

Apr 09 2008 8:46AM

HerSchy Environmental Inc

(559) 641-7340

p.1

**RECEIVED**

10:43 am, Apr 16, 2008

Alameda County  
Environmental Health

April 10, 2008

Mr. Paresh Khatri  
Alameda County  
Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Ste. 250  
Alameda, California 94502-6577

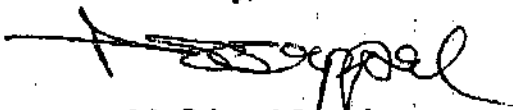
**RE: Results of February 2008 Quarterly Groundwater Monitoring**  
Alaska Gas  
6211 San Pablo Avenue  
Oakland, California

Dear Mr. Khatri:

Attached for your review and comment is the April 10, 2008 *Results of February 2008 Quarterly Groundwater Monitoring* prepared by HerSchy Environmental, Inc upon my behalf, for the above-referenced site.

As the legally authorized representative of the above-referenced project, I have reviewed the attached report and 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.

Sincerely,



Mr. Pritpaul Sappal



# erSchy Environmental, Inc.

April 10, 2008  
Project A51-01

Mr. Paresh Khatri  
Alameda County  
Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Ste. 250  
Alameda, California 94502-6577

Re: **Results of February 2008 Quarterly Groundwater Monitoring**  
Alaska Gasoline Company  
6211 San Pablo Avenue  
Oakland, California  
Case #RO0000127

Dear Mr. Khatri:

HerSchy Environmental, Inc. (HerSchy), on behalf of Mr. Pritpaul Sappal of the Alaska Gasoline Company, has prepared this report summarizing the results of the most recent quarterly monitoring event. Also included is a summary of progress of the various ongoing tasks associated with the current investigation. A dual phase extraction (DPE) pilot test was conducted February 5-6, 2008 to assess the effectiveness of a more aggressive remedial technique. Details of the pilot test were submitted to ACEHS staff under the title *Investigation Results of Dual Phase Extraction Pilot Test*, dated April 3, 2008. The site is located at 6211 San Pablo Avenue, which is on the northwest corner of San Pablo Avenue and 62<sup>nd</sup> Street in Oakland, Alameda County, California (Figure 1). Groundwater monitoring was performed on February 14, 2008.

## **METHODS OF INVESTIGATION**

### Groundwater Sampling Procedures

Groundwater samples were collected from all seven monitoring and extraction wells on February 14, 2008. All monitoring wells were measured for static water level and total depth using an electric sounder prior to initiating sampling. Depth to groundwater was recorded to the nearest 0.01 feet on field sampling data sheets. The groundwater elevation in the monitoring wells was calculated by subtracting the measured depth to groundwater from the surveyed well elevation. The depth to groundwater, total depth of the well, and well diameter were used to calculate the purge volume.

At least three casing volumes were purged from each well prior to collecting a groundwater sample using a Waterra electric pump and dedicated hoses. All purge water is stored on-site in either 55-gallon drums

or the excess water tank attached to the remediation unit. When water levels in storage tanks near capacity, the water is then removed by a licensed hauler and disposed of in a state-approved repository. Physical characteristics (temperature, electrical conductivity, and pH) were measured at the initiation of purging and at each purged well volume. These characteristics were recorded on field sampling data sheets and are presented in Appendix A. One sample from each well was collected and contained in three 40-milliliter vials. Each of the sample containers were filled completely to form a positive meniscus, capped, and checked to ensure no air bubbles were present.

Samples were sealed in a ziplock bag and placed in a cooler chest with either frozen gel packs or ice immediately after sampling. Samples were maintained at, or below, four degrees Celsius until delivered to the laboratory. All groundwater samples are stored, transported, and delivered under proper chain-of-custody documentation and delivered to a California certified laboratory.

#### Soil Vapor Extraction System (SVES) Monitoring

The currently installed SVES has been shutdown since November 19, 2007 for various reasons that were discussed at length in HerSchy's *Results of November 2007 Quarterly Groundwater Monitoring*, dated January 3, 2008. The reasons for shutting the system down include influent concentrations trends nearing asymptotic levels as well as a declining cost-effectiveness. No SVES monitoring has been conducted since that time.

#### Laboratory Analysis

Groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPHg) by EPA method 8015M, benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE) by EPA method 8021B. Samples were also analyzed for the fuel oxygenates and additives MTBE, di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butanol (TBA), 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB) using EPA method 8260b.

## **RESULTS OF INVESTIGATION**

#### Groundwater Conditions

SoakEase™ absorbent product socks were being utilized in extraction well EX-1 where free product had been a recurrent issue. Prior to initiation of a dual phase extraction (DPE) pilot test, the remaining product sock was weighed, removed, and stored for future disposal. Approximately 262 ounces or the equivalent of 2.65 gallons of product have been removed by product socks use. No free product was observed in any wells during the February 2008 monitoring event.

Groundwater was present beneath the site at an average depth of 5.33 feet below the average surveyed well elevation during the February 2008 monitoring event. It is prudent to note that groundwater data from well EX-1 is included for the first time since May 2004 in these findings, due to the absence of floating product. Groundwater elevation during this quarter averaged 29.94 feet above mean sea level. This represents an increase in average groundwater elevation of approximately 1.82 feet since the November 2007 monitoring event. Groundwater flow direction was approximately South 37 degrees West at a gradient of 0.013 on February 14, 2008. Groundwater conditions are summarized in Table 1 and are presented graphically in Figure 2. A comprehensive table of historical groundwater data is included as Appendix B.

**Table 1**  
**Groundwater Conditions -**  
**Alaska Gasoline, Oakland**

Well Number	Elevation	Depth to GW	GW Elevation
<b>May 10, 2007</b>			
EX-1	33.28	-0.3	--
MW-1R	36.67	6.39*	--
MW-2	36.33	6.83	29.50
MW-3	35.12	6.54	28.58
MW-4	34.11	-0.47	--
MW-5	35.17	5.9	29.27
MW-6	36.07	6.72	29.35
Flow Direction = S. 39 W.; Gradient = 0.012			
<b>August 16, 2007</b>			
EX-1	33.28	0.08	--
MW-1R	36.67	9.33*	--
MW-2	36.33	7.26	29.07
MW-3	35.12	7.62	27.50
MW-4	34.11	NM	--
MW-5	35.17	6.79	28.38
MW-6	36.07	7.94	28.13
Flow Direction = S. 49 W.; Gradient = 0.022			
<b>November 8, 2007</b>			
EX-1	33.28	5.10	28.18
MW-1R	36.67	8.83	27.84
MW-2	36.33	7.81	28.52
MW-3	35.12	7.52	27.60
MW-4	34.11	6.60	27.51
MW-5	35.17	6.43	28.74
MW-6	36.07	7.71	28.36
Flow Direction = S 65 W; Gradient = 0.012			
<b>February 14, 2008</b>			
EX-1	33.28	3.51	29.77

**Table 1 (Cont.)**  
**Groundwater Conditions -**  
**Alaska Gasoline, Oakland**

<b>February 14, 2008 (cont.)</b>			
MW-1R	36.67	6.89	29.78
MW-2	36.33	5.90	30.43
MW-3	35.12	5.60	29.52
MW-4	34.11	4.28	29.83
MW-5	35.17	5.31	29.86
MW-6	36.07	5.83	30.24
Flow Direction = S 37 W; Gradient = 0.013			
Elevations in feet above mean sea level (MSL)		NA – Not applicable	
* well not surveyed at time of sampling		** See Groundwater Data Section for details	

Based on the data gathered from the site monitoring wells, the groundwater flow direction is toward San Francisco Bay, located approximately 0.75 miles southwest of the site. Regional groundwater flow appears to parallel the surface grade in the area.

**Groundwater Quality**

Groundwater samples were submitted to the laboratory and analyzed for the above-mentioned fuel constituents. Table 2 summarizes analytical data for the current quarter along with data from the previous six quarters. Certified analytical reports and chain-of-custody documentation for the current quarter are presented in Appendix C.

**Table 2**  
**Laboratory Analytical Results for Groundwater**  
**Alaska Gasoline**

	<i>TPHg</i>	<i>Benzene</i>	<i>Toluene</i>	<i>Ethylbenzene</i>	<i>Xylenes</i>	<i>MTBE</i>	<i>TAME</i>	<i>TBA</i>
<b>MW-1R</b>								
May 10, 2007	ND	ND	ND	ND	2.0	5.9	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	ND		
November 8, 2007	1,300	11	82	54	270	1.4	ND	ND
February 14, 2008	800	7.6	31	23	150	1.7	ND	ND
<b>MW-2</b>								
May 10, 2007	590	31	ND	39	22	200	5.9	250
August 16, 2007	650	49	ND	71	49	100	3.5	82
November 8, 2007	110	1.6	ND	1.9	1.6	23	0.64	48
February 14, 2008	350	24	ND	12	5.9	190	7.7	320
<b>MW-3</b>								
May 10, 2007	140,000	ND	ND	ND	ND	180,000	7,100	80,000
August 16, 2007	69,000*	ND	ND	ND	ND	85,000	3,400	180,000
November 8, 2007	34,000*	ND	ND	ND	ND	38,000	1,400	140,000
February 14, 2008	41,000	ND	110	110	610	44,000	1,900	110,000
<b>MW-4</b>								
May 10, 2007	NA	NA	NA	NA	NA	NA	NA	NA
August 16, 2007	49,000	710	840	ND	10,000	3,600	510	32,000

