

Oct 24 2007 1:43PM

HerSchy Environmental Inc

(559) 641-7340

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Alameda County  
Environmental Health

October 24, 2007

Ms. Donna Drogos  
Alameda County  
Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Ste. 250  
Alameda, California 94502-6577

**RE: Results of August 2007 Quarterly Groundwater Monitoring**  
Alaska Gas  
6211 San Pablo Avenue  
Oakland, California

Dear Ms. Drogos:

Attached for your review and comment is the October 24, 2007 *Results of August 2007 Quarterly Groundwater Monitoring* report 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.

October 24, 2007  
Project A51-01

Ms. Donna Drogos  
Alameda County  
Health Care Services Agency  
Environmental Health Services  
1131 Harbor Bay Parkway, Ste. 250  
Alameda, California 94502-6577

Re: **Results of August 2007 Quarterly Groundwater Monitoring**  
Alaska Gasoline Company  
6211 San Pablo Avenue  
Oakland, California  
Case #RO0000127

Dear Ms. Drogos:

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 with the soil vapor extraction system (SVES), status of on-going permitting, and status of off-site work. 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 August 16, 2007 and September 6, 2007.

## **METHODS OF INVESTIGATION**

### Groundwater Sampling Procedures

Groundwater samples were collected from five of the seven monitoring and extraction wells on August 16, 2007. Extraction well EX-1 was found to have free product, and therefore was not sampled. Due to a damaged dual phase interface probe, monitoring well MW-4 was mistakenly reported to contain free product. MW-4 was subsequently sampled on September 6, 2007. Monitoring well MW-1R was replaced on August 9, 2007 and had not been surveyed at the time of sampling.

Monitoring well MW-1R was replaced on August 9, 2007 and was developed during the August 16, 2007 sampling event. The well was purged until well water became relatively clear and after at least 10 casing volumes were removed. At the time of this sampling event, the well had not been surveyed and as such was not used in determining groundwater flow direction or gradient. HerSchy is currently scheduling a licensed surveyor to conduct a survey of MW-1R with reference to mean seal level (MSL.). Details of the well installation are included below (see Well Installation section).

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 then again just prior to collection of the groundwater sample. 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.

### SVES Monitoring

Regular monitoring of the SVES, performed on at least a monthly basis, includes measurements of various physical system properties. Samples for laboratory analyses collected from the SVES are taken from influent and effluent air streams. Air samples are collected utilizing a vacuum box and tedlar bags attached to the influent and effluent air stream. Negative pressure created by the vacuum box fills the tedlar bags with process air. Air samples are packed in sealed, unchilled containers for transport immediately following sampling. Air flow readings are taken with a hotwire style velocity meter inserted into the influent air stream. All air samples are stored, transported, and delivered under proper chain-of-custody documentation and delivered to a California certified laboratory.

Monitored parameters include, but are not limited to the following:

- Measurement of influent & effluent concentrations using either a portable organic vapor analyzer (OVA) or laboratory analysis
- Air flow readings into the oxidizer

- System runtime hours
- System temperature levels
- Water production levels
- Vacuum exerted on vapor extraction wells (as needed)
- Currently operating vapor extraction wells

A comprehensive table of field monitoring data is included as Appendix B.

### Laboratory Analysis

Vapor and 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. Groundwater 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

Due to the presence of free product in extraction well EX-1, groundwater data from this well was not used in determining the groundwater flow direction or gradient. As a result of a malfunctioning dual-phase interface probe, monitoring well MW-4 was initially found to have free product during this sampling event. It was later discovered that well MW-4 did not have any free product in it. A groundwater sample was collected from MW-4 on September 6, 2007. Because of the elapsed time between sampling dates, data from MW-4 is not used in determining groundwater flow direction or gradient.

Free product was manually removed from well EX-1 using disposable bailers on July 19, 2007 and again on August 13, 2007. Prior to removal efforts, product thickness measured roughly 1.40 feet. After removal of approximately 6 gallons of free product, the remaining thickness was recorded at 0.53 feet. When revisited on August 14, 2007 recharge was essentially non-existent as product thickness was measured at 0.50 feet. An additional 2 gallons of product were subsequently removed by hand bailing. Product thickness upon leave August 14, 2007 was approximately 0.08 feet or roughly 1 inch.

Groundwater was present beneath the site at an average depth of 7.40 feet below the average surveyed well elevation during the August 2007 monitoring event. Groundwater elevation during this quarter averaged 28.27 feet above mean sea level. This represents a decrease in average groundwater

elevation of approximately 0.91 feet since the May 2007 monitoring event. Groundwater flow direction was approximately South 49 degrees West at a gradient of 0.022 on August 16, 2007. 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 C.

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

<i>Well Number</i>	<i>Elevation</i>	<i>Depth to GW</i>	<i>GW Elevation</i>
<b>August 18, 2006</b>			
EX-1	33.28	0.69' free product	----
MW-1R	36.67	8.58	28.09
MW-2	36.33	8.05	28.28
MW-3	35.12	7.73	27.39
MW-4	34.11	0.46' free product	----
MW-5	35.17	6.77	28.40
MW-6	36.07	7.97	28.10
Flow Direction = S. 19 W.; Gradient = 0.0125			
<b>December 1, 2006</b>			
EX-1	33.28	0.06' free product	----
MW-1R	36.67	6.56	30.11
MW-2	36.33	7.58	28.75
MW-3	35.12	8.51	26.61
MW-4	34.11	0.48' free product	----
MW-5	35.17	6.47	28.70
MW-6	36.07	7.60	28.47
Flow Direction = S. 9 W.; Gradient = 0.03			
<b>February 23, 2007</b>			
EX-1	33.28	NA	NA
MW-1R	36.67	NA	NA
MW-2	36.33	6.27	30.06
MW-3	35.12	6.15	28.97
MW-4	34.11	0.97' free product	----
MW-5	35.17	5.59	29.58
MW-6	36.07	6.78	29.29
Flow Direction = S. 39 W.; Gradient = 0.012			
<b>May 10, 2007</b>			
EX-1	33.28	0.3' free product	----
MW-1R	36.67	NA	NA
MW-2	36.33	6.83	29.50
MW-3	35.12	6.54	28.58
MW-4	34.11	0.47' free product	----
MW-5	35.17	5.90	29.27
MW-6	36.07	6.72	29.35
Flow Direction = S. 38 W.; Gradient = 0.013			
<b>August 16, 2007</b>			
EX-1	33.28	0.08' free product**	----
MW-1R	36.67	9.33*	----

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

<i>Well Number</i>	<i>Elevation</i>	<i>Depth to GW</i>	<i>GW Elevation</i>
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	-----	-----
MW-5	35.17	6.79	28.38
MW-6	36.07	7.94	28.13

*Flow Direction = S. 49 W.; Gradient = 0.022*

Elevations in feet above mean sea level (MSL)  
\* well not surveyed at time of sampling

NA – Not applicable  
\*\* 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. Groundwater samples were not collected from well EX-1 due to the presence of free product as noted in Table 1 above. Groundwater samples from well MW-4 were collected on September 6, 2007. 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 D.

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

	<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>								
February 8, 2006	3,300	100	310	86	470	1,400	130	1,400
May 5, 2006	3,400	170	350	97	550	1,100	100	2,400
August 18, 2006	5,800	190	1,000	230	1,000	490	36	2,900
December 1, 2006	410	1.7	6.3	1.2	47	100	4.7	100
February 23, 2007	ND	ND	0.51	ND	1.4	2.6	ND	ND
May 10, 2007	ND	ND	ND	ND	2.0	5.9	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	ND	ND	ND
<b>MW-2</b>								
February 8, 2006	10,000	1,500	8	660	380	4,300	120	2,800
May 5, 2006	15,000	1,800	ND	1,200	1,200	5,800	150	4,300
August 18, 2006	360	11	ND	13	9.7	160	4.6	600
December 1, 2006	11,000	1,000	ND	990	910	2,100	87	2,000
February 23, 2007	3,200	210	ND	270	85	900	33	1,400
May 10, 2007	590	31	ND	39	22	200	5.9	250
August 16, 2007	650	49	ND	71	49	100	3.5	82
<b>MW-3</b>								
February 8, 2006	470,000	3,800	660	ND	790	490,000	26,000	49,000

**Table 2 (continued)**

	<i>TPHg</i>	<i>Benzene</i>	<i>Toluene</i>	<i>Ethylbenzene</i>	<i>Xylenes</i>	<i>MTBE</i>	<i>TAME</i>	<i>TBA</i>
May 5, 2006	400,000	3,300	ND	ND	ND	590,000	21,000	86,000
August 18, 2006	310,000	1,800	ND	ND	ND	440,000	23,000	79,000
February 23, 2007	220,000*	ND	ND	ND	ND	260,000	15,000	33,000
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
<b>MW-4</b>								
February 8, 2006	NS	NS	NS	NS	NS	NS	NS	NS
May 5, 2006	NS	NS	NS	NS	NS	NS	NS	NS
August 18, 2006	NS	NS	NS	NS	NS	NS	NS	NS
December 1, 2006	NS	NS	NS	NS	NS	NS	NS	NS
February 23, 2007	NS	NS	NS	NS	NS	NS	NS	NS
May 10, 2007	NS	NS	NS	NS	NS	NS	NS	NS
September 6, 2007	49,000	710	840	ND	10,000	3,600	510	32,000
<b>MW-5</b>								
February 8, 2006	50	ND	ND	ND	ND	1	ND	ND
May 5, 2006	ND	ND	ND	ND	ND	0.93	ND	ND
August 18, 2006	ND	ND	ND	ND	ND	1	ND	ND
December 1, 2006	ND	0.69	ND	ND	0.52	0.97	ND	ND
February 23, 2007	73	ND	ND	ND	ND	1.7	ND	ND
May 10, 2007	ND	ND	ND	ND	ND	1.5	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	1.3	ND	ND
<b>MW-6</b>								
February 8, 2006	3,600	220	43	66	160	2,700	180	7,800
May 5, 2006	1,600	130	21	37	65	1,400	53	3,100
August 18, 2006	270	27	ND	3	4	240	11	2,400
December 1, 2006	1,700	ND	ND	ND	ND	1,700	92	800
February 23, 2007	ND	ND	ND	ND	ND	15	ND	ND
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
<b>EX-1 (Only reported values for EX-1)</b>								
Feb 19-20, 2004	120,000	9,500	4,300	840	3,900	150,000	NA	NA

\* - Gasoline Value due to MTBE

- All reported values in parts per billion (ppb)

- NA = not analyzed

- ND = below laboratory detection limits

- NS = not sampled

No DIPE, ETBE, EDB, or 1,2-DCA was reported in groundwater samples during the August 2007 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 trends are shown for several constituents in Plates 1 & 2.

