December 2002, ASE conducted an investigation to assess whether subsurface utility line trenches may provide a groundwater movement pathway. ASE concluded that it did not appear that the utility line trenches act as groundwater movement pathways. This conclusion

was based on ASE's assumption that the utility line trench backfill material is native sandy soil and that the highest concentrations of petroleum hydrocarbons in the 12 Geoprobe borings soil samples were located beyond the utility line trenches. Although ASE concluded that the utility line trenches did not provide a groundwater movement pathway, the ACEHS requested that water samples be collected from the sewer in one of the trenches to assess whether petroleum hydrocarbon-impacted groundwater may have entered the sewer line through seams or cracks.

In January 2004, ASE drilled four additional soil borings, BH-M through BH-P and the soil samples collected from each boring contained concentrations of TPH-d, with the highest concentration of 68 mg/Kg detected in BH-M. No TPH-d, BTEX or oxygenates were detected in any of the other soil samples. The groundwater samples collected from the borings contained TPH-d concentrations as high as 170 µg/L and the groundwater sample collected from boring BH-O also contained 19 µg/L MtBE. None of the other groundwater samples contained detectable concentrations of TPH-g, BTEX or oxygenates. Groundwater samples were also collected from the sewer line beneath Central Avenue, both up gradient and down gradient of the Site. Low concentrations of TPH-g were detected in both samples. No BTEX or oxygenates were detected in either of these samples. The source of the TPH-g was not conclusively identified.

In December 2005, ASE conducted a records search at the Alameda City Public Works Agency and the California Department of Water Resources to identify water wells with ½ mile radius of the Site. A total of 25 wells were located within the search radius. The results included three domestic wells, 10 irrigation wells, one industrial well, two cathodic protection wells, four groundwater monitoring wells, and five vapor extraction wells. The nearest well is located more than 1,000 feet east of the Site. The nearest, potentially down gradient, well is located approximately 1,260 feet northwest of the Site. Based on the records search, ASE proposed additional soil and groundwater assessment for the Site.

In April 2006, ASE advanced two additional borings and installed two groundwater monitoring wells. Borings BH-Q, BH-R and monitoring wells MW-4 and MW-5 were installed using a drill rig equipped with an 8-inch hollow-stem auger. Petroleum hydrocarbons were detected by laboratory analysis at a concentration of 11 mg/Kg TPH-d in a soil sample from BH-Q and 1.7 mg/Kg TPH-d in a soil sample from the boring MW-5. The laboratory noted that the hydrocarbons reported as TPH-D in each sample did not exhibit a typical diesel chromatogram pattern. None of the soil samples contained detectable concentrations of TPH-g, BTEX or oxygenates.

Groundwater samples collected from BH-Q and BH-R contained detectable concentrations of petroleum hydrocarbon of 220 µg/L TPH-d and 770 µg/L TPH-d, respectively. Similar to the soil samples, the laboratory noted the hydrocarbons reported as TPH-d did not exhibit a typical diesel chromatogram pattern. Based on the results of this investigation, ASE recommended no further delineation of the extent of petroleum hydrocarbons in soil or groundwater.

From April 2006 to March 2009, groundwater monitoring well samples have been collected and analyzed on a quarterly basis. The monitoring schedule for the Site has been reduced to a semi-annual basis as directed in a letter from the ACEHS dated, July 24, 2009. Groundwater monitoring takes place during the first and third quarters.

In June 2008, the Site owners contracted with Matriks to conduct groundwater monitoring and prepare for further Site remediation.

Matriks submitted the *Site Investigation Workplan*, dated September 16, 2009, to the ACEHS. The workplan was prepared in accordance with an ACEHS directive issued in a letter dated August 13, 2009. The proposed scope of work included the installation of four soil borings to further investigate the vertical extent of the release, define the contaminate plume, and evaluate on and off-site risks.

The ACEHS approved the *Site Investigation Workplan* (Workplan), with modifications to the proposed scope of work, in a letter date October 22, 2009. Four borings were pushed in the vicinity of the existing tanks to a maximum depth of 20 fbg. Free product was observed in several of the borings with TPH-d in groundwater at concentrations up to 1,100,000 µg/L. Matriks prepared a *Site Investigation Report*, dated December 15, 2010, documenting the findings. A final Corrective Action Plan and Feasibility Study is being prepared for ACEHS.

SCOPE OF WORK

The scope of work conducted for this semi-annual groundwater monitoring event included the following tasks:

- Measurement of static water levels in five groundwater monitoring wells;
- Collection of field water quality parameters including pH, temperature, and specific conductance (SC) from groundwater in each well;
- Purging at least three casing volumes from each well;
- Collection and analysis of groundwater water samples from each well for THP-d, TPH-g, BTEX, MtBE, DIPE, EtBE, tAME, tBA, methanol, ethanol, EDB, and DCA (see the *Monitoring Well Purging and Sampling* section of this report for analytical methods used);
- Update of the Geotracker database; and
- Preparation of this *Semi-Annual Monitoring Report*.

METHODS AND PROCEDURES

Groundwater Level Measurements

Prior to measuring the depth to groundwater, the cap of each well was removed and the water level was given an opportunity to equilibrate with atmospheric pressure for approximately 30 minutes before recording measurements using an electronic water depth indicator. The static water levels were referenced to the surveyed marks notched into the top of each well casing and the depth-to-water measurements were used to calculate the purge volume of for each monitoring well.

Monitoring Well Purging and Sampling

At least three well volumes were purged from each well using a new disposable bailer. Groundwater temperature, pH, and SC were measured intermittently during purging. Measurements were obtained with a Hanna multi-meter, which was calibrated by the equipment rental service prior to on-site use. Water quality measurements were recorded on monitoring well sampling logs, copies of which are included in **Appendix A**. Well purge water was placed into labeled and sealed 55-gallon, DOT-approved steel drums and temporarily stored on-site.

A new disposable bailer dedicated to each well, was used to remove the groundwater samples and transfer them to the appropriate laboratory prepared containers. Care was taken to remove the headspace in each container. Each sample container was labeled with the project number, sample ID, and collection date. The same information was recorded on the laboratory chain-of-custody form. Samples were stored in a cooler filled with ice for transport to the laboratory.

Samples were transported and submitted to McCampbell Analytical, Inc. of Pittsburg, California (DHS ELAP Certification No. 1644) and analyzed for TPH-g and TPH-d by EPA Method 8015 modified; for BTEX by EPA Method 8021B; and for MtBE, DIPE, EtBE, tAME, tBA, methanol, ethanol, EDB, and DCA by EPA Method 8260B.

RESULTS

Groundwater Levels and Gradient

Depth to water was measured in each monitoring well. The groundwater flow direction for this monitoring event was calculated to be northwest with a gradient of 0.02. Well construction details are presented in **Table 1**. Groundwater levels and elevations are summarized in **Table 2**. Groundwater elevation contours are depicted on **Figure 3**. Graphs of groundwater elevation versus time for all monitoring wells are presented on **Figure 4**.

Groundwater Analytical Results

TPH-g was detected by laboratory analysis in the highest concentrations in onsite groundwater monitoring wells MW-1, MW-3, and MW-5. TPH-g was detected in MW-1, MW-3, and MW-5 at concentrations of 1,100 µg/L, 7,700 µg/L, and 340 µg/L, respectively. TPH-g was not detected in groundwater samples collected from the other monitoring wells.

Benzene was also detected in MW-1, 3, and 5 at concentrations of 0.85 µg/L, 100 µg/L, and 3 µg/L, respectively. Benzene was not detected in samples collected from the other two groundwater monitoring wells. MtBE was detected above the MCLs in MW-1, MW-3, and MW-5 at concentrations of 7.7 µg/L, 85 µg/L, and 450 µg/L, respectively.

TPH-d was detected above the MCLs in monitoring wells MW-1, MW-3, MW-4, and MW-5 at concentrations of 590 µg/L, 3,500 µg/L, 210 µg/L, and 280 µg/L, respectively. TPH-d was detected in groundwater samples collected from MW-2 at 90 µg/L.

Groundwater analytical results for the first quarter are summarized in **Table 3** and previous groundwater monitoring events are summarized in **Table 4**. A copy of the laboratory analytical report is included in **Appendix B**. **Figure 5** shows TPH-g and benzene concentration trends in well MW-1 and **Figure 6** shows these same concentration trends in MW-3.

Geotracker Requirements

All analytical data were submitted electronically to the California State Water Resources Control Board Geotracker database as required by AB2886 (Water Code Section 13195-13198). EDFs are prepared and formatted by the laboratory and submitted by Matriks. Well latitudes, longitudes (GEO_XY files), and elevations (GEO_Z files) were previously submitted to the database. A well status and usage report (GEO_WELL file) is submitted for each monitoring event. A complete electronic copy of this report (GEO_REPORT file) in PDF format was also submitted. Updated maps (GEO_MAP files) are submitted when site features such as monitoring wells or soil borings are added.

DISCUSSION

The site investigation performed in November 2010 indicated free product remains in areas beyond the extent of the existing monitoring wells. Free product was observed in several boring locations. Elevated concentrations of diesel and gas were observed in both soil and groundwater samples. Diesel product has only been dispensed from the site since the new tanks were installed in 1996. Although the diesel tank is still at the location, diesel has not been dispensed since 2006. Existing diesel lines have been drained back to the tank, all diesel nozzles have been removed from the dispensers and the diesel turbine has been locked out at the electrical box.