**Table 2 (Cont.)  
Laboratory Analytical Results for Groundwater  
Alaska Gasoline**

	<i>TPHg</i>	<i>Benzene</i>	<i>Toluene</i>	<i>Ethylbenzene</i>	<i>Xylenes</i>	<i>MTBE</i>	<i>TAME</i>	<i>TBA</i>
November 8, 2007	64,000	1,300	2,600	1,000	8,500	1,500	360	14,000
February 14, 2008	60,000	390	460	230	2,000	52,000	2000	58,000
<b>MW-5</b>								
May 10, 2007	ND	ND	ND	ND	ND	1.5	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	1.3	ND	ND
November 8, 2007	ND	ND	ND	ND	ND	1.5	ND	ND
February 14, 2008	ND	ND	ND	ND	ND	1.3	ND	ND
<b>MW-6</b>								
May 10, 2007	ND	3.0	ND	ND	1.9	26	2	48
August 16, 2007	ND	ND	ND	ND	ND	1.4	ND	ND
November 8, 2007	ND	ND	ND	ND	ND	5.3	ND	ND
February 14, 2008	ND	ND	ND	ND	ND	11	0.94	220
<b>EX-1</b>								
May 10, 2007	NA	NA	NA	NA	NA	NA	NA	NA
August 16, 2007	NA	NA	NA	NA	NA	NA	NA	NA
November 8, 2007	NA	NA	NA	NA	NA	NA	NA	NA
February 14, 2008	84,000	2,300	4,900	1,800	14,000	3,900	610	10,000

- All reported values in parts per billion (ppb)

- ND = below laboratory detection limits

- NA = not analyzed

- NS = not sampled

No DIPE, ETBE, EDB, or 1,2-DCA was reported in groundwater samples during the February 2008 sampling event. Ethanol and methanol were not reported in any of the groundwater samples during the May 2004 monitoring event and are no longer being included in the laboratory analyses. Concentration trend graphs are included in Appendix D and are shown for several constituents in Plates 1 & 2.

## CONCLUSIONS AND RECOMMENDATIONS

It is important to note that groundwater sampling of all site wells this quarter occurred seven days after completion of a dual phase extraction pilot test. During the test approximately 8,500 gallons of groundwater were removed over the course of 17 hours of testing. Also, it was calculated that roughly 104.19 lbs of product or the equivalent of 16.86 gallons of product as TPHg were removed through testing efforts. The measured radius-of-influence for the test was estimated to be between 100 to 130 feet from extraction wells. Although abbreviated, the test appears to have had created an influence on all site wells. The residual impacts of the test remain to be seen.

The only reported fuel constituent in well MW-5 this quarter was MTBE at 1.3 ppb. The only reported fuel constituents in well MW-6 this quarter were MTBE, TAME, and TBA at 11 ppb, 0.94 ppb, and 220 ppb, respectively.

Wells EX-1, MW-1R and MW-2 through MW-4 were reported as impacted with fuel constituents to varying degrees. TPHg was reported at concentrations from 350 ppb to 84,000 ppb, with the highest reported value from well EX-1 (previously reported with levels of free product). Benzene was reported at concentrations ranging from below the laboratory reporting limits to the highest reported value, 2,300 ppb, in well EX-1. MTBE was reported in all site wells this quarter to varying degrees, with the highest reported value in well MW-4 at 52,000 ppb. Concentrations of TAME and TBA were reported in all site wells, except well MW-1R and MW-5, with the highest reported values at 2,000 ppb and 110,000 ppb in wells MW-4 and MW-3, respectively.

Relatively high concentrations of petroleum hydrocarbons remain in soil and groundwater beneath the subject site. Isoconcentration maps for TPHg and MTBE are attached as Figures 3 and 4, respectively.

#### Status of Site Investigation Activities

After completion of three previously approved direct push borings, HerSchy submitted correspondence entitled *Site Update*, dated August 29, 2007, in which a request was made to Alameda County Health Care Services (ACHCS) staff for a modification of the remaining previously approved locations along with a proposal for additional sampling points based on preliminary results. At this time, we are waiting to proceed with the modified and added locations until approval from the Alameda County Health Care Services (ACHCS). Two previously approved and permitted permanent monitoring wells on Marshall Street remain uninstalled at this time due to continued insurance and/or surety bond issues with the City of Oakland. It is our understanding at this time, that the property owner, Mr. Sappal, is currently awaiting consultation with ACHCS staff to discuss his difficulties at obtaining insurance and/or surety bonds for the proposed permanent wells on Marshall Street. The request for a meeting was originally made in HerSchy's *Site Update* letter mentioned above. The request was re-iterated in *Results of August 2007 Quarterly Groundwater Monitoring*, dated October 24, 2007, *Results of November 2007 Quarterly Groundwater Monitoring*, dated January 3, 2008, and in the *Investigation Report for Dual Phase Extraction Pilot Test*, dated April 3, 2008.

HerSchy continues its attempts at moving forward with establishing access agreements with the City of Oakland Housing Authority (HA) for the property adjacent to and west of the project site, and is currently awaiting a formal response to our access agreement request or issuance of said agreement. On March 25, 2008 a phone call was made to request the status of the access agreement request. HerSchy was informed that Ms. Foster, the previously assigned case worker, had retired. The status of the formal access request was unknown at the time of the call. An internal inquiry into the status of the request by HA staff was begun following our communication. HerSchy was informed that a status update would be forthcoming soon. Mr. Eric Johnson, Deputy Director of Operations for the HA, contacted HerSchy and indicated that he would be overseeing the request for access. Per his request, e-mail correspondence was sent to him on

March 27, 2008 (Appendix E), which included the original direct push work plan and approval, along with a map indicating proposed boring locations. We are currently awaiting a response to this e-mail.

HerSchy has attempted to gain an access agreement from Mr. Wang for his property southwest and down-gradient of the subject property. Several requests, both verbal and written, have been made to Mr. Wang regarding access to the property for investigative work. Each request has been either verbally denied or ignored. As a reference, inquiries and requests for access to the property were first made in December 2006, at which time the property was owned by the City of Oakland. The vacant property was sold by the City of Oakland to Mr. Paul Wang sometime between March and April 2007. Since changing hands, the property has been developed and now holds two apartment buildings with associated landscaping and fencing. In light of the difficulties obtaining the agreement, the new structures on site, and HerSchy's proposal for modified boring locations, pursuance of this agreement has been placed on hold until consultation with ACHCS staff.

As mentioned previously, the soil vapor extraction system (SVES) was shutdown November 19, 2007 due to several factors. A review of SVES operations suggested that either the ability to mobilize contaminants had diminished or the affected soil was depleted of available hydrocarbon contaminants within the effective radii of the SVES. These findings are based on influent vapor levels exhibiting asymptotic trends near zero while hydrocarbon concentrations in groundwater samples remain at relatively high levels. In the *Results of August 2007 Quarterly Monitoring Report*, HerSchy proposed intermittent operation, or cycling, of the existing oxidizer as a means to increase both remedial efficiency and cost-effectiveness. At this time, no response to this request has been received. After consideration of the declining effectiveness of the current configuration of the remediation unit and significant operating costs, the decision was made to de-activate the SVES.

Alternate or modified remediation options have been under review by HerSchy staff and include limited excavation, installation of a "trench-and-gate" system, cycling of the existing SVES operation, dual phase extraction, additional in-well or in-situ vapor stripping, and others. As previously stated, a DPE pilot test was recently conducted for multiple reasons. The main goal was to assess the feasibility of DPE as a cost-effective remedial alternative. A secondary reason for the test was to conduct a one time groundwater and product removal event. At this time, HerSchy will suspend the use of product socks until free product is encountered again, if at all.

Based on recent correspondence with the Alameda County Environmental Health Services Department (phone and e-mail correspondence), it appears that the meeting, first requested in August 2007, will be scheduled shortly. To reiterate, HerSchy's goal for this meeting is to create a working relationship with the regulatory agency, communicate the obstacles that have been experienced, and collectively determine the most prudent, efficient, and cost-effective site investigation and remediation methods permissible within regulatory restrictions.

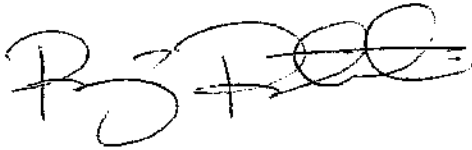


## SCHEDULE AND CLOSING


The next monitoring and sampling event is scheduled for May 2008. We appreciate the opportunity to work with you on this matter. Please contact Reijo Ratilainen (559) 760-0037 or Scott Jackson (559) 641-7320 with any questions or for additional information.

Sincerely,

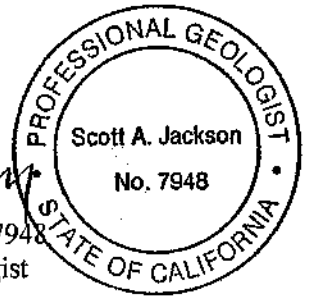
**HerSchy Environmental, Inc.**



Reijo Ratilainen  
Project Geologist



Scott Jackson, P.G. #7948  
Senior Project Geologist



Figures

- 1 - Vicinity Map
- 2 Site Plan with Groundwater Elevation Diagram
- 3 - TPHg Isoconcentration Diagram
- 4 - MTBE Isoconcentration Diagram
- 5 - TBA Isoconcentration Diagram
- 6 - Site Plan with Proposed Direct Push Soil Boring Locations

Appendices

- A - Groundwater Field Sampling Data Sheets
- B - Historical Groundwater Data
- C - Certified Analytical Reports for Groundwater Sampling
- D - Concentration Trend Graphs
- E - E-mail Correspondence with the City of Oakland Housing Authority

cc: Mr. Pritpaul Sappal  
Mr. Hernan Gomez, Oakland Fire Services Agency  
Ms. Alyce Sandbach, Deputy District Attorney