Plate 1: TPHg and MTBE Concentration Trends for Selected Wells and Analytes

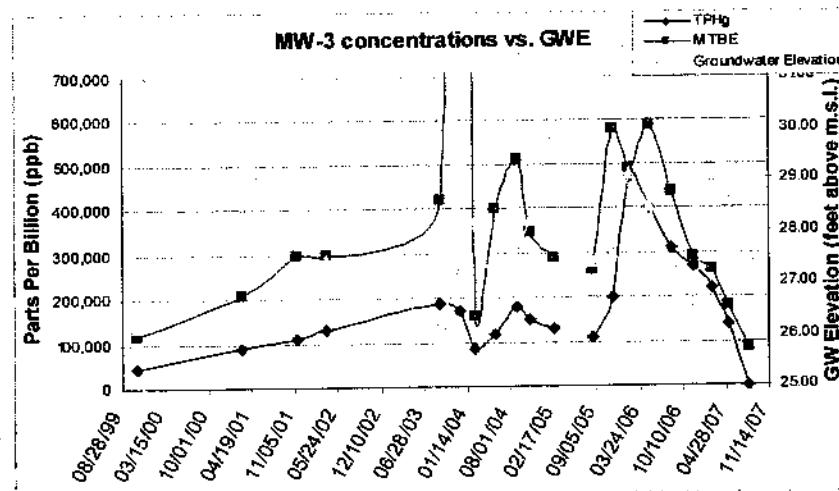
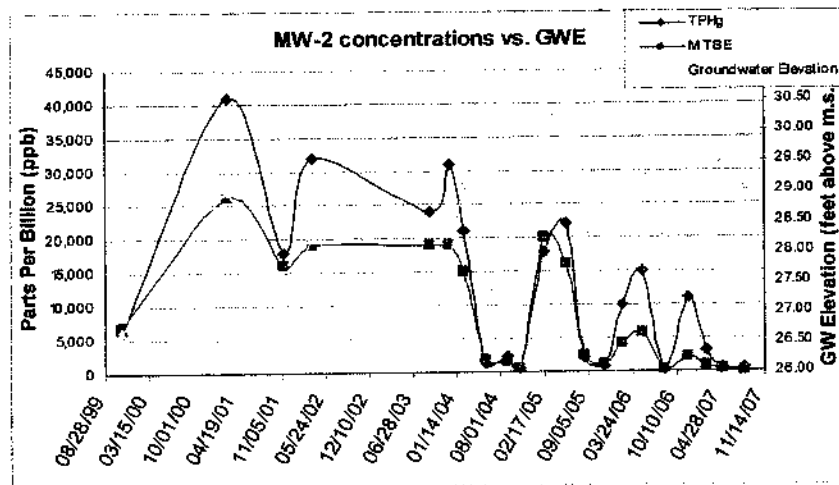
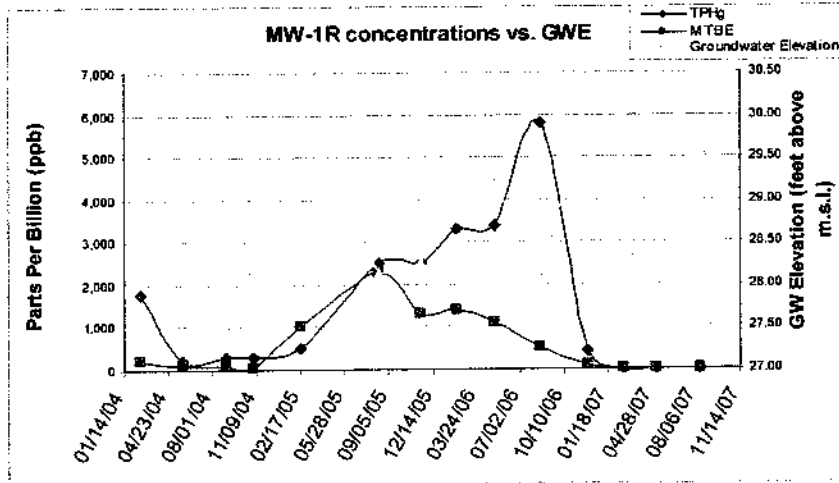




Plate 1 (continued): TPHg and MTBE Concentration Trends for Selected Wells and Analytes

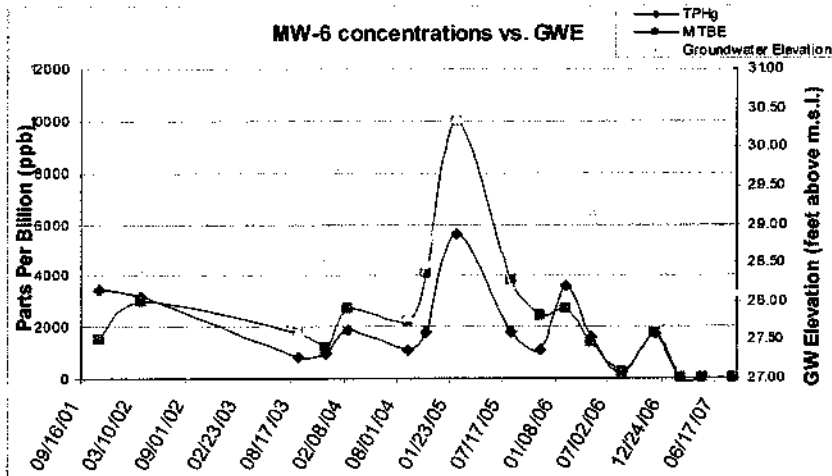
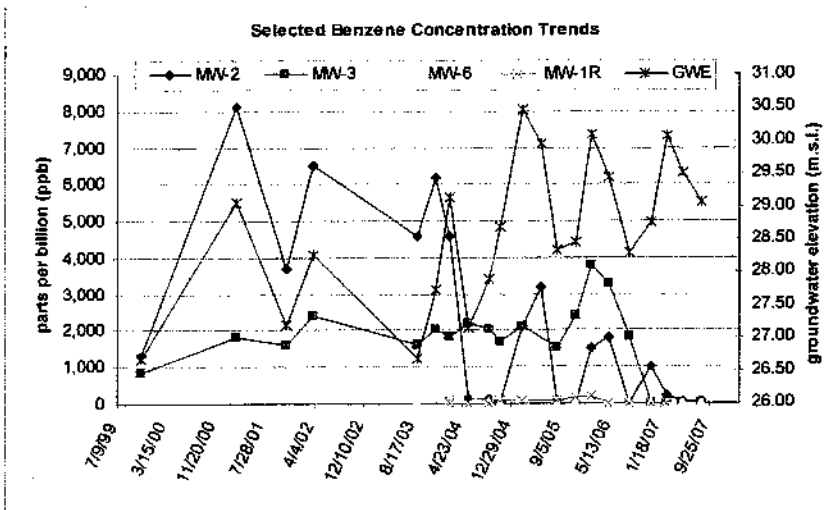


Plate 2: Selected Benzene Concentration Trends



## SOIL VAPOR EXTRACTION

The soil vapor extraction system (SVES) has been operating onsite since August 31, 2006. The SVES originally consisted of a thermal oxidizer equipped with a blower capable of producing up to 250 cubic feet per minute air flow and vacuum of up to 10 inches of mercury. The system was modified to

operate in catalytic mode due to low influent hydrocarbon concentrations. SVES activities halted from January 31, 2007 to February 21, 2007 while notifying the Bay Area Air Quality Management District (BAAQMD) of system modifications and startup. SVES activities also halted from April 30, 2007 to May 25, 2007 due to system retrofitting associated with a dual phase extraction test. Aside from those time periods mentioned, system down-time has been short and infrequent, usually related to water production issues. Table 3 presents a summary of the SVES destruction and removal efficiencies based on a combination of periodic field monitoring of influent and effluent airstreams, associated flow rates, and laboratory sample results.

Date	Hour Meter	Hours of Operation	Influent (ppm)	Effluent (ppm)	Air Flow (cfm)	Destruction Efficiency (%)	Effluent Release (lbs/day)	VOCs Removed (lbs/day)	Total VOCs Removed (lbs)	Percent Operating
2/21/07	3420.4	0	6.1	0	30.8	100.00	0.000	0.069112	0.000000	0
2/21/07	3421.4	1	0.7	0		100.00	0.000	0.000000	0.000000	100
2/22/07	3445.8	24.4	0.5	0	21.3	100.00	0.000	0.003918	0.003983	102
2/27/07	3563.5	117.7	1.6	0.15	40.5	90.63	0.002	0.023837	0.116899	98
3/21/07	4092.9	529.4	0.3	0	44.2	100.00	0.000	0.004878	0.107594	92
3/29/07	4283.8	190.9	0.4	0	35.2	100	0.000	0.005179	0.041197	99
4/30/07	5046.6	762.8	0.4	0	35.2	100	0.000	0.005179	0.164617	103
***System shutdown 4/30/07 for DPE Test										
***System restarted 5/25/07, System hours for 5/25 back calculated from 5/29										
5/25/07	5056.2									
5/29/07	5152.2	96	220	0.5	55	99.77	0.010	4.450990	17.803963	100
6/08/07	5392.4	240.2	132	0	79	100.00	0.000	3.835945	38.391413	111
6/18/07	5635.6	243.2	210	0.62	73	99.70	0.017	5.639148	57.143363	101
7/13/07*	6230.9	43.6	80.5	0	88.5	100.00	0.000	2.620658	4.760863	91
7/19/07	6372.3	141.4	91	0	90.5	100.00	0.000	3.029432	17.848407	98
8/08/07	6861.9	489.6	35	0	120	100.00	0.000	1.544972	31.517428	107
8/13/07	6998.3	136.4	30.6	0	121	100.00	0.000	1.362003	7.740718	114
9/06/07	7552.0	553.7	33	0	130	100.00	0.000	1.578079	36.40759	100
9/28/07	8083.1	531.1	0	0	93	n/a	0.000	0.000000	0.000000	101

\* System down on 6/25/07, restarted 7/11/07

ppmV - parts per million by Volume

cfm - cubic feet per minute

lbs - pounds

According to a combination of field data and laboratory analytical data, since the oxidizer was restarted in catalytic mode, approximately 212.05 lbs or 34 gallons of product have been removed by the system. Approximately 939 lbs of hydrocarbons or 152 gallons of product have been removed since soil vapor extraction began in August 2006. Destruction efficiency has been roughly 99.0 % with no more than 0.170 pounds of hydrocarbon product emitted per day to the atmosphere. A comprehensive table of SVES field data is included as Appendix D.