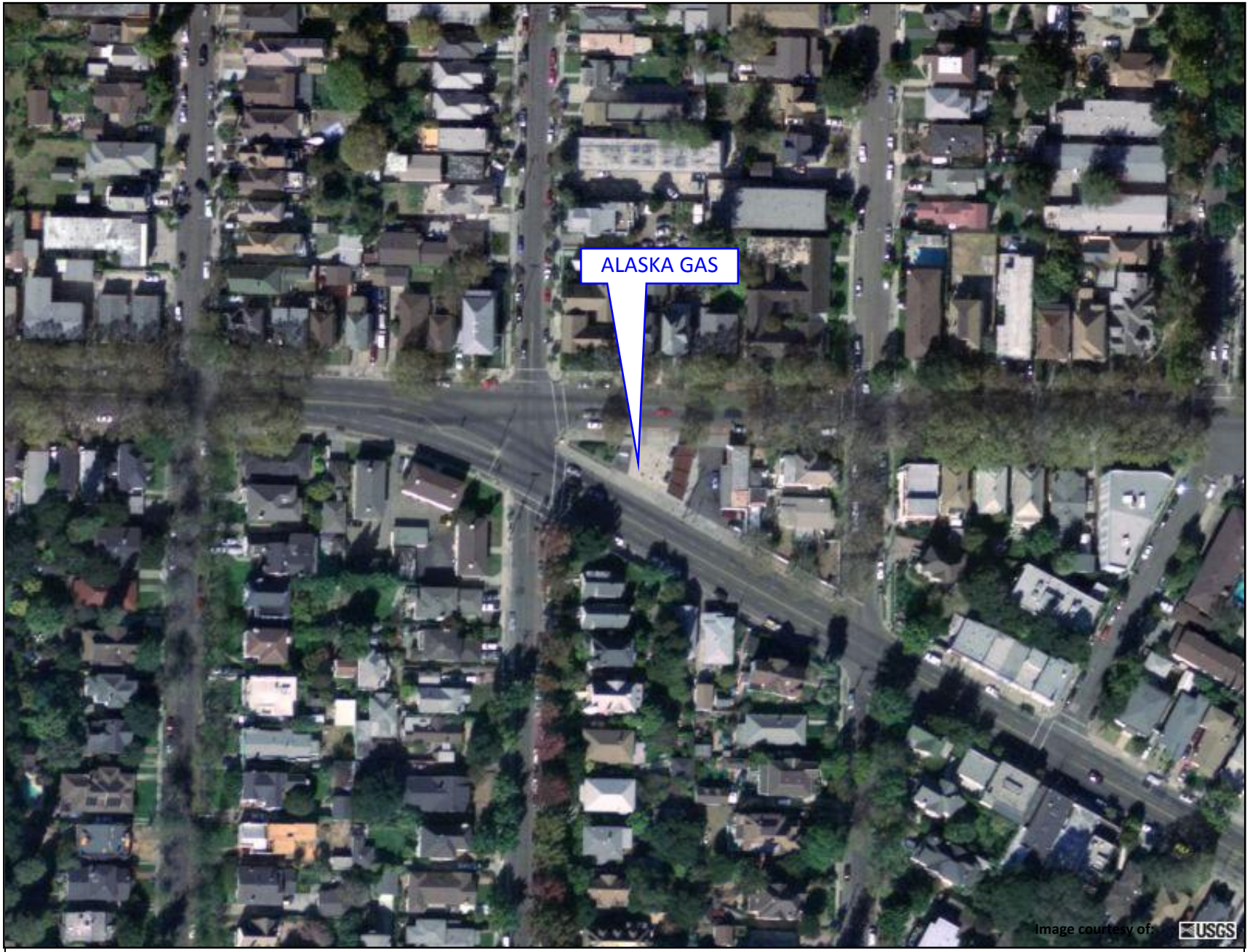
TPH-d concentrations appear to be decreasing in upgradient monitoring well MW-2 but increasing in all other wells since the second monitoring event of 2006. Overall, TPH-g has shown a decreasing trend in all monitoring wells except MW-3 which has had a slight increasing trend since 2008. MtBE, tBA, and BTEX all appear to be decreasing with time in all wells. Wells MW-3 and MW-5 remain above the ESLs for TPH-g, TPH-d, benzene, MtBE, and tBA.

The detection of TPH-g, benzene, and MtBE above the ESLs in well MW-5 appears to indicate that petroleum hydrocarbons are migrating down gradient from the Site. MtBE was detected in down gradient well MW-4 at a concentration of 0.70 µg/L. This concentration is less than the ESL for MTBE of 5 µg/L but this also appears to indicate that petroleum hydrocarbons are migrating down gradient within groundwater.

RECOMMENDATIONS

Site analytical indicates elevated hydrocarbon concentrations remain in both soil and groundwater. Matriks is preparing a final Corrective Action Plan and Feasibility Study for the site. The report is expected to be submitted on March 15, 2011.

FIGURES



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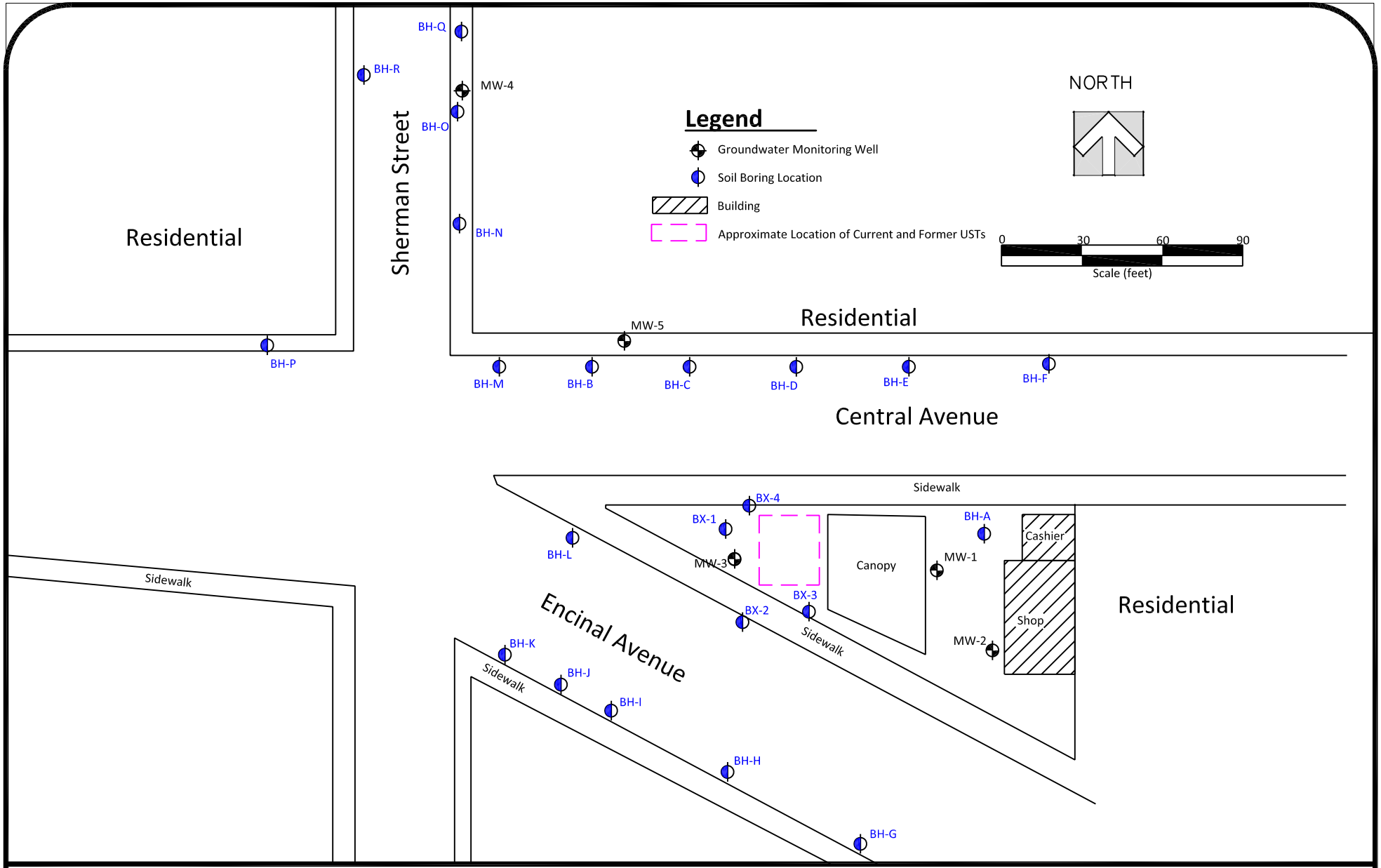
Site Location Map
Alaska Gas
1310 Central Avenue, Alameda, CA