Site Location

EMERYVILLE



**Hersch Environmental, Inc.**  
Environmental Consulting and Remediation

P. O. Box 229  
Bass Lake, California 93604-0229  
Tel. (559) 641-7320, Fax (559) 641-7340

**SITE LOCATION MAP**

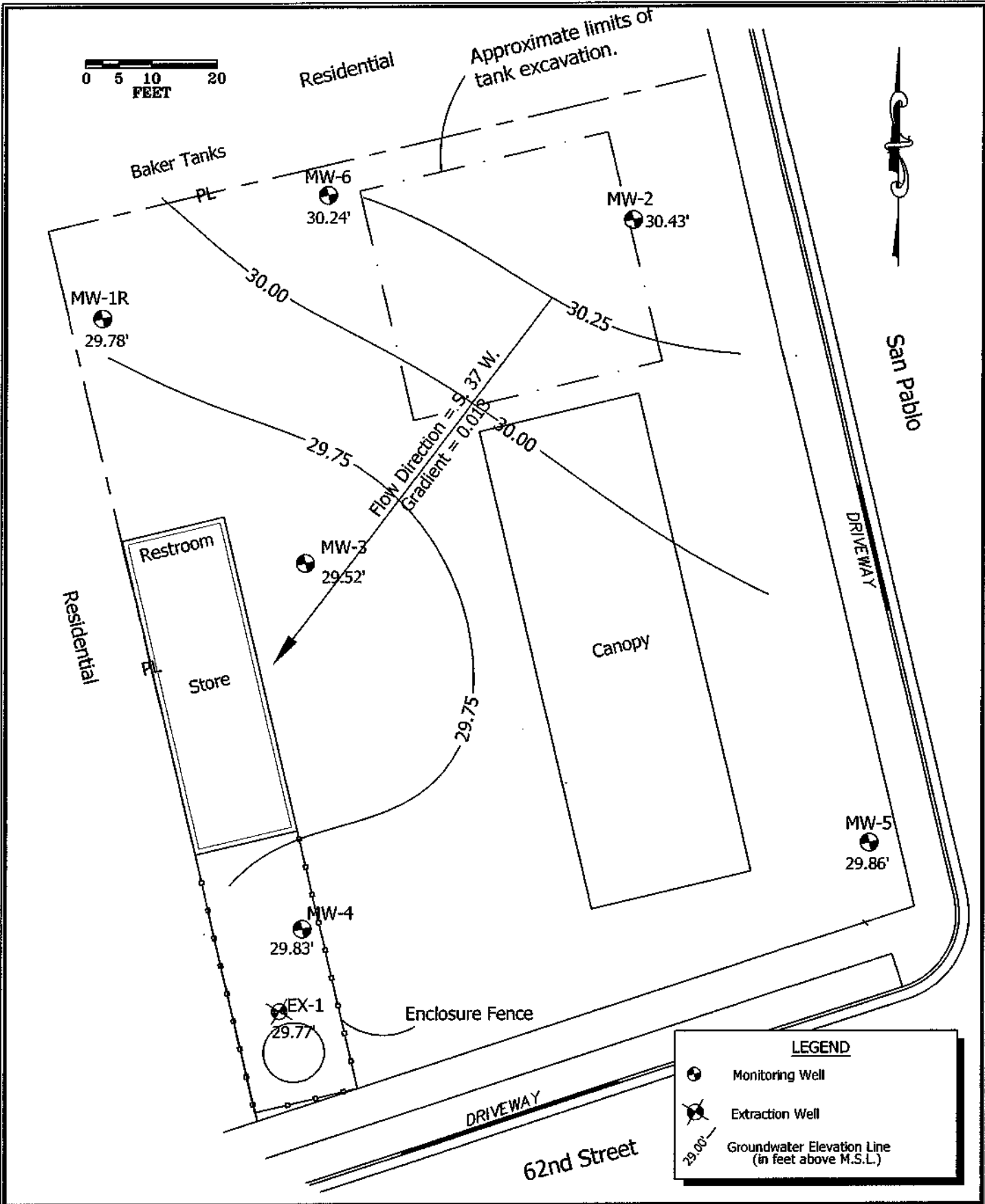
**ALASKA GASOLINE COMPANY**

6211 San Pablo Avenue, Oakland, California




DATE:  
August 2005  
FILE NO.:  
A51.01  
DRAWN BY:  
WEA

FIGURE

1



**LEGEND**

-  Monitoring Well
-  Extraction Well
-  Groundwater Elevation Line (in feet above M.S.L.)

**HerSchy Environmental, Inc.**  
 Environmental Consulting and Remediation

P. O. Box 229  
 Bass Lake, California 93604-0229  
 Tel. (559) 641-7320, Fax (559) 641-7340

**GROUNDWATER CONDITIONS**  
 February 2008  
**ALASKA GASOLINE COMPANY**  
 6211 San Pablo Avenue, Oakland, California

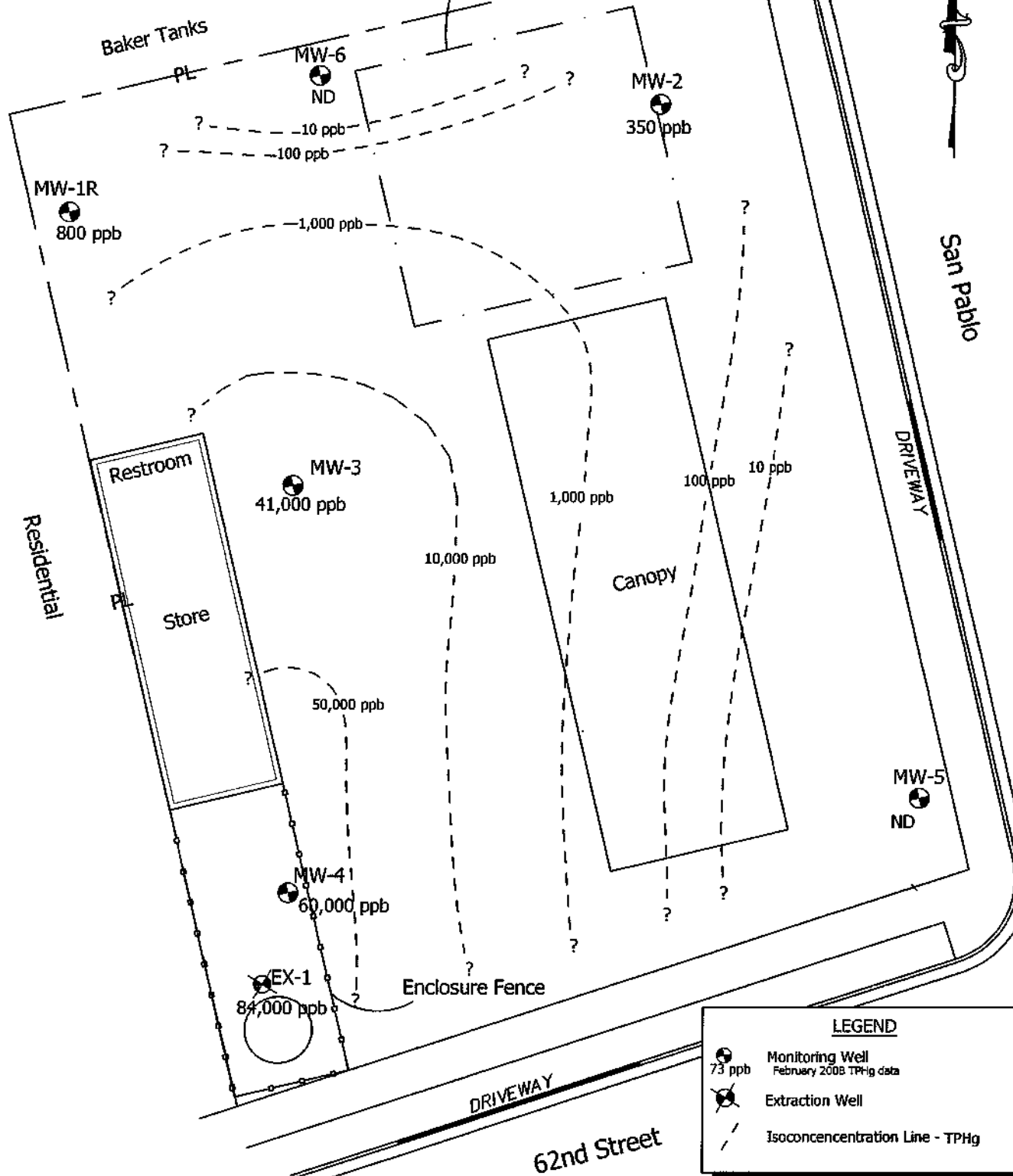
DATE: **March 21, 2008**  
 FILE NO.: **A51-01**  
 DRAWN BY: **RER**

**FIGURE**  
**2**



Residential

Approximate limits of tank excavation.