## **WELL INSTALLATION**

On August 9, 2007 monitoring well MW-1R was destroyed by over-drilling and re-constructing in the same bore-hole in accordance with Alameda County well destruction and construction guidelines. The drilling was conducted by Gregg Drilling and Testing, Inc. of Martinez, CA (C-57 #485165) under Alameda County Public Works Agency – Water Resources Well Permit #W2007-0809 and directed by HerSchy staff under the guidance of a California professional geologist.

Original monitoring well MW-1R was destroyed by over-drilling with 10-inch hollow-stem augers to a total depth of 25 feet below grade (fbg). The boring was then backfilled with 1.5 feet of a sand and bentonite mixture to bring the total boring depth to 23.5 fbg, which is the same depth of original well MW-1R. A bentonite seal was installed from 3 fbg to 1.25 fbg and allowed to cure for at least 30 minutes prior to completing the well with neat Portland cement to approximately 0.5 fbg. Two-inch, 0.010-inch factory slotted schedule 40 PVC casing was installed from 23 fbg to 3 fbg. Blank schedule 40 PVC casing was installed from 3 fbg to 0.5 fbg. Well construction and completion details are included in Appendix E.

## **CONCLUSIONS AND RECOMMENDATIONS**

The only reported fuel constituent in wells MW-5 and MW-6 this quarter was MTBE at 1.3 ppb and 1.4 ppb, respectively. Both reported values were below the San Francisco regional water quality control board (SFRWQCB) environmental screening levels (ESLs) for groundwater that is a potential source of drinking water. No fuel constituents were reported in newly replaced monitoring well MW-1R this quarter.

Wells MW-2, MW-3, and MW-4 were reported as impacted with fuel constituents to varying degrees. The highest reported concentrations this quarter were from well MW-3, which has historically contained the highest contaminant concentration, apart from wells with free product. A noted difference this quarter from historical references is that well MW-4, which has contained reported levels of free product, had lower reported hydrocarbon concentrations than well MW-3. It is interesting to note that well MW-4 is both closer to EX-1, which continues to contain free product, and has been reported itself with varying levels of free product. This discrepancy may be due to the inclusion of MW-4 into the vapor extraction system. Further monitoring of all wells is warranted to establish accurate concentration trends. Concentrations of TAME and TBA exist in MW-3 at 3,400 ppb and 180,000 ppb, respectively. Relatively moderate concentrations of TAME and TBA are also present in MW-2 at 3.5 ppb and 82 ppb, respectively. Historically, concentrations in MW-2 have tended to correlate proportionately with groundwater rise and fall.

Relatively high concentrations of petroleum hydrocarbons remain in soil and groundwater beneath the subject site. This is evident by the fact that extraction well EX-1 continues to contain free product. Isoconcentration maps for TPHg and MTBE are attached as Figures 3 and 4, respectively.

In a site update letter dated August 29, 2007, HerSchy detailed some of the progress it had made with previous approved workplans. The completed task items include three of six previously approved direct push soil borings and replacement of damaged well MW-1R. This letter also addressed interest in modifying and amending the previous workplan. To reiterate, the modifications included completing the soil borings by hand auger instead of by direct push to expedite the process and reduce costs. The modifications also included the adjustment of some previously approved boring locations into the city of Oakland right of way and off of private property in order to avoid pain-staking and time-consuming access agreement efforts. After receipt of the soil and groundwater data from the three completed soil borings, it was decided that additional soil borings would be beneficial in helping delineate plume extremities. HerSchy also requested a meeting in order to address on-going issues in person. A site plan with completed, modified, and amended soil boring locations was included in the update letter on August 29, 2007 and is also included as Figure 5 for reference. The locations depicted in Figure 5 are intended to supersede all previously proposed and approved boring locations.

In the May 2007 groundwater monitoring report, HerSchy noted that a surety bond for previously approved permanent wells on Marshall Street would likely be obtained by Mr. Sappal within 30 days of the report date. Since that time, Mr. Sappal has reported continued issues with securing the bonds necessary to complete the permanent wells. Currently, HerSchy believes it is his intention to discuss these matters further when and if we can move forward with our proposed meeting.

In a letter dated June 12, 2007 from the Alameda County Health Care Services (ACHCS) office, modifications for a dual phase extraction (DPE) test were amended and approved. We are currently waiting for groundwater levels to rise to seasonal highs to conduct the DPE test in order to reduce the risk of extending the smear zone beyond its current limits. The DPE test will include monitoring observation wells for induced vacuum, as was done in the previous vapor extraction test and dual phase extraction test, to assess radius-of-influence of vapor extraction. In addition to EX-1, monitoring wells MW-3 and MW-4 will also be included during the extraction test as they continue to be reported with high levels of dissolved contaminants.

While influent concentrations to the SVES were approximately 3,000 parts per million by volume (ppmv) during system startup in September 2006, concentrations are currently almost negligible. The current influent concentration to the SVES also reflects the inclusion of wells containing free product into the extraction system. Alternative active remediation options, including limited excavation and a trench

system for collecting and removing free product, are currently being investigated and, if warranted, will be developed.

As an interim means of increasing remediation efforts with existing equipment, HerSchy would like to propose intermittent operation, or cycling, of the current oxidizer. Currently the unit is operating on a continual 24 hours per day schedule. The cycling of the system on a one week on, one week off or similar basis may allow for removal of any contaminant recharge that may occur. Intermittent operation of the remediation unit would reduce costs associated with greater fuel usage associated with lower influent concentrations. The down cycles (or off cycles) would also allow for fuel constituents to rebound within the effective radius of the vapor extraction wells.

HerSchy has also installed SoakEase™ product specific absorbent socks into extraction well EX-1. The installation of the socks is a relatively passive means of dealing with the continued presence of free product in EX-1. The product socks being used were deemed the cost effective interim measure for dealing with the free product due to the extremely slow recharge rate of the existing free product as documented during the trial use of a product skimmer (September 2006) and again during the manual removal of product with disposable bailers (July & August 2007). To date, one product sock has been found fully saturated with just under 1 gallon of product and was subsequently removed and replaced. Replacement frequency will be monitored along with other remedial unit monitoring activities to ensure that product sock use continues to be cost effective.

## SCHEDULE AND CLOSING

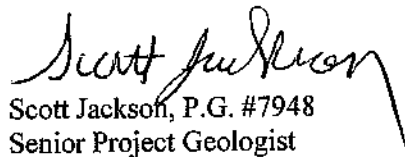
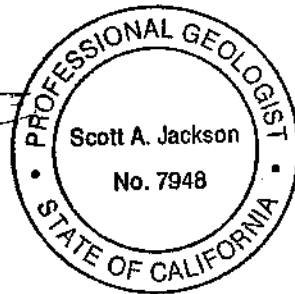
The next monitoring and sampling event is scheduled for December 2007. We appreciate the opportunity to work with you on this matter. Please contact Reijo Ratilainen (559) 760-0037 or Scott Jackson (559) 641-7320 with any questions or for additional information.

Sincerely,

**HerSchy Environmental, Inc.**



Reijo Ratilainen  
Project Geologist



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

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

Appendices    A - Groundwater Field Sampling Data Sheets  
                  B - SVES Field Monitoring Data  
                  C - Historical Groundwater Data  
                  D - Certified Analytical Reports for Groundwater Sampling  
                  E - Well Construction and Completion Diagram for Well MW-1R

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



*HerSchy 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.:

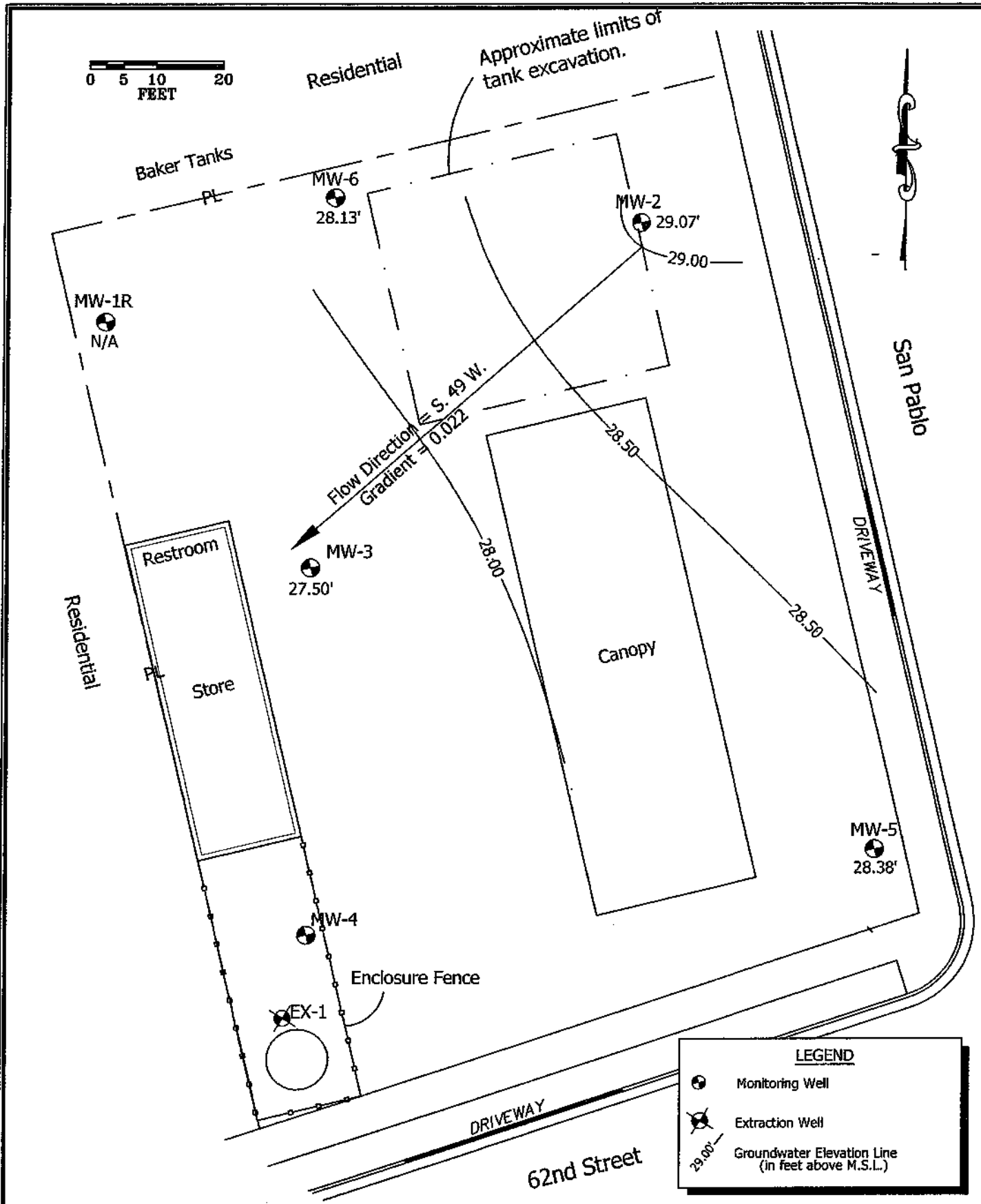
A51.01

DRAWN BY:

WEA

FIGURE

1



**LEGEND**

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

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GROUNDWATER CONDITIONS  
 August 2007  
 ALASKA GASOLINE COMPANY  
 6211 San Pablo Avenue, Oakland, California

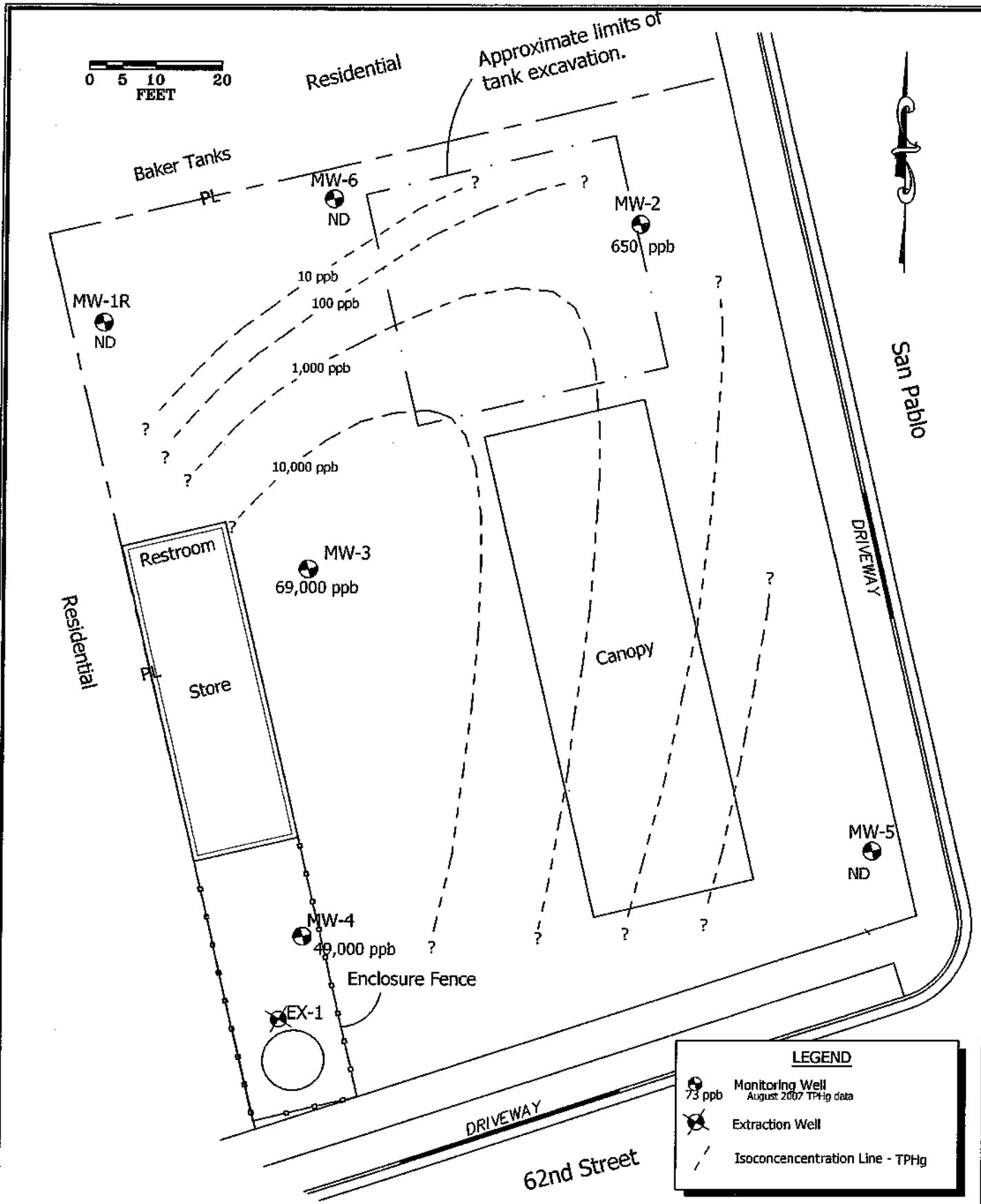
DATE:  
 October 4, 2007

FILE NO.:  
 A51-01

DRAWN BY:  
 RER

FIGURE  
 2





**LEGEND**

- Monitoring Well  
August 2007 TPHg data
- Extraction Well
- Isoconcentration Line - TPHg

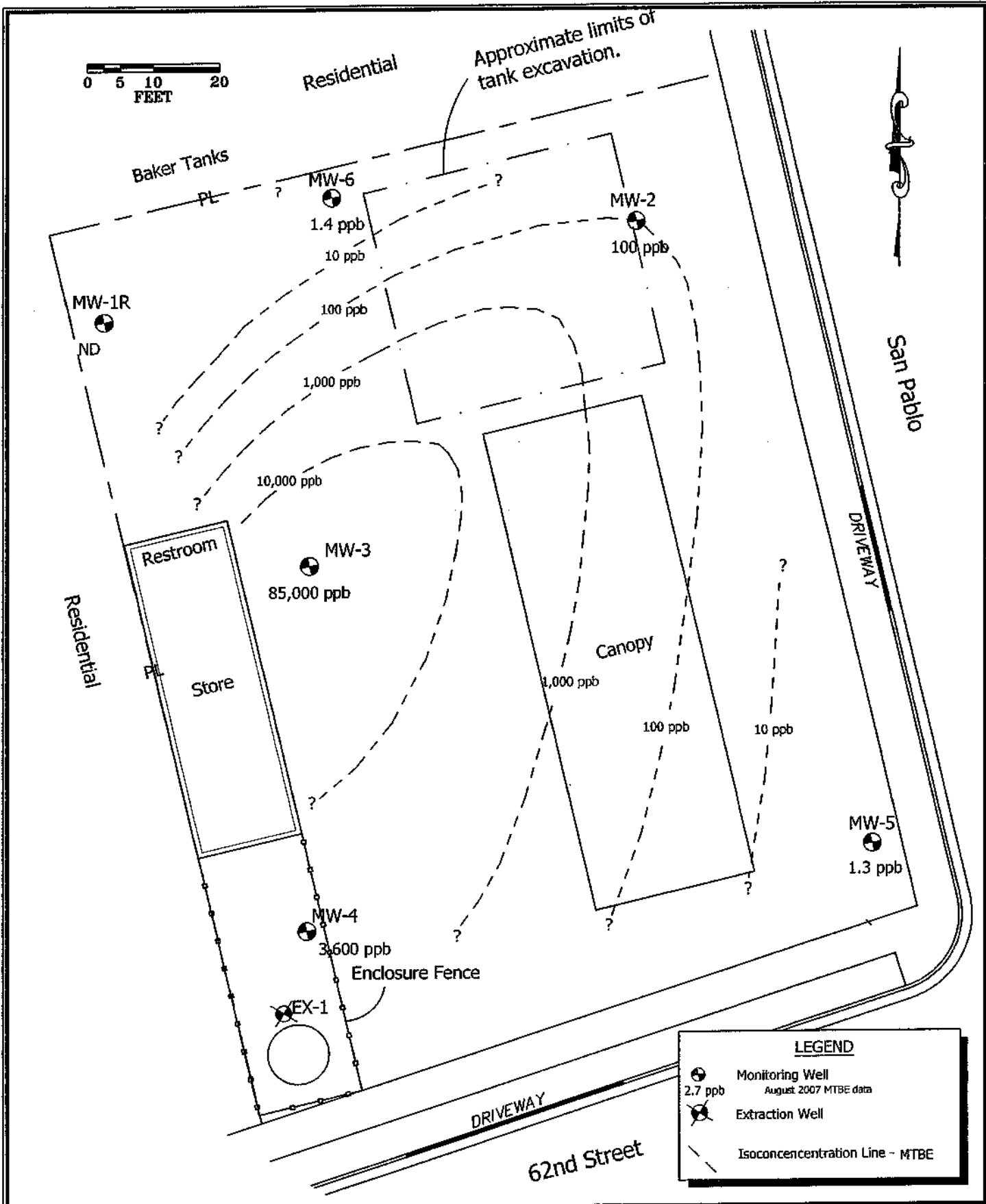
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 Bass Lake, California 93604-0229  
 Tel. (559) 641-7320, Fax (559) 641-7340