FIGURE 1



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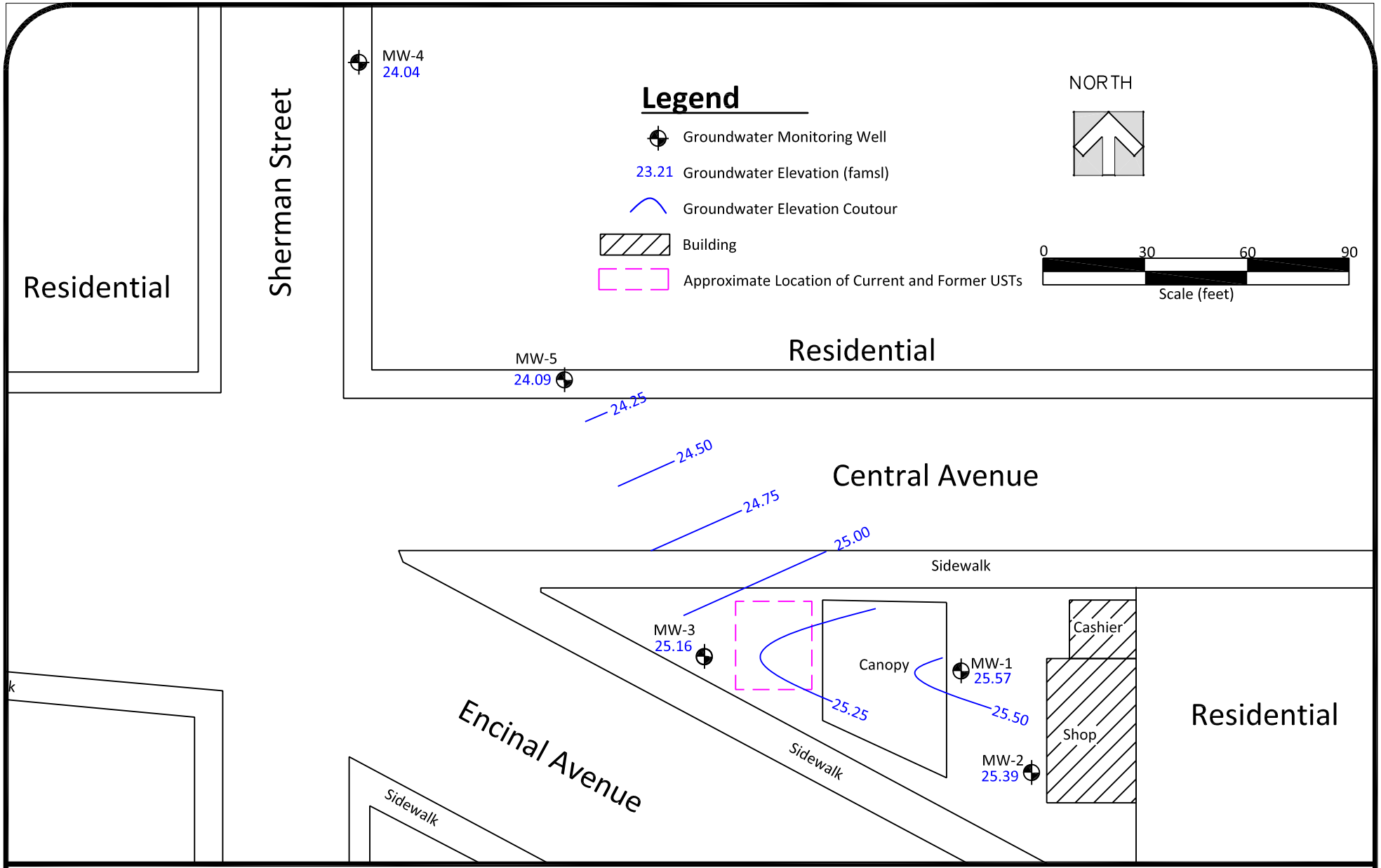
Site Map

Alaska Gasoline
1310 Central Avenue
Alameda, California

Project #: 6022	Figure: 2
Date: 02/01/2011	
Scale: as shown	



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Groundwater Elevations on January 20, 2011