San Pablo

DRIVEWAY

Residential

Restroom

Store

Canopy

Enclosure Fence

DRIVEWAY

62nd Street

**LEGEND**

- Monitoring Well  
February 2008 TPHg data
- Extraction Well
- Isoconcentration Line - TPHg

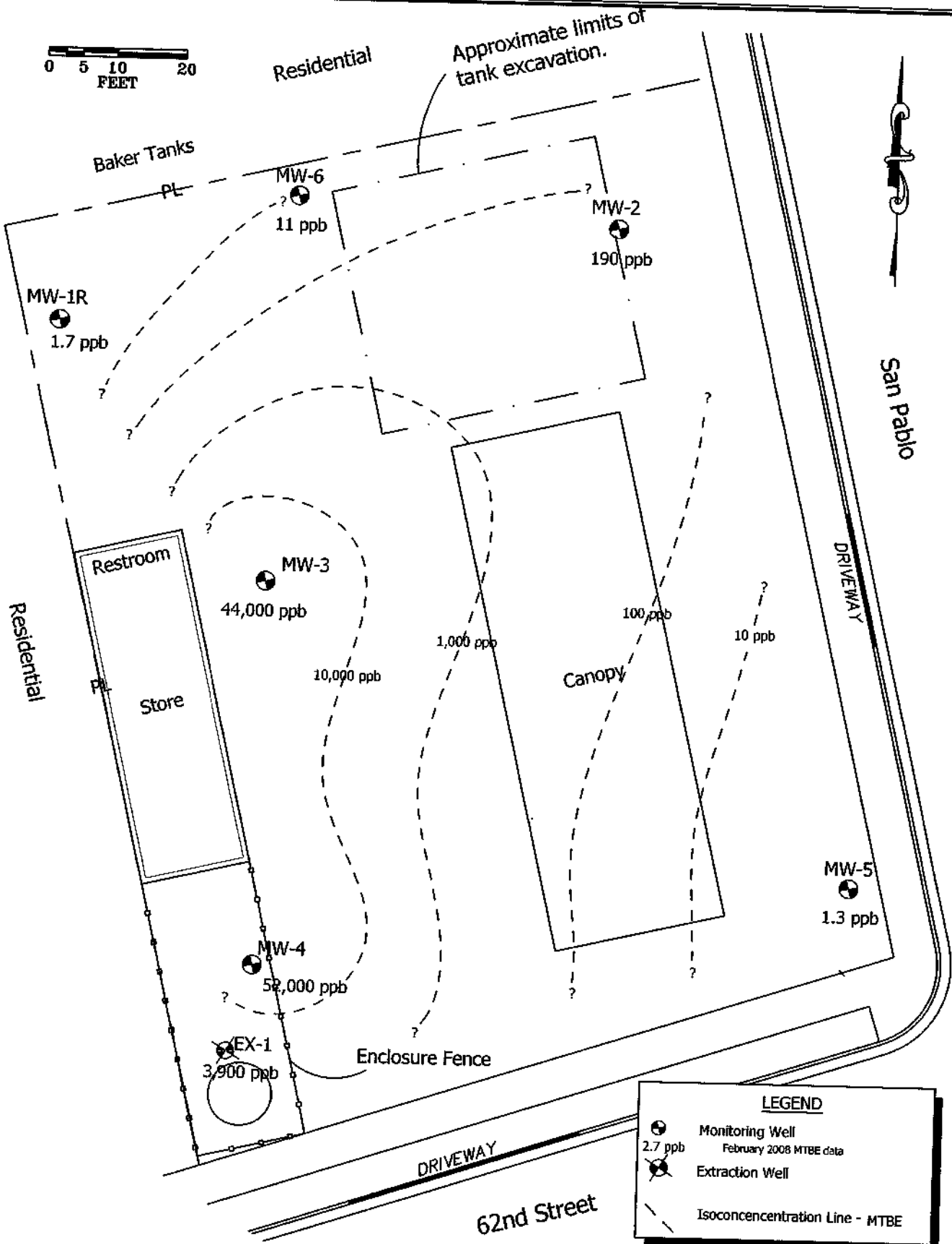
**HerSchy Environmental, Inc.**  
Environmental Consulting and Remediation

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Bass Lake, California 93604-0229  
Tel. (559) 641-7320, Fax (559) 641-7340

**Isoconcentration Map - TPHg**  
February 2008  
**ALASKA GASOLINE COMPANY**  
6211 San Pablo Avenue, Oakland, California

DATE:  
March 21, 2008  
FILE NO.:  
A51-01  
DRAWN BY:  
RER

FIGURE  
**3**



**LEGEND**

- Monitoring Well  
February 2008 MTBE data
- Extraction Well
- Isoconcentration Line - MTBE

**HerSchy Environmental, Inc.**  
Environmental Consulting and Remediation

P. O. Box 229  
Bass Lake, California 93604-0229  
Tel. (559) 641-7320, Fax (559) 641-7340

**Isoconcentration Map - MTBE**  
February 2008

**ALASKA GASOLINE COMPANY**

6211 San Pablo Avenue, Oakland, California

DATE:	March 21, 2008
FILE NO.:	A51-01
DRAWN BY:	RER

FIGURE

**4**



Residential

Approximate limits of tank excavation.

Baker Tanks

MW-1R  
ND

MW-6  
220

MW-2  
320 ppb

100 ppb

500 ppb

1,000 ppb

5,000 ppb

10,000 ppb

50,000 ppb

100,000 ppb

Restroom

MW-3  
110,000 ppb

Store

Canopy

100 ppb

San Pablo

DRIVEWAY

Residential

PL

MW-5  
ND

MW-4  
58,000 ppb

EX-1  
10,000 ppb

Enclosure Fence

DRIVEWAY

62nd Street

**LEGEND**

- Monitoring Well  
February 2008 TBA data
- Extraction Well
- Isoconcentration Line - TBA

**HerSchy Environmental, Inc.**  
Environmental Consulting and Remediation

P. O. Box 229  
Bass Lake, California 93604-0229  
Tel. (559) 641-7320, Fax (559) 641-7340

**Isoconcentration Map - TBA**  
February 2008  
ALASKA GASOLINE COMPANY

6211 San Pablo Avenue, Oakland, California

DATE:  
March 21, 2008

FILE NO.:  
A51-01

DRAWN BY:  
RER

FIGURE  
**5**

# COMPLETED DIRECT-PUSH BORING LOCATIONS WITH REMAINING BORING LOCATIONS

SCALE: 1" = 50'	APPROVED BY:	DRAWN BY: SAJ
DATE: November 2006		REVISED: RER

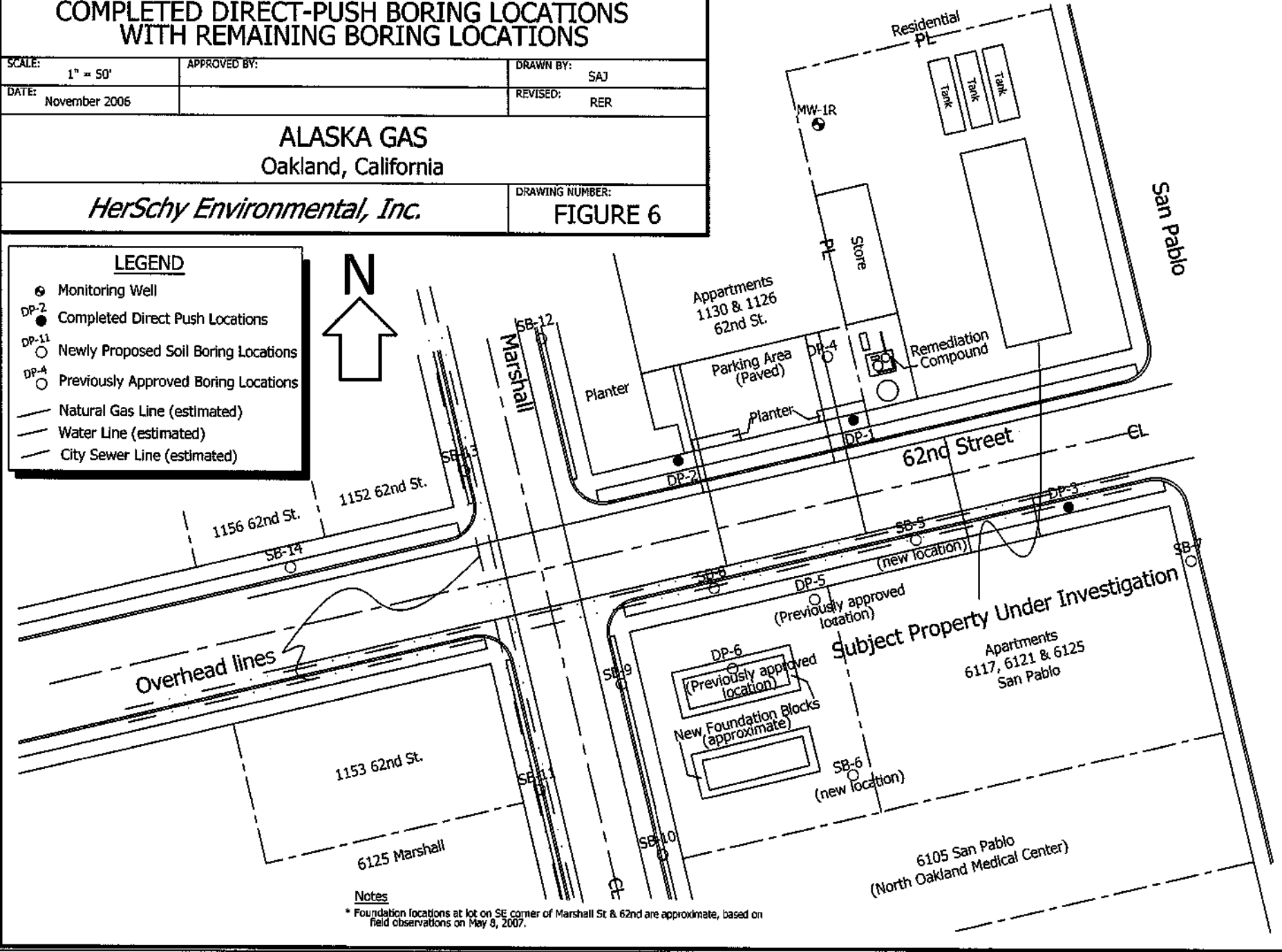
ALASKA GAS  
Oakland, California

*HerSchy Environmental, Inc.*

DRAWING NUMBER:  
**FIGURE 6**

**LEGEND**

- Monitoring Well
- DP-2 Completed Direct Push Locations
- DP-11 Newly Proposed Soil Boring Locations
- DP-4 Previously Approved Boring Locations
- Natural Gas Line (estimated)
- Water Line (estimated)
- City Sewer Line (estimated)



**Notes**  
\* Foundation locations at lot on SE corner of Marshall St & 62nd are approximate, based on field observations on May 8, 2007.