**Isoconcentration Map - TPHg**  
 August 2007

**ALASKA GASOLINE COMPANY**  
 6211 San Pablo Avenue, Oakland, California

DATE: October 8, 2007	<b>FIGURE</b> <b>3</b>
FILE NO.: A51-01	
DRAWN BY: RER	



**LEGEND**

- Monitoring Well  
August 2007 MTBE data
- Extraction Well
- Isoconcentration Line - MTBE

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**Isoconcentration Map - MTBE**  
 August 2007  
 ALASKA GASOLINE COMPANY  
 6211 San Pablo Avenue, Oakland, California

DATE:  
 October 4, 2007

FILE NO.:

A51-01

DRAWN BY:  
 RER

FIGURE  
 4

# COMPLETED DIRECT-PUSH BORING LOCATIONS WITH REMAINING BORING LOCATIONS

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

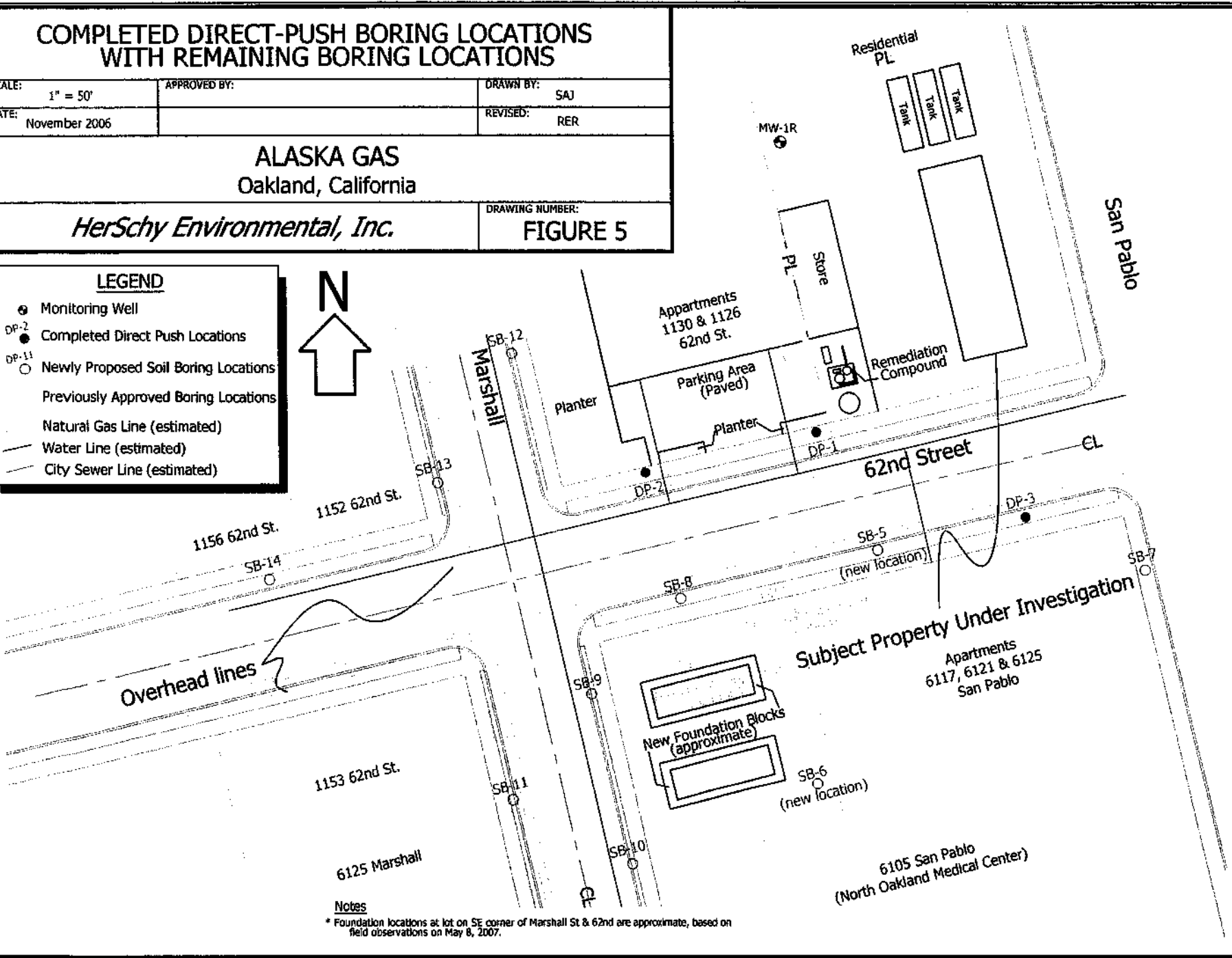
ALASKA GAS  
Oakland, California

*HerSchy Environmental, Inc.*

DRAWING NUMBER:  
**FIGURE 5**

## LEGEND

- Monitoring Well
- DP-2 Completed Direct Push Locations
- DP-11 Newly Proposed Soil Boring Locations
- 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: MW-1R Type: Groundwater X Surface Water Other

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

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

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

Depth to Water (feet): 9.33 Actual Purge Volume (gal.):

Date Purged: 08-16-07 Date Sampled: 08-16-07 0806

Table with 6 columns: TIME, VOLUME, pH, E. C., TEMP., TURBIDITY. The table body is currently empty.

Sheen Y/N?: Odor:

Purging Equipment:

Sampling Equipment:

Remarks: DEVELOPEE WELL 22.6 DEEP START GRAB SAMPLE ONLY

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.): 2.2

Depth of Well (feet): 20.90 Calculate Purge Volume (gal.): 6.7

Depth to Water (feet): 7.26 Actual Purge Volume (gal.): 6.74

Date Purged: 08-16-07 Date Sampled: 08-16-07 0850

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0837</u>	<u>-</u>	<u>6.85</u>	<u>698</u>	<u>69.3</u>	<u>CLOUDY</u>
<u>0840</u>	<u>2.2</u>	<u>6.91</u>	<u>702</u>	<u>70.7</u>	<u>CLOUDY</u>
<u>0843</u>	<u>4.4</u>	<u>6.90</u>	<u>702</u>	<u>70.5</u>	<u>CLOUDY</u>
<u>0846</u>	<u>6.7</u>	<u>6.82</u>	<u>722</u>	<u>69.7</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.): 2.2

Depth of Well (feet): 21.20 Calculate Purge Volume (gal.): 6.6

Depth to Water (feet): 7.62 Actual Purge Volume (gal.): 6.64

Date Purged: 08-16-07 Date Sampled: 08-16-07 0631

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0619</u>	<u>-</u>	<u>6.51</u>	<u>817</u>	<u>65.0</u>	<u>CLOUDY</u>
<u>0621</u>	<u>2.2</u>	<u>6.39</u>	<u>777</u>	<u>67.7</u>	<u>CLOUDY</u>
<u>0624</u>	<u>4.4</u>	<u>6.43</u>	<u>770</u>	<u>68.3</u>	<u>CLOUDY</u>
<u>0627</u>	<u>6.6</u>	<u>6.50</u>	<u>760</u>	<u>67.8</u>	

Sheen Y/N?: N Odor: PETROLEUM

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

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

Sampler's Signature: John L. 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.): 2.9

Depth of Well (feet): 24.90 Calculate Purge Volume (gal.): 8.9

Depth to Water (feet): 6.79 Actual Purge Volume (gal.): 9+

Date Purged: 08-16-07 Date Sampled: 08-16-07 0828

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0815</u>	<u>1</u>	<u>6.69</u>	<u>746</u>	<u>66.1</u>	<u>CLOUDY</u>
<u>0818</u>	<u>3</u>	<u>6.67</u>	<u>710</u>	<u>67.2</u>	<u>CLOUDY</u>
<u>0822</u>	<u>6</u>	<u>6.71</u>	<u>703</u>	<u>67.5</u>	<u>CLOUDY</u>
<u>0826</u>	<u>9</u>	<u>6.64</u>	<u>704</u>	<u>67.4</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): 36.07 Volume in Casing (gal.): 2.4

Depth of Well (feet): 23.10 Calculate Purge Volume (gal.): 7.4

Depth to Water (feet): 7.94 Actual Purge Volume (gal.): 7.4

Date Purged: 08-16-07 Date Sampled: 08-16-07 0731

TIME	VOLUME	pH	E. C.	TEMP.	TURBIDITY
<u>0719</u>	<u>-</u>	<u>6.94</u>	<u>559</u>	<u>66.8</u>	<u>CLOUDY</u>
<u>0723</u>	<u>2.4</u>	<u>6.94</u>	<u>556</u>	<u>67.7</u>	<u>CLOUDY</u>
<u>0726</u>	<u>4.8</u>	<u>6.91</u>	<u>560</u>	<u>67.5</u>	<u>CLOUDY</u>
<u>0728</u>	<u>7.4</u>	<u>6.83</u>	<u>561</u>	<u>67.4</u>	<u>CLOUDY</u>

Sheen Y/N?: N Odor: NOVE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

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

Sampler's Signature: John S. West

**APPENDIX B**

**SVES Field Monitoring Data**

# Alaska Gas Data Sheet

Site Address: 6211 San Pablo Ave., Oakland, CA 94608

Date	Total Hours	Hours	Flow - pilot (#3) (scfm)	Flow - Manifold (scfm)	Pressure ( "water)	Recirc Valve (# turns open)	SVE Wells operating	Air Sparge system operation	Influent (ppm)	Effluent (ppm)	Water in Tank (approx. gal's)	Temp. Cont.(F)	Dilution Cont. (F)	High Limit (F)	Propane (% full)
------	-------------	-------	--------------------------	------------------------	--------------------	-----------------------------	---------------------	-----------------------------	----------------	----------------	-------------------------------	----------------	--------------------	----------------	------------------

\*\*\*\* Note: system down from 1/30/2007 evening until catalytic system start on 2/21/2007 \*\*\*\*