Alaska Gasoline
1310 Central Avenue
Alameda, California

Project #: 6022	Figure: 3
Date: 02/01/2011	
Scale: as shown	

Figure 4 Monitoring Well Hydrograph
Alaska Gas
Alameda, CA

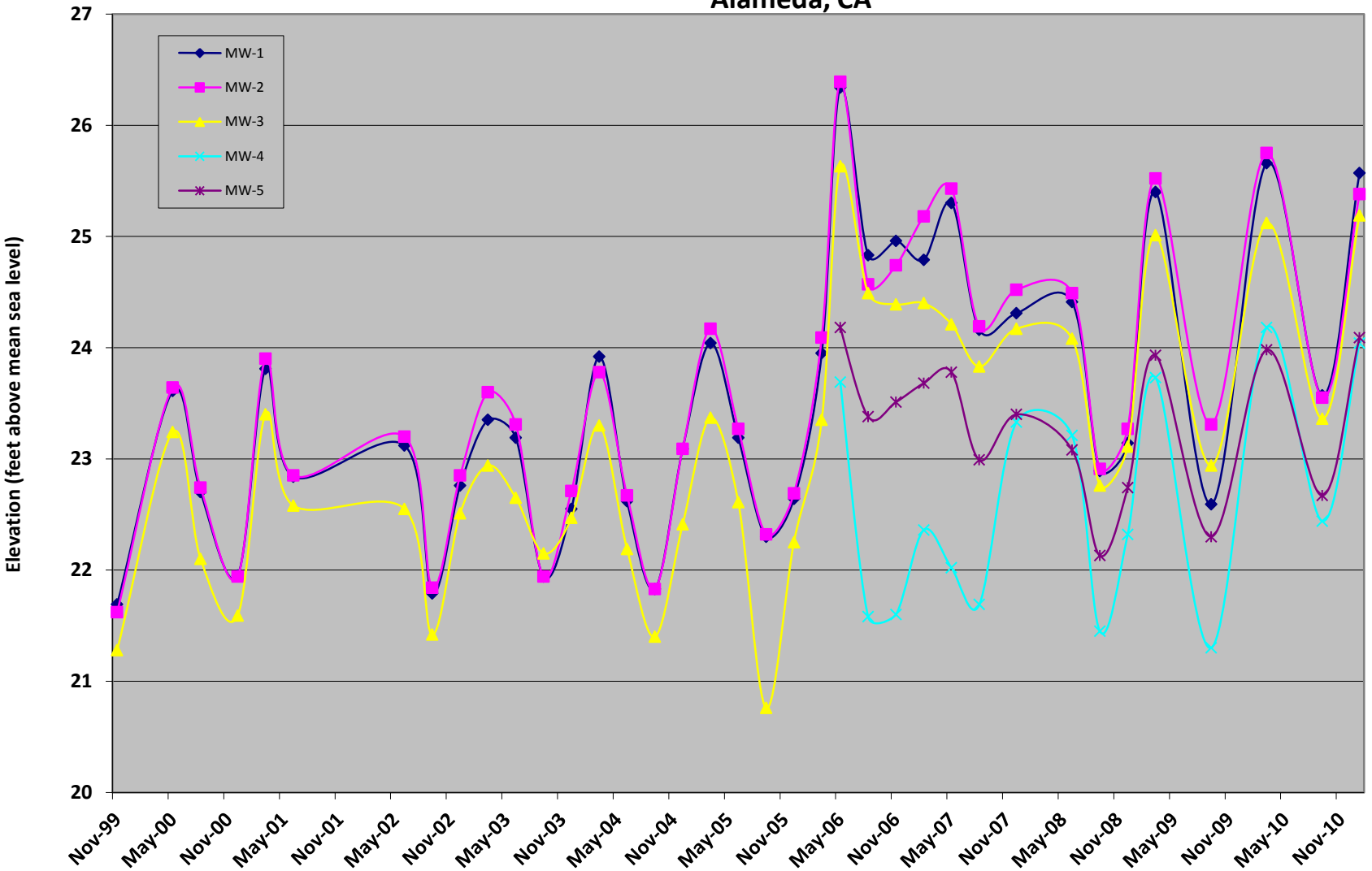


Figure 5. TPH and Benzene vs. Time in Well MW-1
Alaska Gas
Alameda, California

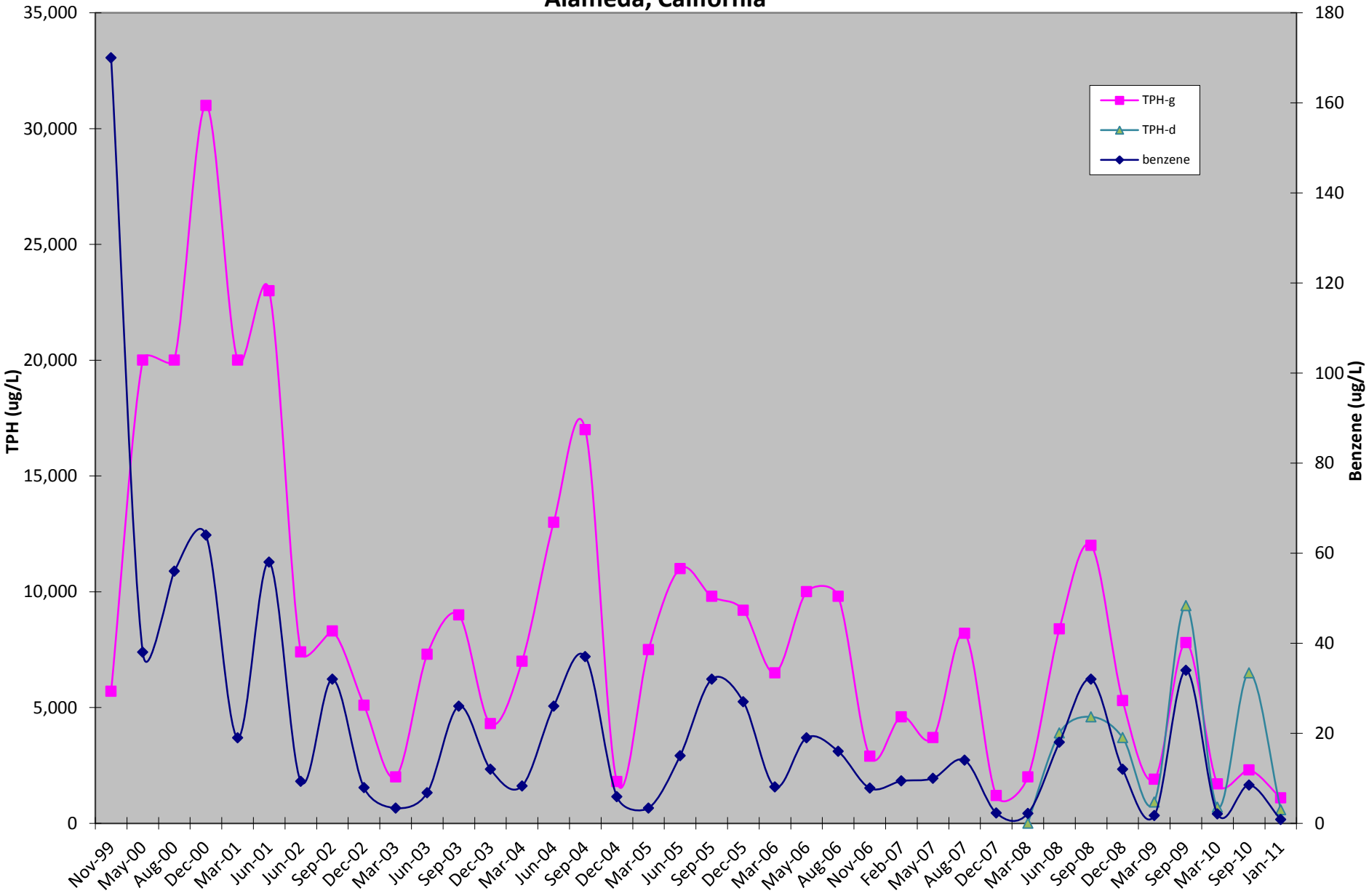
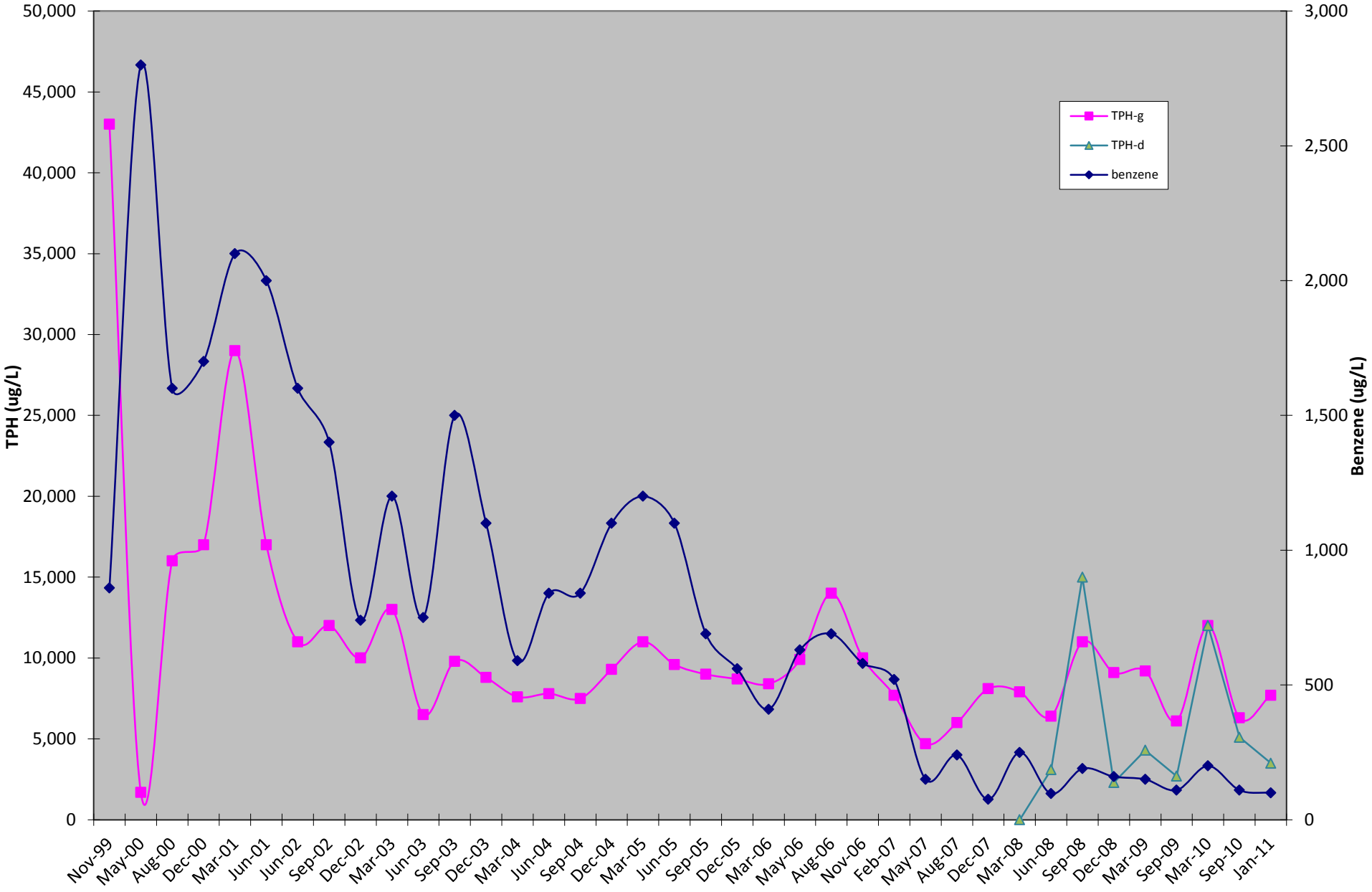


Figure 6. TPH and Benzene vs Time in Well MW-3
Alaska Gas
Alameda, California



TABLES

Table 1
Well Construction Details
Alaska Gas
Alameda, California

Well ID	Date Installed	Total Depth (feet bg)	Screened Interval (feet bg)	Water-Bearing Zone	Screen Slot Size (inches)	Filter Pack Interval (feet bg)	Bentonite Interval (feet bg)	Grout Interval (feet bg)	TOC Elevation (feet amsl)	Northing Coordinates (feet)	Westing Coordinates (feet)
MW-1	10/11/99	18	17.35-2.5	Silty Sand	0.02	18-1.5	1.5-0.5	0.5-0	29.18	15.20394	46.13606
MW-2	10/11/99	18	18-4	Silty Sand	0.02	18-3	3-1.5	1.5-0	29.55	14.93558	45.97882
MW-3	10/11/99	20	19-4	Silty Sand	0.02	20-3	3-1.5	1.5-0	27.74	15.28672	47.24157
MW-4	04/03/06	16	15-5	Sand-Clayey Sand	0.02	15-4.5	4.5-4	4-0.5	26.23	17.12115	48.05243
MW-5	04/04/06	17	15-5	Sand-Clayey Sand	0.02	15-4.5	4.5-4	4-0.5	26.78	16.21022	47.48996

Table 2
Groundwater Elevation Data
Alaska Gas
Alameda, California

Well ID	Date	Top of Casing Elevation (msl)	Depth to Water (feet)	Groundwater Elevation
MW-1	11/06/99	26.85	5.16	21.69
	05/16/00		3.24	23.61
	08/03/00		4.15	22.70
	12/05/00		4.90	21.95
	03/05/01		3.04	23.81
	06/04/01		4.01	22.84
	06/05/02		3.73	23.12
	09/09/02		5.06	21.79
	12/19/02		4.09	22.76
	03/10/03		3.50	23.35
	06/03/03		3.66	23.19
	09/19/03		4.91	21.94
	12/22/03		4.30	22.55
	03/12/04		2.93	23.92
	06/11/04		4.23	22.62
	09/13/04		5.02	21.83
	12/16/04		3.76	23.09
	03/21/05		2.81	24.04
	06/23/05		3.66	23.19
	09/30/05		4.55	22.30
	12/08/05		4.21	22.64
	03/01/06		2.90	23.95
	05/25/06	29.18	2.84	26.34
	08/10/06		4.35	24.83
	11/21/06		4.22	24.96
	02/06/07		4.39	24.79
	05/08/07		3.88	25.30
	08/06/07		5.02	24.16
	12/26/07		4.87	24.31
	06/28/08		4.77	24.41
	09/27/08		6.29	22.89
	12/30/08		6.04	23.14
	03/28/09		3.78	25.40
	09/12/09		6.59	22.59
	03/30/10		3.52	25.66
	09/30/10		5.61	23.57
	01/20/11		3.61	25.57

Table 2
Groundwater Elevation Data
Alaska Gas
Alameda, California

Well ID	Date	Top of Casing Elevation (msl)	Depth to Water (feet)	Groundwater Elevation
MW-2	11/06/99	27.18	5.56	21.62
	05/16/00		3.54	23.64
	08/03/00		4.44	22.74
	12/05/00		5.24	21.94
	03/05/01		3.28	23.90
	06/04/01		4.33	22.85
	06/05/02		3.98	23.20
	09/09/02		5.34	21.84
	12/19/02		4.33	22.85
	03/10/03		3.58	23.60
	06/03/03		3.87	23.31
	09/19/03		5.24	21.94
	12/22/03		4.47	22.71
	03/12/04		3.40	23.78
	06/11/04		4.51	22.67
	09/13/04		5.35	21.83
	12/16/04		4.09	23.09
	03/21/05		3.01	24.17
	06/23/05		3.91	23.27
	09/30/05		4.86	22.32
	12/08/05		4.49	22.69
	03/01/06		3.09	24.09
	05/25/06	29.55	3.16	26.39
	08/10/06		4.98	24.57
	11/21/06		4.81	24.74
	02/06/07		4.37	25.18
	05/08/07		4.12	25.43
	08/06/07		5.36	24.19
	12/26/07		5.03	24.52
	06/28/08		5.06	24.49
	09/27/08		6.64	22.91
	12/30/08		6.28	23.27
	03/28/09		4.03	25.52
	09/12/09		6.24	23.31
	03/30/10		3.80	25.75
	09/30/10		6.00	23.55
	01/20/11		4.17	25.38