**APPENDIX A**

**Groundwater Field Sampling Data Sheets**



**HerSchy Environmental WATER SAMPLE FIELD DATA SHEET**

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: EX-1 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2 ~~3~~ 3  4  5  6  Other

Casing Elevation (feet/MSL): \_\_\_\_\_ Volume in Casing (gal.): 13.4

Depth of Well (feet): 27.50 Calculate Purge Volume (gal.): 40.3

Depth to Water (feet): 3.51 Actual Purge Volume (gal.): 42+

Date Purged: 02-14-08 Date Sampled: 02-14-08 1013

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0944</u>	<u>-</u>	<u>7.35</u>	<u>698</u>	<u>64.5</u>	<u>CLEAR</u>
<u>0951</u>	<u>14</u>	<u>7.36</u>	<u>708</u>	<u>63.4</u>	<u>CLEAR</u>
<u>0958</u>	<u>28</u>	<u>7.26</u>	<u>709</u>	<u>61.9</u>	<u>CLEAR</u>
<u>1005</u>	<u>42</u>	<u>6.76</u>	<u>709</u>	<u>61.3</u>	<u>CLEAR</u>

Sheen Y/N?: X Odor: PETROLEUM

Purging Equipment: MON SOON PUMP

Sampling Equipment: BAILER

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
 Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-1R Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): \_\_\_\_\_ Volume in Casing (gal.): 2.5

Depth of Well (feet): 22.65 Calculate Purge Volume (gal.): 7.7

Depth to Water (feet): 6.89 Actual Purge Volume (gal.): 7.7

Date Purged: 02-14-08 Date Sampled: 02-14-08 0752

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0734</u>	<u>-</u>	<u>7.76</u>	<u>437</u>	<u>58.8</u>	<u>CLEAR</u>
<u>0738</u>	<u>2.5</u>	<u>7.61</u>	<u>451</u>	<u>60.8</u>	<u>CLEAR</u>
<u>0743</u>	<u>5</u>	<u>7.58</u>	<u>463</u>	<u>62.6</u>	<u>CLEAR</u>
<u>0748</u>	<u>7.7</u>	<u>7.62</u>	<u>481</u>	<u>62.5</u>	<u>SLIGHTLY CLOUDY</u>

Sheen Y/N?: N Odor: NONE

Purging Equipment: BAILER

Sampling Equipment: BAILER

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
 Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-2 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): 36.33 Volume in Casing (gal.): 2.4

Depth of Well (feet): 20.90 Calculate Purge Volume (gal.): 7.3

Depth to Water (feet): 5.90 Actual Purge Volume (gal.): 7.3+

Date Purged: 02-14-08 Date Sampled: 02-14-08 0835

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0824</u>	<u>-</u>	<u>6.86</u>	<u>622</u>	<u>62.9</u>	<u>CLOUDY</u>
<u>0826</u>	<u>2.4</u>	<u>6.87</u>	<u>630</u>	<u>63.0</u>	<u>CLOUDY</u>
<u>0829</u>	<u>4.8</u>	<u>6.98</u>	<u>628</u>	<u>63.2</u>	<u>CLOUDY</u>
<u>0832</u>	<u>7.3</u>	<u>6.89</u>	<u>625</u>	<u>63.5</u>	<u>CLOUDY</u>

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
 Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-3 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): 33.12 Volume in Casing (gal.): 2.5

Depth of Well (feet): 21.20 Calculate Purge Volume (gal.): 7.6

Depth to Water (feet): 5.60 Actual Purge Volume (gal.): 7.6 +

Date Purged: 02-14-08 Date Sampled: 02-14-08 0725

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0702</u>	<u>-</u>	<u>7.42</u>	<u>640</u>	<u>56.8</u>	<u>Clear</u>
<u>0708</u>	<u>2.5</u>	<u>7.07</u>	<u>644</u>	<u>60.5</u>	<u>Clear</u>
<u>0714</u>	<u>5</u>	<u>7.06</u>	<u>631</u>	<u>63.5</u>	<u>Cloudy</u>
<u>0720</u>	<u>7.6</u>	<u>7.41</u>	<u>632</u>	<u>62.8</u>	<u>CLOUDY</u>

Sheen Y/N?: N Odor: PETROLEUM

Purging Equipment: BAILER

Sampling Equipment: BAILER

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
 Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-4 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): \_\_\_\_\_ Volume in Casing (gal.): 2.5

Depth of Well (feet): 19.70 Calculate Purge Volume (gal.): 7.5

Depth to Water (feet): 4.28 Actual Purge Volume (gal.): 7.5

Date Purged: 02-14-08 Date Sampled: 02-14-08 0930

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0911</u>	<u>-</u>	<u>7.40</u>	<u>772</u>	<u>58.9</u>	<u>CLEAR</u>
<u>0915</u>	<u>2.5</u>	<u>7.63</u>	<u>765</u>	<u>60.5</u>	<u>CLOUDY</u>
<u>0919</u>	<u>5</u>	<u>7.39</u>	<u>768</u>	<u>60.8</u>	<u>CLOUDY</u>
<u>0923</u>	<u>7.5</u>	<u>7.66</u>	<u>776</u>	<u>61.4</u>	<u>CLOUDY</u>

Sheen Y/N?: N Odor: PETROLEUM

Purging Equipment: BAILER

Sampling Equipment: BAILER

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-5 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): 35.17 Volume in Casing (gal.): 3.2

Depth of Well (feet): 24.90 Calculate Purge Volume (gal.): 9.6

Depth to Water (feet): 5.31 Actual Purge Volume (gal.): 9.64

Date Purged: 02-14-08 Date Sampled: 02-14-08 0856

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0844</u>	<u>—</u>	<u>6.96</u>	<u>680</u>	<u>64.3</u>	<u>CLOUDY</u>
<u>0847</u>	<u>3.2</u>	<u>7.33</u>	<u>699</u>	<u>64.0</u>	<u>CLOUDY</u>
<u>0850</u>	<u>6.4</u>	<u>7.16</u>	<u>680</u>	<u>64.7</u>	<u>CLOUDY</u>
<u>0853</u>	<u>9.6</u>	<u>7.12</u>	<u>671</u>	<u>65.4</u>	<u>CLOUDY</u>

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

HerSchy **WATER SAMPLE FIELD DATA SHEET**  
 Environmental

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

Sample ID: MW-6 Type: Groundwater  Surface Water  Other

Casing Diameter (inches): 2  3  4  5  6  Other

Casing Elevation (feet/MSL): 3607 Volume in Casing (gal.): 2.8

Depth of Well (feet): 2310 Calculate Purge Volume (gal.): 8.4

Depth to Water (feet): 5.83 Actual Purge Volume (gal.): 8.41

Date Purged: 02-14-08 Date Sampled: 02-14-08 0820

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0806</u>	<u>-</u>	<u>7.38</u>	<u>520</u>	<u>59.1</u>	<u>CLOUDY</u>
<u>0809</u>	<u>2.8</u>	<u>7.14</u>	<u>523</u>	<u>62.2</u>	<u>CLEAR</u>
<u>0811</u>	<u>5.6</u>	<u>7.09</u>	<u>528</u>	<u>63.5</u>	<u>CLEAR</u>
<u>0814</u>	<u>8.4</u>	<u>6.99</u>	<u>529</u>	<u>63.8</u>	<u>CLEAR</u>

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: \_\_\_\_\_

Sampler's Signature: John S. West

## **APPENDIX B**

### **Historical Groundwater Data**





## Groundwater Analytical Results

Alaska Gasoline  
6211 San Pablo Avenue  
Oakland, California

	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	ETBE	TAME	TBA	1,2-DCA	EDB
<b>MW-4</b>												
November 17, 2001	64,000	960	1400	350	1600	140,000	NA	NA	NA	NA	NA	NA
March 31, 2002	78,000	4,400	4,700	690	2,700	150,000	NA	NA	NA	NA	NA	NA
September 9, 2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
December 9, 2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
February 19-20, 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May 24-25, 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
September 3, 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
November 2, 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
February 17, 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May 24 & 26, 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
August 15 & 17, 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
November 17, 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
February 8, 2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May 5, 2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
August 18, 2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
December 1, 2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
February 23, 2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May 10, 2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
September 6, 2007	49,000	710	840	ND	10,000	3,600	ND	ND	610	32,000	ND	ND
November 8, 2007	64,000	1,300	2,600	1,000	8,500	1,500	ND	ND	360	14,000	ND	ND
February 14, 2008	60,000	390	460	230	2,000	52,000	ND	ND	2000	58,000	ND	ND
<b>MW-5</b>												
November 17, 2001	210	15	12	11	23	4.8	NA	NA	NA	NA	NA	NA
March 31, 2002	120	11	7.4	6.1	16	4.2	NA	NA	NA	NA	NA	NA
September 9, 2003	ND	1.6	ND	ND	ND	1.7	NA	NA	NA	NA	NA	NA
December 9, 2003	130	32	ND	2.6	0.57	6	NA	NA	NA	NA	NA	NA
February 19-20, 2004	ND	ND	ND	ND	ND	1.6	NA	NA	NA	NA	NA	NA
May 24-25, 2004	ND	ND	ND	ND	ND	0.85	ND	ND	ND	ND	ND	ND
September 3, 2004	100	6.4	ND	ND	0.79	4.2	ND	ND	ND	ND	ND	ND
November 2, 2004	ND	2.6	ND	1.7	0.67	1	ND	ND	ND	ND	ND	ND
February 17, 2005	61	0.74	ND	0.94	ND	1.5	ND	ND	ND	ND	ND	ND
May 24 & 26, 2005	ND	ND	ND	ND	ND	1	ND	ND	NA	NA	ND	ND
August 15 & 17, 2005	ND	ND	ND	ND	ND	0.88	ND	ND	ND	ND	ND	ND
November 17, 2005	71	0.81	ND	1.1	ND	1.4	ND	ND	ND	ND	ND	ND
February 8, 2006	60	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
May 5, 2006	ND	ND	ND	ND	ND	0.93	ND	ND	ND	ND	ND	ND
August 18, 2006	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
December 1, 2006	ND	0.69	ND	ND	0.62	0.97	ND	ND	ND	ND	ND	ND
February 23, 2007	73	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND
May 10, 2007	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
November 8, 2007	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND
February 14, 2008	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
<b>MW-6</b>												
November 17, 2001	3600	160	280	95	420	1500	NA	NA	NA	NA	NA	NA
March 31, 2002	3200	410	170	82	280	3000	NA	NA	NA	NA	NA	NA
September 9, 2003	800	49	ND	7.4	ND	1700	NA	NA	NA	NA	NA	NA
December 9, 2003	970	150	9.9	31	83	1200	NA	NA	NA	NA	NA	NA
February 19-20, 2004	1,900	290	50	17	160	2,700	NA	NA	NA	NA	NA	NA
May 24-25, 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
September 3, 2004	1,100	27	ND	14	27	2,200	ND	ND	85	ND	ND	ND
November 2, 2004	1,800	32	ND	5	11	4,100	ND	ND	170	270	ND	ND
February 17, 2005	5,600	190	34	41	110	10,000	ND	ND	780	2,000	ND	ND
May 24 & 26, 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
August 15 & 17, 2005	1,800	27	ND	6	23	3,800	ND	ND	300	1,600	ND	ND
November 17, 2005	1,100	30	ND	4	9	2,400	ND	ND	190	9,500	ND	ND
February 8, 2006	3,600	220	43	66	160	2,700	ND	ND	180	7,800	ND	ND
May 5, 2006	1,600	130	21	37	66	1,400	ND	ND	63	3,100	ND	ND
August 18, 2006	270	27	ND	3	4	240	ND	ND	11	2,460	ND	ND
December 1, 2006	1,700	ND	ND	ND	ND	1,700	ND	ND	92	800	ND	ND
February 23, 2007	ND	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND
May 10, 2007	ND	3.9	ND	ND	1.9	26	ND	ND	2	48	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND
November 8, 2007	ND	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND	ND
February 14, 2008	ND	ND	ND	ND	ND	11	ND	ND	0.94	220	ND	ND