2/21/2007	3420.4	n/m	31	30.8	n/m	full open	VE-1,2,3,4,5,6,7,12	AS-1,2,4,5	6.1	0.0	220				
	3421.4	n/m	n/m	n/m	n/m	full open	VE-1,2,3,4,5,6,7,12	AS-1,2,4,5	0.7	0.0	220	1262	1002	1001	85
2/22/2007	3445.8	25.3	22	21.3	n/m	full open	VE-1,2,3,4,5,6,7,12	AS-1,2,4,5	0.5	0.0	220	1391	1125	1122	78
2/23/2007	3472.7	52.2	26	n/m	n/m	full open	VE-1,2,3,4,5,6,7,12	off	n/m	n/m	220	1341	1117	1113	66

\*\*\*\* system efficiency tests \*\*\*\*

(1) with all wells open & recirc valve full open

n/m      29.2      -31

(2) with VE-1,2,3,4,5,6,7,12 open & recirc full open

n/m      29.3      -31

(3) with VE-1,2,3,4,5,6,7,12 open & recirc closed 6 turns from full open

49      52.5      -60

(4) with VE-1,2,3 open & recirc closed 5 turns from full open (attempt to dewater short screen intervals)

\*prior to close

41      42.5      -43

\*after close

19      ~10      -56      (H2O in influent line)

(5) with VE-1,2 open and recirc valve closed 6 turns from full open

15      over      -88

\*after 8 minutes

n/m      n/m      -90      --> water being produced slowly (~0.5 cm<sup>3</sup>/minutes in visible influent water pipe)

\*\*\*\*System returned to pre-efficiency test status - VE-1,2,3,4,5,6,7,12 open & recirc full open

2/27/2007	3563.4	143	39	40.5	-46	full open	VE-1,2,3,4,5,6,7,12	off	n/m *	n/m *	220	992	878	878	72
3/21/2007	4092.9	672.4	-	44.2	~43	6 turns back from full open	All open	off	0.3	0.1	220	953	850	849	72

\*\*\*\*System efficiency tests\*\*\*\*

(1) w/wells 1,2,3,4,5,6 open only & recirc @ 6turns closed from full closed

0 to -1 (?)      16.2      -55

0.0      n/m      1068      -      -      -

-after 5 minutes, recirc closed 1/2 turn more after readings taken

## Alaska Gas Data Sheet (continued)

Site Address: 6211 San Pablo Ave., Oakland, CA 94608

Date	Total Hours	Hours	Flow - pitot (#3) (scfm)	Flow - Manifold (scfm)	Pressure (in. water)	Recirc Valve (# turns open)	SVE Wells operating	Air Sparge system operation	Influent (ppm)	Effluent (ppm)	Water in Tank (approx. gals)	Temp. Cont.(F)	Dilution Cont. (F)	High Limit (F)	Propane (% full)
			13	--	~80							1098	--	--	--
		-after 15 minutes													
			25	--	~90							1048	--	--	--
		* Notes: approximately 35 gallons of water produced; VE-12 appears to be in relatively loose soil as pressure does not hold when isolated (2) w.wells 1,2,3,4,5,6,11 open & recirc closed 6.25 turns from full open													
			45	--	~80							950	--	--	--
3/26/2007	4211.9	791.5	35	--	~80	-5.5	VE-1,2,3,4,5,6,11		--	--	990	1086	947	946	--
		* recirculation valve closed back to 5.5 turns closed from full open													
			30	29.6	~60										
3/29/2007	4283.8	863.3	~15	21.8	~56	-5.5	VE-1,2,3,4,5,6,11	AS-1,4,5	0.0	n/m	0	1145	987	966	79
		* 1,100 gallons of water removed in the am, prior to site readings													
		* Air Sparge system turned on, test AS-1 w/VE-1,2,3,4,5,6,7,13 open (AS-1 @ 5 scfm)													
	--	--	29	31.4	~85	-6.5			0.0	n/m	--	1036	921	921	
		**** On site leave, AS-1,3,4 set on 45 min on cycle from 7am to 8:30pm													
	--	--	37	35.2	~84	-6.5	VE-1,2,3,4,5,6,7,13		0.4	n/m	--	1015	899	889	79
4/18/2007	4763.2	1342.8	31	--	--	--	VE-1,2,3,4,5,6,7,13	AS-1,4,5	--	--	1485	1165	999	--	--
	4736.7		20	--	--	full open	all open	off	--	--		1171	981	979	72
4/19/2007	4786.1	1365.6	30	--	--	--	all open	off	--	--	1485	1088	945	--	81
4/30/2007	5046.6	1626.2	33	--	--	full open	all open	off	--	--	0	1147	994	893	
		* System shutdown to prepare for dual phase extraction test													
		* plumb system to conduct DPE test on EX-1, disconnect all other VE wells from system.													
5/25/2007		*system hooked back up to Vapor Extraction Wells, also to include MW-4 and EX-1													
5/29/2007	5152.2	1731.8	55	--	--	~6.0	all open	off	220	0.5	0	960	865	886	
	--	--	55	83	--	~6	all open	off	116	0.2	0	956	895	894	--
		***TEST													
		w/all wells open - flow at 53.5 cfm at manifold													

## Alaska Gas Data Sheet (continued)

Site Address: 6211 San Pablo Ave., Oakland, CA 94608

Date	Total Hours	Hours	Flow - pilot (#3) (scfm)	Flow - Manifold (scfm)	Pressure ("-water)	Recirc Valve (# turns open)	SVE Wells operating	Air Sparge system operation	Influent (ppm)	Effluent (ppm)	Water in Tank (approx. gal's)	Temp. Cont.(F)	Dilution Cont. (F)	High Limit (F)	Propane (% full)
------	-------------	-------	--------------------------	------------------------	--------------------	-----------------------------	---------------------	-----------------------------	----------------	----------------	-------------------------------	----------------	--------------------	----------------	------------------

w/wells 10,11,12,13 closed & recirc full open

450    -    -    1200    938    935

on leave from site PID Influent readings holding steady @ ~250 ppm

6/1/2007    5227.6    1807.2    37    46.1    -    full open    all open    off    104    -    -    1140    1000    999

56    80    -    ~6.0    all open    off    157    0    -    dropping...

\*Restart AS system - after ~5-10 minutes blower motor appears to be malfunctioning

- on leave -->    57    -    -    ~6.0    all open    off    150    0    -    945    917    918

6/4/2007    5297.1    1876.6    81    -    -    ~6.0    all open    off    135    0    -    909    865    865    82

Individual line sampling on EX-1 & MW-4, with regular vacuum  
EX-1 @ 645ppm  
MW-4 @ 610 ppm

\*\*\*Testing\*\*\*

w/dilution control manually opened to approx 85%(normally at 95%) to increase airflow to burner

pitot reads 87 cfm

manifold reads 60 cfm

w/dilution control at 90%

pitot reads 73 cfm

mainfold reads 59.5 cfm

sampling of influent points gives

influent (post dilution) @ 85 ppm

influent (@ manifold, pre-blower) @ 88 ppm

5298.7    1878.2    75    -    -    ~6.0    all open    off    124    -    -    786    760    759    -

\*\*\*Dilution control held at 90% for this reading

Meet Rob Larson of Meko Industries to do efficiency tests on system.

\* note - with access caps to EX-1 and MW-4 cracked to "bleed in" air, PID concentrations spike significantly.

## Alaska Gas Data Sheet (continued)

Site Address: 6211 San Pablo Ave., Oakland, CA 94608

Date	Total Hours	Hours	Flow - pilot (#3) (scfm)	Flow - Manifold (scfm)	Pressure ("water)	Recirc Valve (# turns open)	SVE Wells operating	Air Sparge system operation	Influent (ppm)	Effluent (ppm)	Water in Tank (approx. gal's)	Temp. Cont.(F)	Dilution Cont. (F)	High Limit (F)	Propane (% full)
-possibly due to residual product in transfer lines. Or combination of slight increase in airflow from highly contaminated wells moving more vapor phase VOC's															
6/6/2007	5348.2	1827.8	57	77	--	--	all open	off	130	0	--	877	819	819	68
6/8/2007	5392.4	1972	59	79	--	-6.0	all open	restarted	132	0	--	895	835	832	78%
6/15/2007	5559.1	2138.6	56	74.5	--	--	all open	AS-1,4,5	101	0	--	922	850	850	76
6/18/2007	5635.6	2215.2	58	73	--	--	all open	AS-1 @ 4 cfm, AS-5 @ 3 cfm	93	0	--	891	820	820	--
7/11/2007	6187.3	2766.9	133	--	--	--	all open	AS-1 @ 4 cfm	--	--	--	88	88	88	82
***Flame out on arrival, it appears it went out on June 25, 2007 ~8-9am and did not shut the system down.															
***system restarted ***															
			65	87.5	--	--	all open	AS-1,4,5	139	0	--	744	688	684	--
								AS-5 @ 0 cfm				...and Rising-			
			65	87	--	--		opened to 4 cfm AS-1 @ 4 cfm, AS-4 @ 3 cfm				773	730	727	
7/13/2007	6230.9	2810.4	68	88.5	--	--	all open	AS-1,4,5	80.5	0	--	843	788	787	70
								AS-1 @ 3.5 cfm, AS-5 @ 3.5 cfm							
		-on leave-	74	89.5	--	--	all open		91	0	--	835	802	--	
7/19/2007	6372.3	2951.9	66	90.5	--	--	all open	AS-1,4,5	77	0	--	842	784	783	82
								AS-1 @ 4.5 cfm, AS-5 @ 3 cfm							
								AS-4 @ 4 cfm							
***balled approximately 6 gallons of free product from EX-1															
8/6/2007	6861.9	3441.5	71	120	--	--	all open	AS-1,4,5	35	0	--	803	749	748	--
8/13/2007	6998.3	3577.8	77	121	--	--	all open	AS-1,4,5	30.6	0	--	756	712	711	
								AS-4 @ 3.5 cfm							
***balled approximately 2 gallons of free product from EX-1															