Table 2
Groundwater Elevation Data
Alaska Gas
Alameda, California

Well ID	Date	Top of Casing Elevation (msl)	Depth to Water (feet)	Groundwater Elevation
MW-3	11/06/99	25.3	4.02	21.28
	05/16/00		2.06	23.24
	08/03/00		3.20	22.10
	12/05/00		3.71	21.59
	03/05/01		1.90	23.40
	06/04/01		2.72	22.58
	06/05/02		2.75	22.55
	09/09/02		3.88	21.42
	12/19/02		2.79	22.51
	03/10/03		2.36	22.94
	06/03/03		2.65	22.65
	09/19/03		3.15	22.15
	12/22/03		2.83	22.47
	03/12/04		2.00	23.30
	06/11/04		3.11	22.19
	09/13/04		3.90	21.40
	12/16/04		2.89	22.41
	03/21/05		1.93	23.37
	06/23/05		2.69	22.61
	09/30/05		4.54	20.76
	12/08/05		3.05	22.25
	03/01/06		1.95	23.35
	05/25/06	27.74	2.11	25.63
	08/10/06		3.25	24.49
	11/21/06		3.35	24.39
	02/06/07		3.34	24.40
	05/08/07		3.53	24.21
	08/06/07		3.91	23.83
	12/26/07		3.57	24.17
	06/28/08		3.66	24.08
	09/27/08		4.98	22.76
	12/30/08		4.63	23.11
	03/28/09		2.73	25.01
	09/12/09		4.80	22.94
	03/30/10		2.62	25.12
	09/30/10		4.38	23.36
	01/20/11		2.58	25.16

Table 2
Groundwater Elevation Data
Alaska Gas
Alameda, California

Well ID	Date	Top of Casing Elevation (msl)	Depth to Water (feet)	Groundwater Elevation
MW-4	05/25/06	26.23	2.54	23.69
	08/10/06		4.65	21.58
	11/21/06		4.63	21.60
	02/06/07		3.87	22.36
	05/08/07		4.21	22.02
	08/06/07		4.54	21.69
	12/26/07		2.90	23.33
	06/28/08		3.02	23.21
	09/27/08		4.78	21.45
	12/30/08		3.91	22.32
	03/28/09		2.50	23.73
	09/12/09		4.93	21.30
	03/30/10		3.43	22.80
	09/30/10		3.79	22.44
	01/20/11		2.19	24.04
MW-5	05/25/06	26.78	2.60	24.18
	08/10/06		3.40	23.38
	11/21/06		3.27	23.51
	02/06/07		3.10	23.68
	05/08/07		3.00	23.78
	08/06/07		3.79	22.99
	12/26/07		3.38	23.40
	06/28/08		3.70	23.08
	09/27/08		4.65	22.13
	12/30/08		4.04	22.74
	03/28/09		2.85	23.93
	09/12/09		4.48	22.30
	03/30/10		2.80	23.98
	09/30/10		4.11	22.67
	01/20/11		2.69	24.09

All measurements are in feet. DTW = Depth to water below top of PVC casing.
TOC = Top of casing. ELEV = Elevation above mean sea level.
Wells resurveyed on April 27, 2006

Table 3
Groundwater Analytical Results
First Quarter 2011
January 20, 2011
Alaska Gas
Alameda, California

Well ID	Date	TPH-g	TPH-d	benzene	toluene	ethyl-benzene	xylenes	MtBE	tAME	tBA	Other Oxygenates
MW-1	01/20/11	**1,100**[1,2]	**590**[+^†]	0.85	6.6	**34**	**42**	**7.7**	<0.5	<2.0	<0.5
MW-2	01/20/11	<50	90[+†]	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<2.0	<0.5
MW-3	01/20/11	**7,700***	**3,500**[+^]	**100**	20	20	16	**85**	3.4	**41**	<1.7
MW-4	01/20/11	<50	**210**[+†]	<0.5	<0.5	<0.5	<0.5	0.70	<0.5	<2.0	<0.5
MW-5	01/20/11	**340***	**280**[+^†]	**3.0**	2.0	<0.5	1.2	**450**	<10	**100**	<10
ESL		100	100	1.0	40	30	20	5	NE	12	NA
WQO				1.0	150	700	1750	5		12	

Notes:

Units are micrograms per liter (ug/L).

TPH-g total petroleum hydrocarbons as gasoline

TPH-d total petroleum hydrocarbons as diesel

MtBE methyl tert-butyl ether

tAME tert-amyl methyl ether

tBA tert-butanol

* Laboratory noted that weakly modified or unmodified gasoline is significant

\+ Laboratory noted that diesel range compounds are significant; no recognizable pattern

^ Laboratory noted that gasoline range compounds are significant

† Laboratory noted that oil range compounds are significant

[1] Laboratory noted that heavier gasoline range compounds are significant

[2] Laboratory noted no recognizable pattern

ESL Environmental Screening Limits

WQO Water Quality Objectives for Site: Per the Region 2, Water Quality Control Plan

Table 4
Historical
Groundwater Analytical Results
Alaska Gas
Alameda, California

Well ID	Date	TPH-g	TPH-d	benzene	toluene	ethyl-benzene	xylenes	MtBE	tAME	tBA	Other Oxygenates
MW-1	11/06/99	**5,700**	**8,700**	**170**	**59**	22	**85**	**20,000**	NA	NA	NA
	05/16/00	**20,000**	<7,500	**38**	6.3	**740**	**1,600**	<5.0	<5.0	<50	<5.0
	08/03/00	**20,000**	<6,000	**56**	9.7	**920**	**1,600**	<0.5	<0.5	<50	<0.5
	12/05/00	**31,000**	<4,000	**64**	27	**820**	**2,200**	<10	<5.0	<50	<5.0
	03/05/01	**20,000**	<4,000	**19**	<5.0	**480**	**870**	<5	<5.0	<50	<5.0
	06/04/01	**23,000**	<7,000	**58**	50	**710**	**2,100**	**5.1**	<5.0	<50	<5.0
	06/05/02	**7,400**	<1,500	**9.3**	6.7	**180**	**230**	<1.0	<1.0	<10	<1.0
	09/09/02	**8,300**	<3500	**32**	20	**390**	**670**	<2.0	<2.0	<20	<2.0
	12/19/02	**5,100**	NS	**7.9**	2.5	**56**	**93**	<1.0	<1.0	<10	<1.0
	03/10/03	**2,000**	<2,000	**3.4**	2.9	**80**	**98**	<0.5	<0.5	<5.0	<0.5
	06/03/03	**7,300**	<4,000	**6.8**	9.9	**300**	**1,000**	2.3	<0.5	<5.0	<0.5
	09/19/03	**9,000**	<3,000	**26**	22	**420**	**1,200**	4.5	<1.5	<20	<1.5
	12/22/03	**4,300**	<2,000	**12**	6.7	**200**	**290**	**9.1**	<1.0	<10	<1.0
	03/12/04	**7,000**	<3,000	**8.3**	8.2	**250**	**760**	3.9	<2.0	<20	<2.0
	06/11/04	**13,000**	<4,000	**26**	27	**530**	**1,700**	<2.5	<2.5	<15	<2.5
	09/13/04	**17,000**	<4,000	**37**	**42**	**840**	**2,000**	<5.0	<5.0	<50	<5.0
	12/16/04	**1,800**	<1,000	**5.9**	1.9	**100**	**35**	**16**	<0.5	<5.0	<0.5
	03/21/05	**7,500**	<3,000	**3.4**	4.2	**290**	**760**	<1.5	<1.5	<20	<1.5
	06/23/05	**11,000**	<8,000	**15**	11	**370**	**910**	2.4	<1.5	<7.0	<1.5
	09/30/05	**9,800**	<4,000	**32**	25	**540**	**680**	1.6	<1.5	<7.0	<1.5
	12/08/05	**9,200**	<4,000	**27**	21	**500**	**490**	2.2	<1.5	<7.0	<1.5
	03/01/06	**6,500**	<4,000	**8.1**	9.4	**370**	**660**	**18**	<1.5	<6.0	<1.5
	05/25/06	**10,000**	<3,000	**19**	14	**900**	**620**	<1.5	<1.5	<7.0	<1.5
	08/10/06	**9,800**	<1,500	**16**	8.1	**640**	**180**	<1.5	<1.5	<7.0	<1.5
	11/21/06	**2,900**	<1,000	**7.8**	2.5	**160**	12	2.5	2.5	<5.0	<0.5
	02/06/07	**4,600**	<1,500	**9.4**	6	**380**	**220**	1	<0.50	<5.0	<0.50
	05/08/07	**3,700**	<800	**10**	4.6	**320**	**86**	1.5	<0.50	<5.0	<0.50
	08/06/07	**8,200**	<2,000	**14**	8.8	**730**	**180**	<0.50	<0.50	<5.0	<0.50
	12/26/07	**1,200**	<300	**2.3**	1.1	**89**	21	4.8	<0.50	<5.0	<0.50
	03/31/08	**2,000**	<800	**2.2**	1.6	**99**	**75**	1.8	<0.50	<5.0	<0.50
	06/28/08	**8,400**	**3900***	**18**	26	**670**	**1,100**	<2.5	<2.5	<10	<2.5
	09/27/08	**12,000**	**4600***	**32**	**49**	**1,200**	**680**	<25	<25	<100	<25
	12/30/08	**5,300**	**3,700**	**12**	31	**300**	**27**	**7.1**	<5.0	<20	<5.0
	03/28/09	**1,900**	**920***	<1.7	<1.7	**77**	**58**	**22**	<1.7	<6.7	<1.7
	09/12/09	**7,800**	**9,400**	**34**	**110**	**690**	**200**	3.0	<0.5	140	<0.5
	03/30/10	**1,700**	**700***	**2.1**	14	**40**	9.5	**14**	<0.5	7.8	<0.5
	09/30/10	**2,300**	**6,500***	**8.5**	23	**150**	**29**	4	<0.5	2.2	<0.5
	01/20/11	**1,100**	**590**	0.85	6.6	**34**	**42**	**7.7**	<0.5	<2.0	<0.5