## **APPENDIX C**

### **Certified Analytical Reports for Groundwater Sampling**

# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate # 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

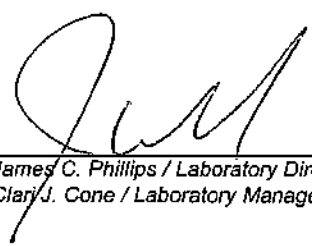
HerSchy Environmental P.O. Box 229 Bass Lake, CA 93604 Attn: Red Ratilainen	Client Project ID: Alaska Gas - Oakland Reference Number: 10871 Sample Description: Water Sample Prep/Analysis Method: EPA 5030/8015B, 8021B Lab Numbers: 10871-1W, 2W, 3W, 4W, 5W	Sampled: 02-14-08 Received: 02-15-08 Extracted: 02-19-08 Analyzed: 02-19-08 Reported: 02-28-08
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## TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
		EX-1 (ug/L)	MW-1R (ug/L)	MW-2 (ug/L)	MW-3 (ug/L)	MW-4 (ug/L)
MTBE	0.50	4500	ND	220	40000	55000
BENZENE	0.50	2300	7.6	24	ND	390
TOLUENE	0.50	4900	31	ND	110	460
ETHYL BENZENE	0.50	1800	23	12	110	230
TOTAL XYLENES	0.50	14000	150	5.9	610	2000
GASOLINE RANGE HYDROCARBONS	50	84000	800	350	41000	60000
Report Limit Multiplication Factor:		200	2	1	200	100
Report Limit Multiplication Factor for MTBE only:				5	2000	2000

Surrogate % Recovery:	FID: 116% / PID: 106%	FID: 131% / PID: 118%	FID: 118% / PID: 121%	FID: 96.2% / PID: 95.9%	FID: 92.5% / PID: 112%
Instrument ID:	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1	VAR-GC1

Analytes reported as ND were not detected or below the Practical Quantitation Limit  
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

APPROVED BY:   
James C. Phillips / Laboratory Director or  
Clay J. Cone / Laboratory Manager

# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate # 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

HerSchy Environmental  
P.O. Box 229  
Bass Lake, CA 93604  
Attn: Red Ratilainen

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10871  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8015B, 8021B  
Lab Numbers: 10871-6W, 7W

Sampled: 02-14-08  
Received: 02-15-08  
Extracted: 02-19-08  
Analyzed: 02-19-08  
Reported: 02-28-08

## TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT	SAMPLE ID	SAMPLE ID
	(ug/L)	MW-5 (ug/L)	MW-6 (ug/L)
MTBE	0.50	1.1	9.3
BENZENE	0.50	ND	ND
TOLUENE	0.50	ND	ND
ETHYL BENZENE	0.50	ND	ND
TOTAL XYLENES	0.50	ND	ND
GASOLINE RANGE HYDROCARBONS	50	ND	ND
Report Limit Multiplication Factor:		1	1

Surrogate % Recovery:

FID: 94.9% / PID: 107%      FID: 80.6% / PID: 105%

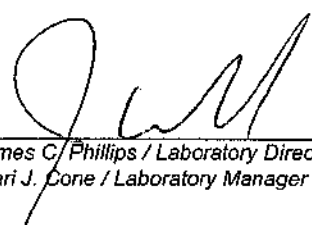
Instrument ID:

VAR-GC1

VAR-GC1

Analytes reported as ND were not detected or below the Practical Quantitation Limit  
Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

APPROVED BY:

  
James C. Phillips / Laboratory Director or  
Clari J. Cone / Laboratory Manager

# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate # 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

HerSchy Environmental  
P.O. Box 229  
Bass Lake, CA 93604  
Attn: Red Ratilainen

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10871  
Sample Description: Water  
Analyst: Jim Phillips

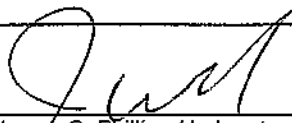
Method: EPA 5030/8015M,8020  
Instrument ID: Var-GC1  
Extracted: 02-19-08  
Analyzed: 02-19-08  
Reported: 02-28-08

## QUALITY CONTROL DATA REPORT

ANALYTE	Gasoline	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
Spike Concentration:	220	3.68	2.64	19.4	4.04	23.2
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS Batch #:	VW-2198	VW-2198	VW-2198	VW-2198	VW-2198	VW-2198
LCS % Recovery:	90.8%	93.3%	89.3%	88.9%	75.4%	82.1%
Surrogate Recovery:	108%	117%	117%	117%	117%	117%
Control Limits:	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VW-2198	VW-2198	VW-2198	VW-2198	VW-2198	VW-2198
Spike Concentration:	220	3.68	2.64	19.4	4.04	23.2
MS % Recovery:	69.2%	120%	78.8%	77.0%	76.2%	85.6%
Surrogate Recovery:	101%	108%	108%	108%	108%	108%
MSD % Recovery:	74.2%	403%	80.7%	77.4%	79.9%	89.7%
Surrogate Recovery:	107%	114%	114%	114%	114%	114%
Relative % Difference:	5.53%	104%	2.32%	0.561%	4.60%	4.59%
Method Blank :	ND	ND	ND	ND	ND	ND
Surrogate Recovery:	94.9%	108%	108%	108%	108%	108%

The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

APPROVED BY:

  
James C. Phillips / Laboratory Director or  
Cliff J. Cone / Laboratory Manager

# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate No. 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

HerSchy Environmental  
P.O. Box 229  
Bass Lake, CA 93604  
Attn: Red Ratilainen

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10871  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8260B  
Lab Numbers: 10871-1W, 2W, 3W, 4W, 5W

Sampled: 02-14-08  
Received: 02-15-08  
Extracted: 02-24-08  
Analyzed: 02-24-08  
Reported: 02-28-08

## GASOLINE ADDITIVES AND SOLVENTS BY EPA METHOD 8260 GC/MS

ANALYTE	REPORTING LIMIT (µg/L)	SAMPLE ID EX-1 (µg/L)	SAMPLE ID MW-1R (µg/L)	SAMPLE ID MW-2 (µg/L)	SAMPLE ID MW-3 (µg/L)	SAMPLE ID MW-4 (µg/L)
<b><u>FUEL OXYGENATES</u></b>						
Methyl tert-Butyl Ether (MTBE)	0.50	3900	1.7	190	44000	52000
Di-isopropyl Ether (DIPE)	0.50	ND	ND	ND	ND	ND
Ethyl tert-Butyl Ether (ETBE)	0.50	ND	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	0.50	610	ND	7.7	1900	2000
tert-Butanol (TBA)	20	10000	ND	320	110000	58000
<b><u>VOLATILE HALOCARBONS &amp; AROMATICS</u></b>						
1,2-Dichloroethane (1,2-DCA)	0.50	ND	ND	ND	ND	ND
Ethylene Dibromide (EDB)	0.50	ND	ND	ND	ND	ND
Report Limit Multiplication Factor:		200*	1	1	200*	100*
Report Limit Multiplication Factor MTBE only:				5	2000	1000

\*Increased reporting limit due to matrix interferences.