**APPENDIX C**

**Historical Groundwater Data**

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>								
February 19-20, 2004	1,800	95	130	44	200	220	NA	NA
May 24-25, 2004	210	12	10	5.4	23	79	2.1	37
September 3, 2004	300	1.5	7.1	9.4	42	81	1.6	ND
November 2, 2004	290	14	30	9.5	45	45	1.1	ND
February 17, 2005	530	3.4	ND	ND	2.6	1000	100	ND
May 24 & 26, 2005	NA	NA	NA	NA	NA	NA	610	ND
August 15 & 17, 2005	2,500	64	240	61	210	2,300	210	ND
November 17, 2005	2,500	66	290	75	290	1,300	110	1,600
February 8, 2006	3,300	100	310	86	470	1,400	130	1,400
May 5, 2006	3,400	170	350	97	550	1,100	100	2,400
August 18, 2006	5,800	190	1,000	230	1,000	490	36	2,900
December 1, 2006	410	1.7	6.3	1.2	47	100	4.7	100
February 23, 2007	ND	ND	0.51	ND	1.4	2.6	ND	ND
May 10, 2007	ND	ND	ND	ND	2.0	5.9	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	ND		
<b>MW-2</b>								
February 19-20, 2004	21,000	4,600	120	970	2,000	15,000	NA	NA
May 24-25, 2004	1,200	120	3	63	67	1,900	ND	ND
September 3, 2004	2,300	120	ND	51	70	1,700	26	ND
November 2, 2004	530	35	ND	17	30	520	28	100
February 17, 2005	18,000	2,100	31	800	680	20,000	1,000	ND
May 24 & 26, 2005	22,000	3,200	52	1,400	1,700	16,000	NS	NS
August 15 & 17, 2005	2,000	66	ND	46	47	2,400	95	880
November 17, 2005	760	19	0.64	15	13	1000	26	810
February 8, 2006	10,000	1,500	8	660	380	4,300	120	2,800
May 5, 2006	15,000	1,800	ND	1,200	1,200	5,800	150	4,300
August 18, 2006	360	11	ND	13	9.7	160	4.6	600
December 1, 2006	11,000	1,000	ND	990	910	2,100	87	2,000
February 23, 2007	3,200	210	ND	270	85	900	33	1,400
May 10, 2007	590	31	ND	39	22	200	5.9	250
August 16, 2007	650	49	ND	71	49	100	3.5	82
<b>MW-3</b>								
February 19-20, 2004	86,000	1,800	630	ND	ND	160,000	NA	NA
May 24-25, 2004	120,000	2,200	ND	180	220	400,000	15,000	ND
September 3, 2004	180,000	2,000	ND	ND	ND	510,000	14,000	ND
November 2, 2004	150,000	1,700	ND	ND	ND	350,000	31,000	140,000
February 17, 2005	130,000	2,100	420	210	730	290,000	11,000	ND
May 24 & 26, 2005	NS	NS	NS	NS	NS	NS	NS	NS
August 15 & 17, 2005	110,000	1,500	ND	ND	ND	260,000	21,000	25,000
November 17, 2005	200,000	2,400	ND	ND	ND	580,000	24,000	49,000
February 8, 2006	470,000	3,800	660	ND	790	490,000	26,000	49,000
May 5, 2006	400,000	3,300	ND	ND	ND	590,000	21,000	86,000
August 18, 2006	310,000	1,800	ND	ND	ND	440,000	23,000	79,000
December 1, 2006	270,000	ND	ND	ND	ND	290,000	11,000	90,000
February 23, 2007	220,000	ND	ND	ND	ND	260,000	15,000	33,000
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
<b>MW-5</b>								
February 19-20, 2004	ND	ND	ND	ND	ND	1.5	NA	NA
May 24-25, 2004	ND	ND	ND	ND	ND	0.55	ND	ND
September 3, 2004	100	6.4	ND	ND	0.79	4.2	ND	ND
November 2, 2004	ND	2.6	ND	1.7	0.87	1	ND	ND
February 17, 2005	51	0.74	ND	0.94	ND	1.5	ND	ND
May 24 & 26, 2005	ND	ND	ND	ND	ND	1	NA	NA
August 15 & 17, 2005	ND	ND	ND	ND	ND	0.88	ND	ND
November 17, 2005	71	0.81	ND	1.1	ND	1.4	ND	ND
February 8, 2006	50	ND	ND	ND	ND	1	ND	ND
May 5, 2006	ND	ND	ND	ND	ND	0.93	ND	ND
August 18, 2006	ND	ND	ND	ND	ND	1	ND	ND
December 1, 2006	ND	0.69	ND	ND	0.52	0.97	ND	ND
February 23, 2007	73	ND	ND	ND	ND	1.7	ND	ND
May 10, 2007	ND	ND	ND	ND	ND	1.5	ND	ND
August 16, 2007	ND	ND	ND	ND	ND	1.3	ND	ND
<b>MW-6</b>								
February 19-20, 2004	1,900	280	58	17	160	2,700	NA	NA
May 24-25, 2004	NA	NA	NA	NA	NA	NA	NA	NA
September 3, 2004	1,100	27	ND	14	27	2,200	85	ND
November 2, 2004	1,800	32	ND	5	11	4,100	170	270
February 17, 2005	5,600	190	34	41	110	10,000	780	2,000
May 24 & 26, 2005	NA	NA	NA	NA	NA	NA	NA	NA
August 15 & 17, 2005	1,800	27	ND	6	23	3,800	300	3,500
November 17, 2005	1,100	30	ND	4	9	2,400	190	9,500
February 8, 2006	3,600	220	43	66	160	2,700	180	7,800
May 5, 2006	1,600	130	21	37	65	1,400	53	3,100
August 18, 2006	270	27	ND	3	4	240	11	2,400
December 1, 2006	1,700	ND	ND	ND	ND	1,700	92	800
February 23, 2007	ND	ND	ND	ND	ND	15	ND	ND
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
<b>EX-1</b>								
February 19-20, 2004	120,000	9,500	4,300	840	3,900	150,000	NA	NA

- All reported values in parts per billion (ppb)

- NA = not analyzed

- ND = below laboratory detection limits

- NS = not sampled

**APPENDIX D**

**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: 10382  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8015B, 8021B  
Lab Numbers: 10382 - 1W, 2W, 3W, 4W, 5W

Sampled: 08-16-07  
Received: 08-16-07  
Extracted: 08-17-07  
Analyzed: 08-17-07  
Reported: 08-24-07

## TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION


ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID	SAMPLE ID
		MW-1R (ug/L)	MW-2 (ug/L)	MW-3 (ug/L)	MW-5 (ug/L)	MW-6 (ug/L)
MTBE	0.50	ND	82	78000	1.3	1.8
BENZENE	0.50	ND	49	ND	ND	ND
TOLUENE	0.50	ND	ND	ND	ND	ND
ETHYL BENZENE	0.50	ND	71	ND	ND	ND
TOTAL XYLENES	0.50	ND	49	ND	ND	ND
GASOLINE RANGE HYDROCARBONS	50	ND	650	69000*	ND	ND
Report Limit Multiplication Factor:		1	5	200	1	1
Report Limit Multiplication Factor for MTBE only:				10000		

\*Gasoline value due to MTBE.

Surrogate % Recovery:	FD: 90.6% / PID: 92.5%	FD: 111% / PID: 104%	FD: 86.1% / PID: 105%	FD: 91.6% / PID: 94.4%	FD: 90.2% / PID: 91.0%
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  
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 Name: Alaska Gas - Oakland  
Reference Number: 10382  
Sample Description: Water  
Analyst: Jim Phillips

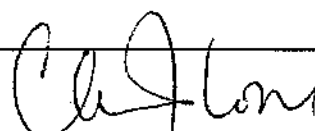
Method: EPA 5030/8015M,8020  
Instrument ID: Var-GC1  
Extracted: 08-17-07  
Analyzed: 08-17-07  
Reported: 08-24-07

## QUALITY CONTROL DATA REPORT

ANALYTE	Gasoline	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
Spike Concentration:	280	25.9	2.09	11.2	3.26	17.3
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS Batch #:	VW-8177	VW-8177	VW-8177	VW-8177	VW-8177	VW-8177
LCS % Recovery:	72.7%	84.9%	92.8%	84.9%	89.8%	82.8%
Surrogate Recovery:	97.7%	92.9%	92.9%	92.9%	92.9%	92.9%
Control Limits:	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VW-8177	VW-8177	VW-8177	VW-8177	VW-8177	VW-8177
Spike Concentration:	280	25.9	2.09	11.2	3.26	17.3
MS % Recovery:	65.5%	85.5%	90.8%	87.1%	91.9%	85.2%
Surrogate Recovery:	98.1%	97.3%	97.3%	97.3%	97.3%	97.3%
MSD % Recovery:	71.0%	91.0%	93.8%	89.3%	96.5%	88.9%
Surrogate Recovery:	101%	100%	100%	100%	100%	100%
Relative % Difference:	7.73%	6.11%	3.22%	2.37%	4.84%	4.20%
Method Blank :	ND	ND	ND	ND	ND	ND
Surrogate Recovery:	91.0%	92.4%	92.4%	92.4%	92.4%	92.4%

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

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: 10382 Sample Description: Water Sample Prep/Analysis Method: EPA 5030/8260B Lab Numbers: 10382 - 1W, 2W, 3W, 4W, 5W	Sampled: 08-16-07 Received: 08-16-07 Extracted: 08-21-07 Analyzed: 08-21-07 Reported: 08-24-07
--	---	--

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

ANALYTE	REPORTING LIMIT (ug/L)	SAMPLE ID MW-1R (ug/L)	SAMPLE ID MW-2 (ug/L)	SAMPLE ID MW-3 (ug/L)	SAMPLE ID MW-5 (ug/L)	SAMPLE ID MW-6 (ug/L)
<b>FUEL OXYGENATES</b>						
Methyl tert-Butyl Ether (MTBE)	0.50	ND	100	65000	1.3	1.4
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	ND	3.5	3400	ND	ND
tert-Butanol (TBA)	20	ND	82	180000	ND	ND
<b>VOLATILE HALOCARBONS &amp; AROMATICS</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:		1	1	500*	1	1
Report Limit Multiplication Factor for MTBE:			5	2000		


\* Report limit raised due to matrix interference

Surrogate Recoveries					
1,2-Dichloroethane-d4		112%	112%	107%	105%
Toluene-d8		97.5%	98.5%	97.4%	92.0%
					100%
					98.7%

Instrument ID: Varian 2100T

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

Client Project ID: Alaska Gas - Oakland  
Reference Number: 10382  
Matrix: Water  
Analyst: Scott Foster

Method: EPA 5030/8260  
Instrument ID: Varian 2100T  
Prepared: 08-21-07  
Analyzed: 08-21-07  
Reported: 08-24-07

## QUALITY CONTROL DATA REPORT

SPIKE ID: VWMS-8217v

COMPOUNDS	Reporting Limit µg/L	BLANK Result µg/L	Spiking Level µg/L	Control Spike %R	%R Limits
t-Butyl Alcohol (t-BA)	20	ND	75.0	109%	32.4 - 175.3
Methyl t-butyl ether (MTBE)	0.50	ND	2.50	108%	61.2 - 136.4
Diisopropyl ether (DIPE)	0.50	ND	2.50	112%	66.1 - 128.0
Ethyl t-Butyl ether (ETBE)	0.50	ND	2.50	110%	63.4 - 127.3
t-Amyl methyl ether (TAME)	0.50	ND	2.50	111%	53.4 - 133.9
1,2-Dichloroethane (1,2-DCA)	0.50	ND	2.50	94.8%	59.7 - 144.1
Ethylene dibromide (EDB)	0.50	ND	2.50	90.4%	56.7 - 144.1
Surrogates:					
1,2-Dichloroethane-d4	1.00	107%	10.0	96.3%	59.2 - 135
Toluene-d8	1.00	101%	10.0	103%	62.9 - 132

COMPOUNDS	Spiking Level µg/L	MATRIX SPIKE %R	MATRIX SPIKE DUP %R	%R Limits	%RPD
t-Butyl Alcohol (t-BA)	75.0	109%	107%	35.7 - 169.9	1.74%
Methyl t-butyl ether (MTBE)	2.50	117%	114%	46.6 - 144.2	2.68%
Diisopropyl ether (DIPE)	2.50	124%	121%	56.5 - 125.2	2.61%
Ethyl t-Butyl ether (ETBE)	2.50	122%	124%	57.1 - 127.9	1.63%
t-Amyl methyl ether (TAME)	2.50	100%	110%	54.9 - 117.2	9.07%
1,2-Dichloroethane (1,2-DCA)	2.50	115%	116%	48.1 - 144.3	1.03%
Ethylene dibromide (EDB)	2.50	102%	104%	53.3 - 132.8	2.25%
Surrogate:					
1,2-Dichloroethane-d4	10.0	114%	104%	59.2 - 135	9.72%
Toluene-d8	10.0	112%	101%	62.9 - 132	10.4%

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 (EDF)	NUMBER OF CONTAINERS	Method of Shipment:	
Address:															Notes:	
City/State/ZIP: <u>OAKLAND</u>																
Phone / FAX:																
Proj # / P.O. #:																
Report Attention: <u>RED</u>																
Sampler Signature: <u>John S. West</u>																
Printed: <u>JOHN S. WEST</u>																
Lab ID#	SAMPLE ID	DATE	TIME	DESCRIPTION/LOCATION			BTEX/TPH-GAS	MTBE	TPH-DIESEL	TPH 418.1M	Oxy's / EDB / DCA by 8260	8260		OBSERVATIONS/REMARKS		
<u>10382-1W</u>	<u>MW-1R</u>	<u>08-16</u>	<u>0806</u>		<u>G</u>	<u>L</u>	<u>X</u>	<u>X</u>			<u>X</u>		<u>3</u>			
<u>2W</u>	<u>MW-2</u>		<u>0850</u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>		<u> </u>			
<u>3W</u>	<u>MW-3</u>		<u>0631</u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>		<u> </u>			
<u>4W</u>	<u>MW-5</u>		<u>0828</u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>		<u> </u>			
<u>5W</u>	<u>MW-6</u>		<u>0731</u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>		<u> </u>			
Relinquished by: <u>John S. West</u>					Signature		Printed Name		Date	Time	Company Name		15	Total number of containers submitted to the laboratory		
Received by: <u>Clayton</u>							<u>JOHN S. WEST</u>		<u>08-16</u>		<u>HERSCHY ENV</u>			Note: All special requests (e.g. quick turn times) must be cleared through authorized laboratory personnel.		
Relinquished by:							<u>Clayton</u>		<u>08-16</u>	<u>11:15</u>	<u>Castle Analytical</u>					
Received by:																
Relinquished by:																
Received by:													RESULTS DUE : <input type="checkbox"/> VERBAL <input type="checkbox"/> WRITTEN			

# 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: Reijo Ratilainen

Client Project ID: Alaska Gas-Oakland  
Reference Number: 10461  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8015B, 8021B  
Lab Numbers: 10461-1W

Sampled: 09-06-07  
Received: 09-13-07  
Extracted: 09-18-07  
Analyzed: 09-18-07  
Reported: 09-21-07

## TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

ANALYTE	REPORTING LIMIT	SAMPLE ID
	(ug/L)	MW-4 (ug/L)
MTBE	0.50	2900
BENZENE	0.50	710
TOLUENE	0.50	840
ETHYL BENZENE	0.50	ND
TOTAL XYLENES	0.50	10000
GASOLINE RANGE HYDROCARBONS	50	49000

Report Limit Multiplication Factor: 100

Surrogate % Recovery:


FID: 105% / PID: 103%

Instrument ID:

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: Reijo Ratilainen

Client Project Name: Alaska Gas  
Reference Number: 10461  
Sample Description: Water  
Analyst: Jim Phillips

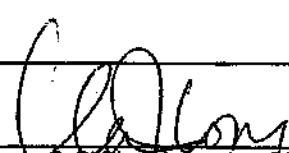
Method: EPA 5030/8015M,8020  
Instrument ID: Var-GC1  
Extracted: 09-18-07  
Analyzed: 09-18-07  
Reported: 09-21-07

## QUALITY CONTROL DATA REPORT

ANALYTE	Gasoline	MTBE	Benzene	Toluene	Ethyl Benzene	Total Xylenes
Spike Concentration:	280	25.9	2.09	11.2	3.26	17.3
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
LCS Batch #:	VW-9187	VW-9187	VW-9187	VW-9187	VW-9187	VW-9187
LCS % Recovery:	90.4%	99.0%	108%	94.6%	88.2%	80.8%
Surrogate Recovery:	99.5%	87.7%	87.7%	87.7%	87.7%	87.7%
Control Limits:	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %	70-130 %
MS/MSD Batch #:	VW-9187	VW-9187	VW-9187	VW-9187	VW-9187	VW-9187
Spike Concentration:	280	25.9	2.09	11.2	3.26	17.3
MS % Recovery:	78.0%	90.3%	97.8%	84.9%	86.7%	80.6%
Surrogate Recovery:	100%	89.2%	89.2%	89.2%	89.2%	89.2%
MSD % Recovery:	75.2%	96.9%	86.9%	65.0%	85.7%	80.7%
Surrogate Recovery:	100%	90.0%	90.0%	90.0%	90.0%	90.0%
Relative % Difference:	3.45%	7.06%	11.8%	26.4%	1.20%	0.190%
Method Blank :	ND	ND	ND	ND	ND	ND
Surrogate Recovery:	105%	97.2%	97.2%	97.2%	97.2%	97.2%

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

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: Reijo Ratilainen

Client Project ID: Alaska Gas-Oakland  
Reference Number: 10461  
Sample Description: Water  
Sample Prep/Analysis Method: EPA 5030/8260B  
Lab Numbers: 10461-1W

Sampled: 09-06-07  
Received: 09-13-07  
Extracted: 09-14-07  
Analyzed: 09-14-07  
Reported: 09-21-07

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

ANALYTE	REPORTING LIMIT ( $\mu\text{g/L}$ )	SAMPLE ID MW-4 ( $\mu\text{g/L}$ )
<b>FUEL OXYGENATES</b>		
Methyl tert-Butyl Ether (MTBE)	0.50	3600
Di-isopropyl Ether (DIPE)	0.50	ND
Ethyl tert-Butyl Ether (ETBE)	0.50	ND
tert-Amyl Methyl Ether (TAME)	0.50	510
tert-Butanol (TBA)	20	32000
<b>VOLATILE HALOCARBONS &amp; AROMATICS</b>		
1,2-Dichloroethane (1,2-DCA)	0.50	ND
Ethylene Dibromide (EDB)	0.50	ND
Report Limit Multiplication Factor:		20*
Report Limit Multiplication Factor for MTBE & TBA:		100

\* Report limit raised due to matrix interference

### Surrogate Recoveries

1,2-Dichloroethane-d4	104%
Toluene-d8	111%

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

**APPENDIX E**

**Well Construction and Completion Diagram for  
Well MW-1R**

**HerSchy Environmental, Inc.**  
 Environmental Consulting and Remediation  
 P. O. Box 229  
 Bass Lake, CA 93604-0229  
 (559) 641-7320

**FIELD BOREHOLE LOG**  
 BOREHOLE NO.: **MW-1R**  
 TOTAL DEPTH: **25'**

**PROJECT INFORMATION**

**DRILLING INFORMATION**

PROJECT:	<b>Alaska Gasoline Company</b>	DRILLING CO.:	<b>Gregg Drilling</b>
SITE LOCATION:	<b>Oakland</b>	SLOT SIZE:	<b>0.010"</b>
JOB NO.:	<b>A51-01.03</b>	CASING TYPE:	<b>2" Sch. 40 PVC</b>
LOGGED BY:	<b>R. Ratilainen</b>	METHOD OF DRILLING:	<b>10" Hollow Stem Auger</b>
PROJECT MANAGER:	<b>R. Ratilainen</b>	SAMPLING METHOD:	<b>California split spoon</b>
DATES DRILLED:	<b>08/09/07</b>	GRAVEL PACK:	<b>#2 Sand</b>

DEPTH	SOIL SYMBOLS	USCS	BLOW COUNTS PER 6"	SOIL DESCRIPTION	MOISTURE	SAMPLE INTERVAL	OVA (PPM)	BORING COMPLETION	WELL DETAILS
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