Table 4
Historical
Groundwater Analytical Results
Alaska Gas
Alameda, California

Well ID	Date	TPH-g	TPH-d	benzene	toluene	ethyl-benzene	xylenes	MtBE	tAME	tBA	Other Oxygenates
MW-2	11/06/99	**6,000**	70	**1,300**	92	50	400	**6,800**	NA	NA	NA
	05/16/00	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	08/03/00	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	12/05/00	<50	**1,400**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	03/05/01	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	06/04/01	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	06/05/02	<50	**2,300**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	09/09/02	<50	**1,300**	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<5.0	<0.5
	12/19/02	<50	--	<0.5	<0.5	<0.5	<0.5	**16**	<0.5	<5.0	<0.5
	03/10/03	<50	**3,000**	<0.5	<0.5	<0.5	<0.5	1	<0.5	<5.0	<0.5
	06/03/03	<50	**700**	<0.5	<0.5	<0.5	<0.5	2	<0.5	<5.0	<0.5
	09/19/03	<50	**1,400**	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<5.0	<0.5
	12/22/03	<50	**1,000**	<0.5	<0.5	<0.5	<0.5	**39**	<0.5	<5.0	<0.5
	03/12/04	<50	**250**	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<5.0	<0.5
	06/11/04	<50	**920**	<0.5	<0.5	<0.5	<0.5	0.75	<0.5	<5.0	<0.5
	09/13/04	<50	**140**	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<5.0	<0.5
	12/16/04	<50	**150**	<0.5	<0.5	<0.5	<0.5	**12**	<0.5	<5.0	<0.5
	03/21/05	<50	**130**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	06/23/05	<50	**1,100**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	09/30/05	<50	**300**	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<5.0	<0.5
	12/08/05	<50	**600**	<0.5	<0.5	<0.5	<0.5	1.9	<0.5	<5.0	<0.5
	03/01/06	<50	**920**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	05/25/06	<50	**160**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	08/10/06	<50	**870**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	11/21/06	<50	**130**	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	<5.0	<0.5
	02/06/07	<50	**450**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	05/08/07	<50	**160**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	08/06/07	<50	**180**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	12/26/07	<50	**190**	<0.5	<0.5	<0.5	<0.5	2.9	<0.5	<5.0	<0.5
	03/31/08	Inaccessable Not Sampled									
	06/28/08	<50	**180**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<2.0
	09/27/08	<50	78	<0.5	<0.5	<0.5	<0.5	**7**	<0.5	<2.0	<0.5
	12/30/08	<50	**100**	<0.5	<0.5	<0.5	<0.5	**13**	<0.5	<0.5	<0.5
	03/28/09	<50	60	<0.5	<0.5	<0.5	<0.5	**5.4**	<0.5	<0.5	<0.5
	09/12/09	<50	91	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<2.0	<0.5
	03/30/10	<50	**150**	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<2.0	<0.5
	09/30/10	<50	**310**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5
	01/20/11	<50	90	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<2.0	<0.5

Table 4
Historical
Groundwater Analytical Results
Alaska Gas
Alameda, California

Well ID	Date	TPH-g	TPH-d	benzene	toluene	ethyl-benzene	xylenes	MtBE	tAME	tBA	Other Oxygenates
MW-3	11/06/99	**43,000**	**870**	**860**	**70**	<0.5	65	**120,000**	NA	NA	NA
	05/16/00	**17,000**	<5,000	**2,800**	**60**	380	190	**990**	9.1	**350**	<5.0
	08/03/00	**16,000**	<2,000	**1,600**	29	210	53	**1,200**	21	**260**	<2.0
	12/05/00	**17,000**	**5800**	**1,700**	**45**	460	240	**1,100**	21	**230**	<5.0
	03/05/01	**29,000**	<1,300	**2,100**	**68**	280	100	**180**	<8.0	<80	<8.0
	06/04/01	**17,000**	<6,000	**2,000**	**56**	340	230	**300**	<10	**130**	<10
	06/05/02	**11,000**	<2,000	**1,600**	**46**	**210**	**47**	**790**	<10	**220**	<10
	09/09/02	**12,000**	<800	**1,400**	**44**	**130**	**27**	**760**	<10	**160**	<5.0
	12/19/02	**10,000**	NS	**740**	32	**180**	**38**	**86**	<5.0	<50	<5.0
	03/10/03	**13,000**	<6,000	**1,200**	**42**	**240**	**35**	**470**	5.3	**140**	<2.5
	06/03/03	**6,500**	<3,000	**750**	21	**46**	15	**1,300**	<50	**280**	<10
	09/19/03	**9,800**	<3,000	**1,500**	38	**170**	**32**	**420**	<10	**150**	<5.0
	12/22/03	**8,800**	<2,000	**1,100**	32	**82**	20	**330**	5.8	**52**	<2.5
	03/12/04	**7,600**	<3,000	**590**	23	**69**	17	**470**	9.2	**63**	<1.5
	06/11/04	**7,800**	<2,000	**840**	19	**58**	15	**710**	12	**140**	<2.5
	09/13/04	**7,500**	<1,500	**840**	17	23	7.8	**730**	15	**93**	<2.5
	12/16/04	**9,300**	<2,000	**1,100**	26	**76**	13	**600**	12	**130**	<2.5
	03/21/05	**11,000**	<3,000	**1,200**	37	**190**	**24**	**460**	9.3	**100**	<2.5
	06/23/05	**9,600**	<4,000	**1,100**	28	**93**	**23**	**370**	8.2	**67**	<1.5
	09/30/05	**9,000**	<3,000	**690**	18	**32**	14	**380**	8.4	**72**	<1.5
	12/08/05	**8,700**	<3,000	**560**	23	**38**	12	**350**	6.9	**82**	<1.5
	03/01/06	**8,400**	<2,000	**410**	24	**42**	13	**360**	8	**58**	<1.5
	05/25/06	**9,900**	<2,000	**630**	25	13	13	**190**	5.3	**59**	<1.5
	08/10/06	**14,000**	<3,000	**690**	**43**	**130**	**26**	**200**	5.4	**70**	<1.5
	11/21/06	**10,000**	<3,000	**580**	37	**96**	**25**	**240**	6.3	**72**	<1.5
	02/06/07	**7,700**	<1,000	**520**	36	**90**	**23**	**260**	7.4	**54**	<1.5
	05/08/07	**4,700**	<800	**150**	0.86	<0.5	<0.5	**170**	5	**52**	<0.5
	08/06/07	**6,000**	<1,000	**240**	26	34	17	**180**	5	**55**	<0.5
	12/26/07	**8,100**	<1,500	**76**	14	17	12	**150**	4.3	**37**	<0.9
	03/31/08	**7,900**	<1,500	**250**	30	**62**	20	**140**	4.5	**47**	<0.90
	06/28/08	**6,400**	**3,100***	**97**	17	19	13	**200**	5.6	**38**	<5.0
	09/27/08	**11,000**	**15,000***	**190**	24	29	16	**160**	<5.0	**40**	<5.0
	12/30/08	**9,100**	**2,300***	**160**	24	**31**	18	**150**	5	**100**	<5.0
	03/28/09	**9,200**	**4,300***	**150**	25	**34**	**22**	**120**	<5.0	**38**	<5.0
	09/12/09	**6,100**	**2,700***	**110**	21	14	18	**170**	<5.0	**38**	<0.5
	03/30/10	**12,000**	**12,000***	**200**	25	**35**	**23**	**96**	<5.0	**58**	<5.0
	09/30/10	**6,300**	**5,100**	**110**	14	6.2	16	**110**	3.8	**16**	<2.5
	01/20/11	**7,700**	**3,500**	**100**	20	20	16	**85**	3.4	**41**	<1.7

Table 4
Historical
Groundwater Analytical Results
Alaska Gas
Alameda, California

Well ID	Date	TPH-g	TPH-d	benzene	toluene	ethyl-benzene	xylenes	MtBE	tAME	tBA	Other Oxygenates
MW-4	05/25/06	**410**	<80	<2.5	<2.5	<2.5	<2.5	**1800**	28	44	<2.5
	08/10/06	<50	<50	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<5.0	<0.5
	11/21/06	<50	<50	<0.5	<0.5	<0.5	<0.5	0.59	<0.5	<5.0	<0.5
	02/06/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	05/08/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5
	08/06/07	<50	<50	<0.5	<0.5	<0.5	<0.5	0.82	<0.5	<5.0	<0.5
	12/26/07	<50	<50	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<5.0	<0.5
	03/31/08	<50	<50	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<5.0	<0.5
	06/28/08	<50	88	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<2.0	<0.5
	09/27/08	<50	<50	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<5.0	<0.5
	12/30/08	<50	<50	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5
	03/28/09	<50	<50	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5
	09/12/09	<50	**240**	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<2.0	<0.5
	03/30/10	<50	<50	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<2.0	<0.5
	09/30/10	<50	<50	<0.5	<0.5	<0.5	<0.5	0.76	<0.5	<2.0	<0.5
	01/20/11	<50	**210**	<0.5	<0.5	<0.5	<0.5	0.70	<0.5	<2.0	<0.5
MW-5	05/25/06	<50	86	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<5.0	<0.5
	08/10/06	55	<50	<0.5	<0.5	<0.5	<0.5	**1,100**	19	9.1	<0.5
	11/21/06	<250	<50	<2.5	<2.5	<2.5	<2.5	**1,500**	25	**28**	<2.5
	02/06/07	**430**	<50	**6.9**	<2.5	<2.5	<2.5	**1,600**	26	**34**	<2.5
	05/08/07	<250	<50	<2.5	<2.5	<2.5	<2.5	**1,200**	20	**38**	<2.5
	08/06/07	**330**	<80	<2.5	<2.5	<2.5	<2.5	**1,000**	20	**39**	<2.5
	12/26/07	**490**	<50	<2.5	<2.5	<2.5	<2.5	**1,000**	18	**28**	<2.5
	03/31/08	**520**	<100	6.0	1.9	<1.5	2.5	**520**	16	**33**	<1.5
	06/28/08	**510**	**290***	**6.2**	1.0	<0.5	2.3	**550**	11	<40	<10
	09/27/08	**670**	**320***	<17	<17	<17	<17	**650**	<17	**95**	<17
	12/30/08	**210**	**130***	<0.5	0.8	0.99	<0.5	**610**	12	<40	<10
	03/28/09	**200**	**100***	<17	<17	<17	<17	**610**	<17	<67	<17
	09/12/09	**230**	**130***	**1.6**	1.3	<0.5	1.4	**540**	11	<40	<10
	03/30/10	**360**	**170***	**2.0**	1.7	<0.5	1.3	**490**	13	<40	<10
	09/30/10	**710**	**310**	**10**	2.6	<1.0	3.1	**400**	<10	<40	<10
	01/19/11	**340**	**280**	**3.0**	2.0	<0.5	1.2	**450**	<10	**100**	<10
ESL		100	100	1.0	40	30	20	5	NE	12	NA
WQO				1.0	150	700	1750	5		12	

Notes:

Units are micrograms per liter (ug/L).