### Surrogate Recoveries

1,2-Dichloroethane-d4	98.4%	97.4%	99.1%	105%	104%
Toluene-d8	97.2%	99.0%	97.9%	98.1%	95.1%

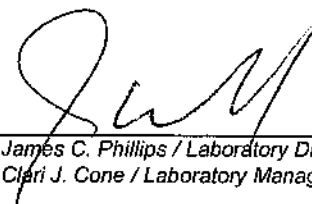
Instrument ID: HP 5972 MS

Analytes reported as ND were not detected or below the Practical Quantitation Limit

Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

(µg/L) = micrograms per liter or parts per billion (ppb)

APPROVED BY:

  
James C. Phillips / Laboratory Director or  
Clari J. Cone / Laboratory Manager



# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate No. 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

HerSchy Environmental  
P.O. Box 229  
Bass Lake, CA 93604  
Attn: Red Ratilainen

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10871  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8260B  
Lab Numbers: 10871-6W, 7W

Sampled: 02-14-08  
Received: 02-15-08  
Extracted: 02-24-08  
Analyzed: 02-24-08  
Reported: 02-28-08

## GASOLINE ADDITIVES AND SOLVENTS BY EPA METHOD 8260 GC/MS

ANALYTE	REPORTING	SAMPLE ID	SAMPLE ID
	LIMIT	MW-5	MW-6
	( $\mu\text{g/L}$ )	( $\mu\text{g/L}$ )	( $\mu\text{g/L}$ )

### FUEL OXYGENATES

Methyl tert-Butyl Ether (MTBE)	0.50	1.3	11
Di-isopropyl Ether (DIPE)	0.50	ND	ND
Ethyl tert-Butyl Ether (ETBE)	0.50	ND	ND
tert-Amyl Methyl Ether (TAME)	0.50	ND	0.94
tert-Butanol (TBA)	20	ND	220

### VOLATILE HALOCARBONS & AROMATICS

1,2-Dichloroethane (1,2-DCA)	0.50	ND	ND
Ethylene Dibromide (EDB)	0.50	ND	ND

Report Limit Multiplication Factor: 1 1

### Surrogate Recoveries

1,2-Dichloroethane-d4	108%	104%
Toluene-d8	98.7%	93.1%

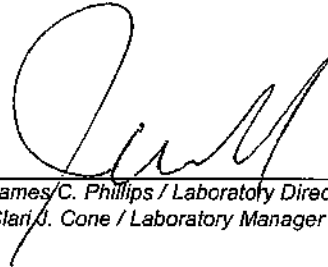
Instrument ID: HP 5972 MS

Analytes reported as ND were not detected or below the Practical Quantitation Limit

Practical Quantitation Limit = Reporting Limit x Report Limit Multiplication Factor

( $\mu\text{g/L}$ ) = micrograms per liter or parts per billion (ppb)

APPROVED BY:

  
James C. Phillips / Laboratory Director or  
Clari J. Cone / Laboratory Manager

# CASTLE ANALYTICAL LABORATORY

Environmental Testing Services  
Certificate No. 2480

2333 Shuttle Drive, Atwater, CA 95301

Phone: (209) 384-2930  
Fax: (209) 384-1507

HerSchy Environmental  
P.O. Box 229  
Bass Lake, CA 93604  
Attn: Red Ratilainen

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10871  
Matrix: Water  
Analyst: Clari Cone

Method: EPA 5030/8260  
Instrument ID: HP 5972 MS  
Prepared: 02-24-08  
Analyzed: 02-24-08  
Reported: 02-28-08

## QUALITY CONTROL DATA REPORT

SPIKE ID: VWMS-2248

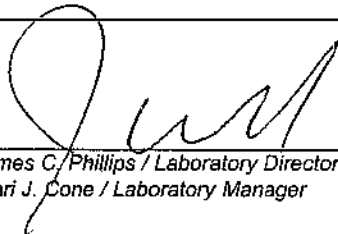
	Reporting Limit µg/L	BLANK Result µg/L	Spiking Level µg/L	Control Spike %R	%R Limits
<b>COMPOUNDS</b>					
t-Butyl Alcohol (t-BA)	20	ND	75.0	93.3%	27.2 - 178.4
Methyl t-butyl ether (MTBE)	0.50	ND	2.50	88.0%	59.7 - 153.0
Diisopropyl ether (DIPE)	0.50	ND	2.50	98.8%	72.1 - 129.6
Ethyl t-Butyl ether (ETBE)	0.50	ND	2.50	98.4%	68.1 - 130.8
t-Amyl methyl ether (TAME)	0.50	ND	2.50	103%	60.2 - 137.1
1,2-Dichloroethane (1,2-DCA)	0.50	ND	2.50	118%	91.2 - 137.6
Ethylene dibromide (EDB)	0.50	ND	2.50	83.2%	69.5 - 128.9
<b>Surrogates:</b>					
1,2-Dichloroethane-d4	1.0	103%	10.0	111%	81.7 - 125.4
Toluene-d8	1.0	93.6%	10.0	93.7%	90.3 - 112.6

	Spiking Level µg/L	MATRIX SPIKE %R	MATRIX SPIKE DUP %R	%R Limits	%RPD
<b>COMPOUNDS</b>					
t-Butyl Alcohol (t-BA)	75.0	57.9%	76.9%	45.1 - 151.2	11.4%
Methyl t-butyl ether (MTBE)	2.50	NA*	NA*	70.9 - 144.1	NA*
Diisopropyl ether (DIPE)	2.50	103%	106%	73.6 - 126.5	1.23%
Ethyl t-Butyl ether (ETBE)	2.50	107%	101%	74.8 - 128.1	5.38%
t-Amyl methyl ether (TAME)	2.50	90.4%	88.0%	62.5 - 118.6	1.80%
1,2-Dichloroethane (1,2-DCA)	2.50	NA*	NA*	85.4 - 144.6	NA*
Ethylene dibromide (EDB)	2.50	98.8%	113%	73.3 - 125.1	10.8%
<b>Surrogate:</b>					
1,2-Dichloroethane-d4	10.0	80.1%	82.2%	80.2 - 126.9	2.59%
Toluene-d8	10.0	95.6%	101%	82.6 - 114.9	5.59%

\*Matrix spike values not calculated due to high matrix sample values.

The LCS (Laboratory Check Sample) is a control sample of known, interferent free matrix that is fortified with representative analytes and analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery is used for validation of sample batch results. Due to matrix effects, the QC limits and recoveries for MS/MSD's are advisory only and are not used to accept or reject batch results.

APPROVED BY:

  
James C. Phillips / Laboratory Director or  
Clari J. Cone / Laboratory Manager

# CASTLE ANALYTICAL LABORATORY

# CHAIN OF CUSTODY

Location: 2333 Shuttle Drive, Bldg 908/909, Atwater, CA 95301

Certificate No. 2480

Mailing Address: 2333 Shuttle Drive, Atwater, CA 95301

PAGE 1 OF 1

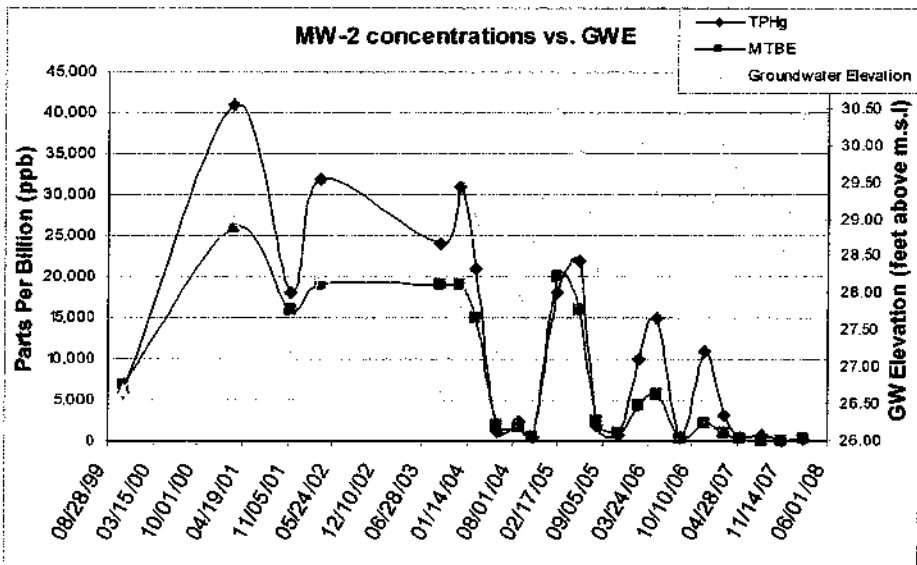
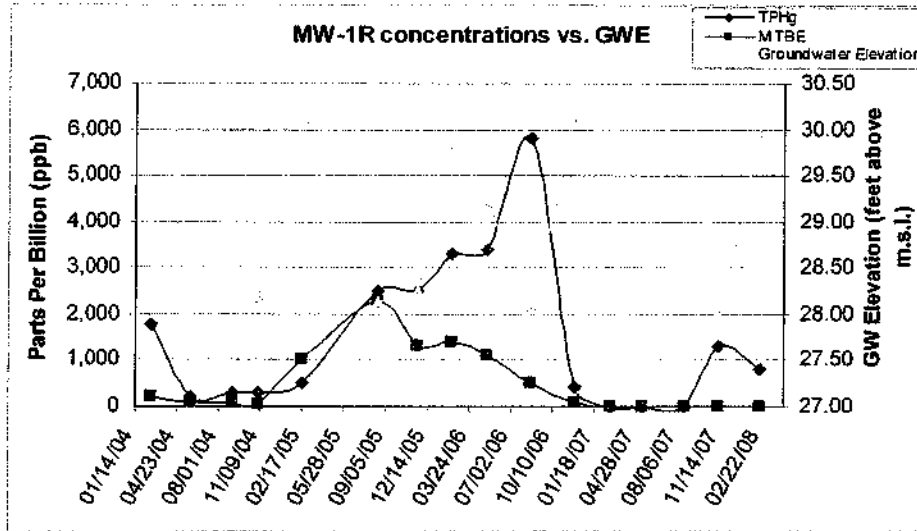
Phone: (209) 384-2930 - Fax: (209) 384-1507

Customer: <u>ALASKA GAS</u>					SAMPLE TYPE (g) grab (c) composite (d) discrete	SAMPLE MATRIX (s) solid (l) liquid (o) other	REQUESTED ANALYSES										Electronic Deliverables (EDL)	NUMBER OF CONTAINERS	Method of Shipment:		
Address:							BTEX/TPH-GAS	MTBE	TPH-DIESEL	TPH 418.1M	Oxy's / EDB / DCA by 8260	8260							Notes:		
City/State/ZIP: <u>OAKLAND</u>																					
Phone / FAX:																					
Proj # / P.O. #:																					
Report Attention: <u>RED</u>																					
Sampler Signature: <u>John A. West</u>																					
Printed: <u>JOHN S. WEST</u>																					
Lab ID#	SAMPLE ID	DATE	TIME	DESCRIPTION/LOCATION															OBSERVATIONS/REMARKS		
<u>10871-1W</u>	<u>EY-1</u>	<u>02-14</u>	<u>1013</u>		<u>G</u>	<u>L</u>	<u>X</u>	<u>X</u>		<u>X</u>											
<u>2W</u>	<u>MW-1R</u>		<u>0752</u>																		
<u>3W</u>	<u>MW-2</u>		<u>0835</u>																		
<u>4W</u>	<u>MW-3</u>		<u>0725</u>																		
<u>5W</u>	<u>MW-4</u>		<u>0930</u>																		
<u>6W</u>	<u>MW-5</u>		<u>0856</u>																		
<u>7W</u>	<u>MW-6</u>		<u>0820</u>																		
Signature					Printed Name					Date	Time	Company Name					Total number of containers submitted to the laboratory <u>28</u>				
Relinquished by: <u>John A. West</u>					<u>JOHN S. WEST</u>					<u>02-15</u>	<u>1415</u>	<u>HERSCHEY ENV</u>									
Received by: <u>Adriana Magaña</u>					<u>Adriana Magaña</u>					<u>2-15-08</u>	<u>1415</u>	<u>Castle Analytical Lab.</u>									
Relinquished by:																					
Received by:																					
Relinquished by:																	RESULTS DUE : <input type="checkbox"/> VERBAL <input type="checkbox"/> WRITTEN				
Received by:																					
Note: All special requests (e.g. quick turn times) must be cleared through authorized laboratory personnel.																					

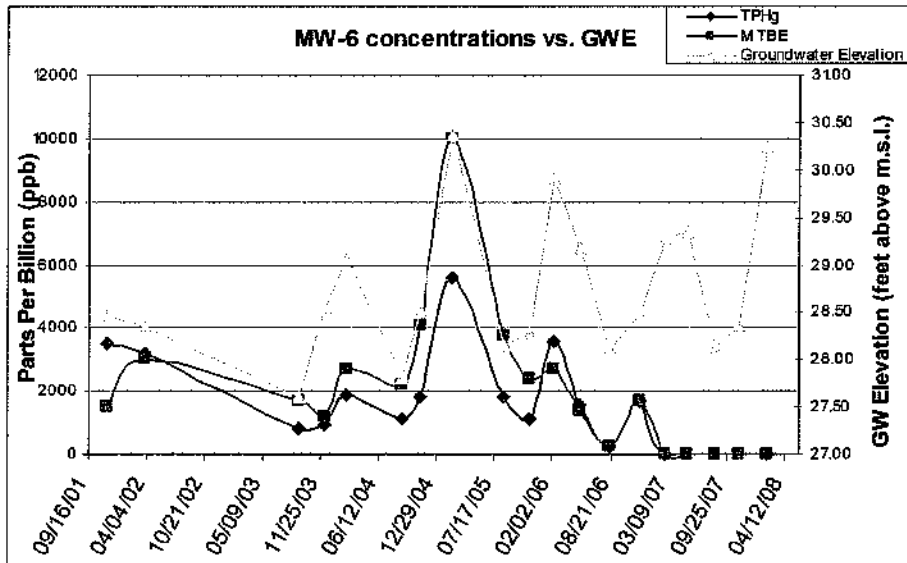
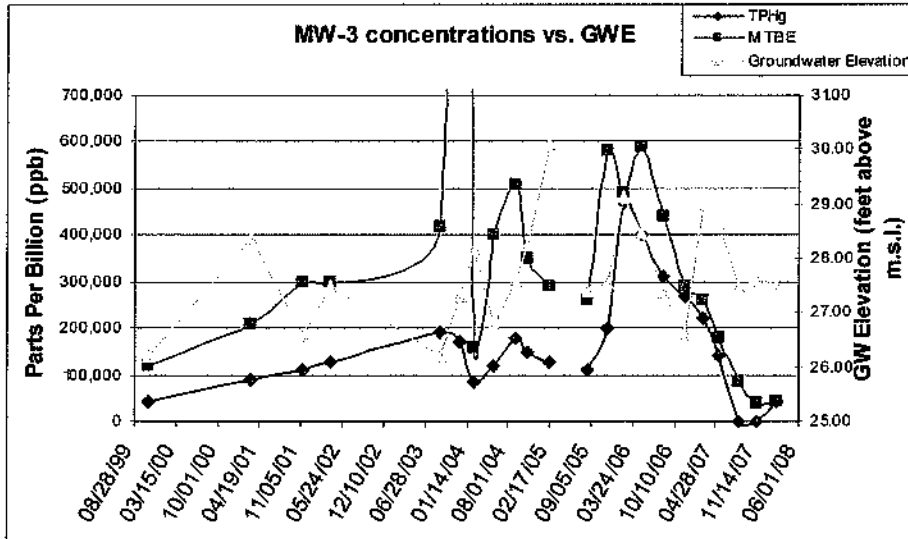
## **APPENDIX D**

### **Concentration Trend Graphs**

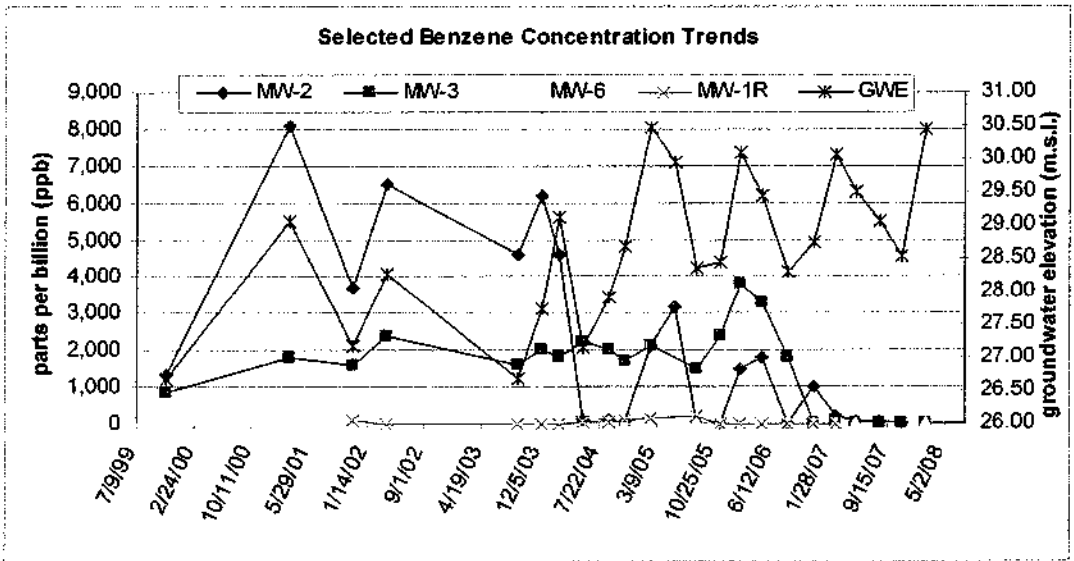
TPHg and MTBE Concentration Trends in Groundwater for Selected Wells (Page 1 of 3)



TPHg and MTBE Concentration Trends in Groundwater for Selected Wells (Page 2 of 3)



Benzene Concentration Trends in Groundwater for Selected Monitoring Wells (Page 3 of 3)



## **APPENDIX E**

### **E-mail Correspondence with the City of Oakland Housing Authority**



From: [Reijo Ratilainen](mailto:Reijo.Ratilainen@oakha.org) Sent: Thu 3/27/2008 2:22 PM  
To: [ejohnson@oakha.org](mailto:ejohnson@oakha.org)  
Cc: [Scott Jackson](mailto:Scott.Jackson@oakha.org)  
Subject: Re: Access Agreement Request

Attachments: [Alaska Gas - Base Map.pdf\(263KB\)](#) [08-29-07 - Alaska Gas - Site Update to ACEHS.pdf\(828KB\)](#) [RO127\\_Directpushsoilandgwassessment\\_2006-11-16.pdf\(273KB\)](#)  
[Direct Push Response Nov 06.pdf\(68KB\)](#)

Re: Access Agreement Request  
1126 62nd Street, Oakland CA 94612  
APN# 016-145501600

Mr. Johnson,

Per our conversation yesterday (3/26/08) I'm writing to provide a few reference documents. To reiterate, HerSchy Environmental, Inc., on behalf of the property owner Alaska Gasoline, at 6211 San Pablo Ave, Oakland, CA, is requesting limited access to the Oakland Housing Authority property above. There is an ongoing environmental investigation associated with the Alaska Gas Station. As part of that investigation we are investigating soil and groundwater conditions in the immediate vicinity of the property.

The details of our methods of investigation are included in the attached documents. To summarize the extent of our request, HerSchy is looking to advance one 4-inch soil boring, by hand, in the parking area at the south end of the lot approximately 3-7 feet from the property boundary with 6211 San Pablo Avenue (see figures, attached). The soil boring would extend to approximately 12-15 feet below the ground surface. A 6-inch saw-cut hole would be made in the existing concrete pad to allow access to the soil below, which would be repaired upon completion of our sampling.

I've included a copy of the original workplan, the Alameda County - Environmental Health Services Approval, and the most recent request for modification of approved work. These documents should elaborate on the purpose of this work as well as some of the other specifics.

Please don't hesitate to call or write with any questions or clarifications.

Thanks in advance for your help with this matter, it is greatly appreciated.

Reijo

**Reijo Ratilainen**  
*Project Geologist*  
**HerSchy Environmental, Inc.**  
cell: 559.760.0037  
fax: 510.724.8355  
[ReijoRHerSchy@STI.net](mailto:ReijoRHerSchy@STI.net)