NT analyte not tested

TPH-g total petroleum hydrocarbons as gasoline

TPH-d total petroleum hydrocarbons as diesel

* Laboratory noted that TPH-g range is significant

ESL Environmental Screening Limits

WQO Water Quality Objectives for Site: Per the Region 2, Water Quality Control Plan

MtBE methyl tert-butyl ether

tAME tert-amyl methyl ether

tBA tert-butanol

APPENDIX A

MONITORING WELL PURGE LOGS

MATRIKS CORPORATION MONITORING DATA SHEET

Project #: 6022	Station #: Alameda
Sampler: Truesdale / Neely	Date: 1/20/11
Weather: Clear / Warm	Ambient Air Temperature:
Well ID: MW-1	Well Diameter: (2") 3" 4" 6" 8" ____
Total Well Depth: 18'	Depth to Water: 3' 7.3"
Depth to Free Product:	Thickness of Free Product (feet):
Referenced To:	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:

- Bailer
- (Disposable Bailer)
- Positive Air Displacement
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other ____

Sampling Method:

- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other ____

2.3	(Gals.) X	3	=	6.9	Gallons
1 Case Volume		Specified Volumes		Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	(0.16)	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gallons Removed	Observations
9:59	61.2	6.25	559.9		2	slight sheen/odor/cloudy - grey
10:03	62.4	6.52	522.6		4	Cloudy/odor/sheen
10:09	63.3	6.09	508.0		6	cloudy/odor

Did well dewater? Yes (No)		Gallons actually evacuated:		
Sampling Date:	Sampling Time:	Depth to Water:		
Sample ID:	Laboratory:			
Analyzed for: TPH-g BTEX MtBE Oxys Other:				
Duplicate ID:	Analyzed for: TPH-g BTEX MtBE Oxys Other:			
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

MATRIKS CORPORATION MONITORING DATA SHEET

Project #: 6022	Station #: Alameda Gas
Sampler: Truesdale / Neely	Date: 1/20/11
Weather: Clear / Warm	Ambient Air Temperature:
Well ID: MW-2	Well Diameter: (2") 3" 4" 6" 8" ____
Total Well Depth: 18'	Depth to Water: 4' .2"
Depth to Free Product:	Thickness of Free Product (feet):
Referenced To:	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:
- Bailer
- (Disposable Bailer)
- Positive Air Displacement
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other ____

Sampling Method:
- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other ____

1 Case Volume		Specified Volumes		Calculated Volume
2.24	(Gals.) X	~~3~~	=	6.7 Gallons

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	(0.16)	6"	1.47
3"	0.37	Other	radius^2 * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gallons Removed	Observations
10:20	62.4	5.82	535.0		3 1/2	Rainy Cloudy no smell
10:24	63.5	5.61	536.4		5	Rainy Cloudy
10:28	63.3	5.51	531.2		6.7	still cloudy

Did well dewater? Yes (No)			Gallons actually evacuated:	
Sampling Date:	Sampling Time:		Depth to Water:	
Sample ID:	Laboratory:			
Analyzed for: TPH-g BTEX MtBE Oxys Other:				
Duplicate ID:	Analyzed for: TPH-g BTEX MtBE Oxys Other:			
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

321 Court Street, Woodland, CA 95695 (530) 406-1760

MATRIKS CORPORATION MONITORING DATA SHEET

Project #: 6022	Station #: Alameda Gas
Sampler: Truesdale/Neely	Date: 1-20-10
Weather: Clear - Cool - Warm	Ambient Air Temperature:
Well ID: MW-3	Well Diameter: (2") 3" 4" 6" 8" ____
Total Well Depth: 20'	Depth to Water: 2' 7"
Depth to Free Product:	Thickness of Free Product (feet):
Referenced To:	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

17.42

Purge Method:
- Bailer
- (Disposable Bailer)
- Positive Air Displacement
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other ____

Sampling Method:
- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other ____

2.78 (Gals.) X 3 = 8.3 Gallons
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	(0.16)	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gallons Removed	Observations
9:39	62.1	5.70	809.6		2.5	Clear/Odor/Slight Sheen
9:44	63.1	5.54	767.1		5	Cloudy/odor/Slight sheen
9:48	63.5	6.82	746.9		7.5	" " "

Did well dewater? Yes (No) Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample ID: Laboratory:

Analyzed for: TPH-g BTEX MtBE Oxys Other:

Duplicate ID: Analyzed for: TPH-g BTEX MtBE Oxys Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

MATRIKS CORPORATION MONITORING DATA SHEET

Project #: 6022	Station #: Alameda Gas
Sampler: Truesdale / Neely	Date: 1/20/11
Weather: Clear / Warm	Ambient Air Temperature:
Well ID: MW-4	Well Diameter: (2") 3" 4" 6" 8" ____
Total Well Depth: 16'	Depth to Water: 2' 2.3"
Depth to Free Product:	Thickness of Free Product (feet):
Referenced To:	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:
- Bailer
- (Disposable Bailer)
- Positive Air Displacement
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other ____

Sampling Method:
- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other ____

1 Case Volume		Specified Volumes		Calculated Volume
2.2	(Gals.) X	3	=	6.6 Gallons

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	(0.16)	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gallons Removed	Observations
10:59	60.6	5.43	413		2	Cloudy SS SO
11:03	61.7	5.45	453		3	" " "
						Recharge was very slow

Did well dewater? Yes No			Gallons actually evacuated:	
Sampling Date:	Sampling Time:		Depth to Water:	
Sample ID:	Laboratory:			
Analyzed for: TPH-g BTEX MtBE Oxys Other:				
Duplicate ID:	Analyzed for: TPH-g BTEX MtBE Oxys Other:			
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

Well box was full of H_2O

MATRIKS CORPORATION MONITORING DATA SHEET

Project # 6022	Station #: Alameda Gas
Sampler: Truesdale/Healy	Date: 1/20/11
Weather: Clear/Warm	Ambient Air Temperature:
Well ID: MW-5	Well Diameter (2") 3" 4" 6" 8"
Total Well Depth: 17'	Depth to Water: 2' 8.3'
Depth to Free Product:	Thickness of Free Product (feet):
Referenced To:	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method:
Bailer
(Disposable Bailer)
Positive Air Displacement
Electric Submersible
Waterra
Peristaltic
Extraction Pump
Other _____

Sampling Method:
Bailer
(Disposable Bailer)
Extraction Port
Dedicated Tubing
Other _____

2.2	(Gals.) X	3	= 6.8	Gallons
1 Case Volume		Specified Volumes	Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	(0.16)	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gallons Removed	Observations
10:39	62.6	6.69	877.7		2	Clear / Slight odor
10:45	63.1	5.87	839		4	Cloudy / Slight odor
10:48	63.5	6.18	829.7		6	

Did well dewater? Yes No		Gallons actually evacuated:		
Sampling Date:	Sampling Time:	Depth to Water:		
Sample ID:	Laboratory:			
Analyzed for: TPH-g BTEX MtBE Oxys Other:				
Duplicate ID:	Analyzed for: TPH-g BTEX MtBE Oxys Other:			
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

Well box was full of H_2O

APPENDIX B

LABORATORY ANALYTICAL REPORTS FOR GROUNDWATER SAMPLES

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Matriks Corporation	Client Project ID: #6022; Alaska Gas	Date Sampled: 01/20/11
		Date Received: 01/20/11
321 Court Street	Client Contact: Tom Henderson	Date Reported: 01/27/11
Woodland, CA 95695	Client P.O.:	Date Completed: 01/26/11

WorkOrder: 1101480

January 27, 2011

Dear Tom:

Enclosed within are:

1) The results of the **5** analyzed samples from your project: **#6022; Alaska Gas,**
2) A QC report for the above samples,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

1101480

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

GeoTracker EDF ☒ PDF ☒ Excel ☐ Write On (DW) ☐

☐ Check if sample is effluent and "J" flag is required

Report To: Tom Henderson Bill To: Matriks
Company: Matriks
321 Court Street
Woodland, CA 95695 E-Mail: thenderson@matrikscorp.com
Tele: (530) 406-1760 Fax: (530) 406-1071
Project #: 6022 Project Name: Alaska Gas
Project Location: ~~132~~ 1310 Central Ave, Alameda
Sampler Signature: [signature]

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED ICE	HCL	HNO_3	Other	BTEX & TPH as Gas (602 / 8021 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Other: 7 oxys & 2 lb scavengers	Other	Other	Comments: Filter Samples for Metals analysis: Yes / No
6022-MW-1		1/20/11		4	3V 1A	X					X	X			X	X															X			
6022-MW-2				4		X					X	X			↓	↓															↓			
6022-MW-3				4		X					X	X			↓	↓															↓			
6022-MW-4				4		X					X	X			↓	↓															↓			
6022-MW-5		↓		4	↓	X					X	X			↓	↓															↓			

Relinquished By:	Date:	Time:	Received By:
[signature]	1/20/11	2:30	Kyle [signature]
Relinquished By:	Date:	Time:	Received By:
			David Pimentel
Relinquished By:	Date:	Time:	Received By:
David Pimentel	1/20	7:25	[signature]

ICE/t° 4.4
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ✓
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB ___

PRESERVATION VOAS ✓ O&G METALS pH<2 OTHER ✓

COMMENTS:

From: EnviroTech – Rancho Cordova, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1101480 **ClientCode: MCW**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Tom Henderson
Matriks Corporation
321 Court Street
Woodland, CA 95695
(530) 406-1760 FAX (530) 406-1771

Email: thenderson@matrikscorp.com
cc:
PO:
ProjectNo: #6022; Alaska Gas

Bill to:
Robert Neely
Matriks Corporation
321 Court Street
Woodland, CA 95695

Requested TAT: 5 days

Date Received: **01/20/2011**
Date Printed: **01/20/2011**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1101480-001	6022 MW-1	Water	1/20/2011	☐	C	B	A	A								
1101480-002	6022 MW-2	Water	1/20/2011	☐	C	B		A								
1101480-003	6022 MW-3	Water	1/20/2011	☐	C	B		A								
1101480-004	6022 MW-4	Water	1/20/2011	☐	C	B		A								
1101480-005	6022 MW-5	Water	1/20/2011	☐	C	B		A								

Test Legend:

1	9-OXYS_W	2	G-MBTEX_W	3	PREDF REPORT	4	TPH(D)_W	5	
6		7		8		9		10	
11		12							

Prepared by: Zoraida Cortez

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Sample Receipt Checklist

Client Name: **Matriks Corporation**
Date and Time Received: **1/20/2011 7:44:04 PM**

Project Name: **#6022; Alaska Gas**
Checklist completed and reviewed by: Zoraida Cortez

WorkOrder N°: **1101480** Matrix Water
Carrier: EnviroTech (RC)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 4.7°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Matriks Corporation	Client Project ID: #6022; Alaska Gas	Date Sampled: 01/20/11
		Date Received: 01/20/11
321 Court Street	Client Contact: Tom Henderson	Date Extracted: 01/21/11-01/24/11
Woodland, CA 95695	Client P.O.:	Date Analyzed: 01/21/11-01/24/11

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 1101480

Lab ID	1101480-001C	1101480-002C	1101480-003C	1101480-004C	Reporting Limit for DF =1	
Client ID	6022 MW-1	6022 MW-2	6022 MW-3	6022 MW-4		
Matrix	W	W	W	W		
DF	1	1	3.3	1	S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	ND	3.4	ND	NA	0.5
t-Butyl alcohol (TBA)	ND	ND	41	ND	NA	2.0
1,2-Dibromoethane (EDB)	ND	ND	ND<1.7	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND<1.7	ND	NA	0.5
Diisopropyl ether (DIPE)	ND	ND	ND<1.7	ND	NA	0.5
Ethanol	ND	ND	ND<170	ND	NA	50
Ethyl tert-butyl ether (ETBE)	ND	ND	ND<1.7	ND	NA	0.5
Methanol	ND	ND	ND<1700	ND	NA	500
Methyl-t-butyl ether (MTBE)	7.7	1.4	85	0.70	NA	0.5
Surrogate Recoveries (%)						
%SS1:	84	84	87	90		
Comments						

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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"When Quality Counts"

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Matriks Corporation	Client Project ID: #6022; Alaska Gas	Date Sampled: 01/20/11
		Date Received: 01/20/11
321 Court Street	Client Contact: Tom Henderson	Date Extracted: 01/21/11-01/24/11
Woodland, CA 95695	Client P.O.:	Date Analyzed: 01/21/11-01/24/11

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 1101480

					Reporting Limit for DF =1	
Lab ID	1101480-005C					
Client ID	6022 MW-5					
Matrix	W					
DF	20				S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND<10				NA	0.5
t-Butyl alcohol (TBA)	100				NA	2.0
1,2-Dibromoethane (EDB)	ND<10				NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<10				NA	0.5
Diisopropyl ether (DIPE)	ND<10				NA	0.5
Ethanol	ND<1000				NA	50
Ethyl tert-butyl ether (ETBE)	ND<10				NA	0.5
Methanol	ND<10,000				NA	500
Methyl-t-butyl ether (MTBE)	450				NA	0.5
Surrogate Recoveries (%)						
%SS1:	91					
Comments						

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit/method detection limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

%SS = Percent Recovery of Surrogate Standard
DF = Dilution Factor

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Matriks Corporation	Client Project ID: #6022; Alaska Gas	Date Sampled: 01/20/11
		Date Received: 01/20/11
321 Court Street	Client Contact: Tom Henderson	Date Extracted: 01/21/11-01/25/11
Woodland, CA 95695	Client P.O.:	Date Analyzed: 01/21/11-01/25/11

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Bm Work Order: 1101480

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001B	6022 MW-1	W	1100	ND<15	0.85	6.6	34	42	1	102	d2,d9
002B	6022 MW-2	W	ND	ND	ND	ND	ND	ND	1	105	
003B	6022 MW-3	W	7700	ND<250	100	20	20	16	5	112	d1
004B	6022 MW-4	W	ND	ND	ND	ND	ND	ND	1	107	
005B	6022 MW-5	W	340	430	3.0	2.0	ND	1.2	1	111	d1

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

* water and vapor samples are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts in mg/L.

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference.

%SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

d1) weakly modified or unmodified gasoline is significant
d2) heavier gasoline range compounds are significant (aged gasoline?)
d9) no recognizable pattern

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Matriks Corporation	Client Project ID: #6022; Alaska Gas	Date Sampled: 01/20/11
		Date Received: 01/20/11
321 Court Street	Client Contact: Tom Henderson	Date Extracted: 01/20/11
Woodland, CA 95695	Client P.O.:	Date Analyzed 01/21/11-01/22/11

Total Extractable Petroleum Hydrocarbons*

Extraction method SW3510C Analytical methods: SW8015B Work Order: 1101480

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	DF	% SS	Comments
1101480-001A	6022 MW-1	W	590	1	97	e4,e7,e2
1101480-002A	6022 MW-2	W	90	1	97	e7,e2
1101480-003A	6022 MW-3	W	3500	1	102	e4,e2
1101480-004A	6022 MW-4	W	210	1	97	e7,e2
1101480-005A	6022 MW-5	W	280	1	97	e7,e4,e2

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water samples are reported in ug/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

%SS = Percent Recovery of Surrogate Standard. DF = Dilution Factor

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

e2) diesel range compounds are significant; no recognizable pattern
e4) gasoline range compounds are significant.
e7) oil range compounds are significant

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 55716 WorkOrder 1101480

EPA Method SW8021B/8015Bm **Extraction SW5030B** **Spiked Sample ID: 1101472-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	96.6	97.8	1.24	96.7	94.6	2.22	70 - 130	20	70 - 130	20
MTBE	ND	10	120	117	2.20	125	112	11.0	70 - 130	20	70 - 130	20
Benzene	ND	10	118	121	2.51	116	116	0	70 - 130	20	70 - 130	20
Toluene	ND	10	107	111	3.28	103	101	1.24	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	105	109	3.13	102	100	1.48	70 - 130	20	70 - 130	20
Xylenes	ND	30	119	117	1.45	116	114	2.28	70 - 130	20	70 - 130	20
%SS:	100	10	104	106	1.50	103	103	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 55716 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1101480-001B	01/20/11	01/21/11	01/21/11 5:40 PM	1101480-002B	01/20/11	01/21/11	01/21/11 6:18 PM
1101480-003B	01/20/11	01/25/11	01/25/11 5:38 PM	1101480-004B	01/20/11	01/22/11	01/22/11 3:16 AM
1101480-005B	01/20/11	01/22/11	01/22/11 3:45 AM	1101480-005B	01/20/11	01/25/11	01/25/11 6:08 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

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QA/QC Officer

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 55719 WorkOrder 1101480

EPA Method SW8260B **Extraction SW5030B** **Spiked Sample ID: 1101491-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	99.7	94.6	5.05	98.5	98.9	0.379	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	98	104	5.49	95.4	95.3	0.111	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	111	114	2.33	111	109	1.54	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	1.4	10	111	111	0	114	114	0	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	118	119	0.202	119	119	0	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	115	116	1.21	113	113	0	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	124	124	0	117	117	0	70 - 130	30	70 - 130	30
%SS1:	85	25	100	101	0.968	82	83	1.54	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 55719 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1101480-001C	01/20/11	01/21/11	01/21/11 5:58 PM	1101480-002C	01/20/11	01/21/11	01/21/11 7:54 PM
1101480-003C	01/20/11	01/24/11	01/24/11 10:24 PM	1101480-004C	01/20/11	01/24/11	01/24/11 11:08 PM
1101480-005C	01/20/11	01/24/11	01/24/11 11:48 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 55730 WorkOrder 1101480

EPA Method SW8015B **Extraction SW3510C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	89.5	86.9	2.95	N/A	N/A	70 - 130	30
%SS:	N/A	625	N/A	N/A	N/A	80	81	0.370	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 55730 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1101480-001A	01/20/11	01/20/11	01/21/11 5:59 PM	1101480-002A	01/20/11	01/20/11	01/21/11 7:10 PM
1101480-003A	01/20/11	01/20/11	01/22/11 9:09 AM	1101480-004A	01/20/11	01/20/11	01/21/11 8:22 PM
1101480-005A	01/20/11	01/20/11	01/21/11 10:43 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer