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Alameda County
Environmental Health

May 11, 2007

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

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

Dear Mr. Chan:

Attached for your review and comment is the May 11, 2007 "*Results of February 2007 Quarterly Groundwater Monitoring, Alaska Gasoline Company, Oakland, California, Case #RO0000127*" 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

# HerSchy Environmental, Inc.

May 11, 2007
Project A51-01

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

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

Dear Mr. Chan:

HerSchy Environmental, Inc. (HerSchy), on behalf of Mr. Schivcharanjit Lal of Lal's Best Service Station, has prepared this report summarizing the results of the most recent quarterly monitoring event. Also included is a progress summary of the soil vapor extraction system (SVES) and the results of soil sampling along 62nd Street. The site is located at 6211 San Pablo Avenue, which is on the northwest corner of San Pablo Avenue and 62nd Street in Oakland, Alameda County, California (Figure 1). Groundwater monitoring was performed on February 23, 2007.

## METHODS OF INVESTIGATION

Groundwater Sampling Procedures

Groundwater samples were collected from five of the seven monitoring and extraction wells on February 23, 2007. Monitoring well MW-4 was found to have floating product, and therefore was not sampled. Extraction well EX-1 was capped for use as an air sparge well and was not available for sampling. 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. 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 which are presented in Attachment 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 frozen gel packs ("blue ice") immediately after sampling. Samples were maintained at, or below, four degrees Celsius until delivered to the laboratory. Groundwater samples were handled under chain-of-custody documentation until delivered to a California certified laboratory.

Laboratory Analysis

Groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary butyl ether (MTBE). Samples were analyzed using EPA method 8020 for BTEX and MTBE. 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.

SVES Monitoring

Regular monitoring of the SVES, performed on at least a monthly basis, includes measurements of various physical system properties. These measurements include, but are not limited to the following:

- Influent & effluent PID readings using a portable organic vapor analyzer (OVA)
- Air flow readings into the oxidizer
- System runtime hours
- System temperature levels
- Water production levels
- Vacuum exerted on vapor extraction wells
- Currently operating vapor extraction wells

A comprehensive table of monitoring data is included as Attachment B.

## RESULTS OF INVESTIGATION

Groundwater Conditions

Due to the presence of free product in monitoring well MW-4, groundwater data from this well was not used in determining the groundwater flow direction or gradient. Extraction well EX-1 was capped and incorporated into the air sparging system and was therefore unavailable for sampling. During

this quarterly sampling round, the field technician noted that the top-of-casing for monitoring well MW-1R had sunk approximately one foot. HerSchy is looking into the subsequent integrity of the well. It is likely that the well MW-1R will need to be destroyed and replaced due to compromised subsurface conditions. Further assessment of the current condition of the well will take place in the near future.

Groundwater was present beneath the site at an average depth of 6.20 feet below the average surveyed well elevation during the February 2007 monitoring event. Groundwater elevation during this quarter averaged 29.48 feet above mean sea level. This represents an increase in average groundwater elevation of approximately 0.95 feet since the December 2006 monitoring event. Groundwater flow direction was approximately South 39 degrees West at a gradient of 0.012 on February 23, 2007. Groundwater conditions are summarized in Table 1 and are presented graphically in Figure 2.

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

| Well Number | Elevation | Depth to GW | GW Elevation |
|---|---|---|---|
| **February 8, 2006** | | | |
| EX-1* | 33.28 | 4.92* | 28.36* |
| MW-1R | 36.67 | 6.81 | 29.86 |
| MW-2 | 36.33 | 6.24 | 30.09 |
| MW-3 | 35.12 | 6.00 | 29.12 |
| MW-4 | 34.11 | 0.27' free product | ------ |
| MW-5 | 35.17 | 5.53 | 29.64 |
| MW-6 | 36.07 | 6.16 | 29.91 |
| Flow Direction = S. 48 W.; Gradient = .010 | | | |
| **May 5, 2006** | | | |
| EX-1 | 33.28 | 0.81' free product | ------ |
| MW-1R | 36.67 | 7.46 | 29.21 |
| MW-2 | 36.33 | 6.89 | 29.44 |
| MW-3 | 35.12 | 6.65 | 28.47 |
| MW-4 | 34.11 | 0.39' free product | ------ |
| MW-5 | 35.17 | 6.10 | 29.07 |
| MW-6 | 36.07 | 6.81 | 26.26 |
| Flow Direction = S. 28 W.; Gradient = .013 | | | |
| **August 18, 2006** | | | |
| 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 = .0125 | | | |
| **December 1, 2006** | | | |
| EX-1 | 33.28 | 1/16 inch free product | ------ |
| MW-1R | 36.67 | 6.56 | 30.11 |

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

| Well Number | Elevation | Depth to GW | GW Elevation |
|---|---|---|---|
| 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 = .03 | | | |
| **February 23, 2007** | | | |
| EX-1 | 33.28 | NS | NS |
| 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 = .012 | | | |

Elevations in feet above mean sea level (MSL) NS = not sampled
NA – Not applicable due to damage to well
* = Screen drowned, all free product previously extracted during testing on 12/27/05

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 monitoring well MW-4 due to the presence of free product as noted in Table 1 above. Table 2 summarizes analytical data for the current quarter along with data from the previous seven quarters. Certified analytical reports and chain-of-custody documentation for the current quarter are presented in Attachment C.

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

| | *TPHg* | *Benzene* | *Toluene* | *Ethylbenzene* | *Xylenes* | *MTBE* | *TAME* | *TBA* |
|---|---|---|---|---|---|---|---|---|
| **MW-1R** | | | | | | | | |
| 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 |
| **MW-2** | | | | | | | | |
| 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 |

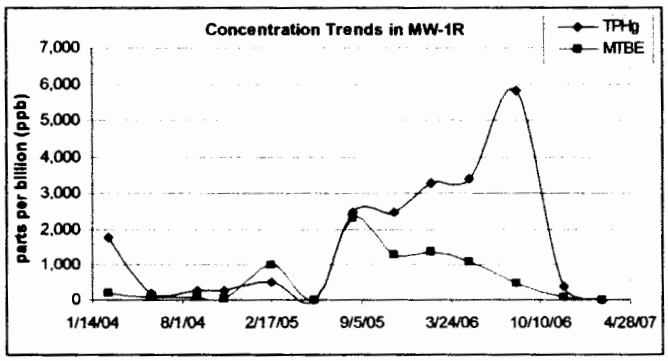
**Table 2 (*continued*)**

| | *TPHg* | *Benzene* | *Toluene* | *Ethylbenzene* | *Xylenes* | *MTBE* | *TAME* | *TBA* |
|---|---|---|---|---|---|---|---|---|
| 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 |
| **MW-3** | | | | | | | | |
| 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 |
| **MW-5** | | | | | | | | |
| 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 |
| **MW-6** | | | | | | | | |
| 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 |
| **EX-1** (Only reported values for EX-1) | | | | | | | | |
| February 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 February 2007 sampling event. Ethanol and methanol were not detected in any of the groundwater samples during the May 2004 monitoring event and are no longer being included in the laboratory analysis. Concentration trends are shown for several constituents in Plates 1 & 2.

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



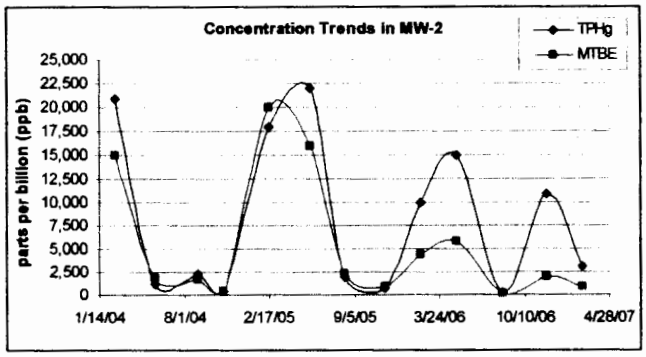
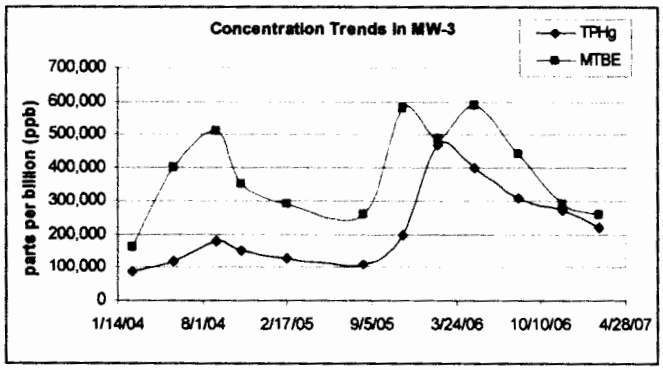



**Plate 1 (*continued*)**: TPHg and MTBE Concentration Trends for Selected Wells and Analytes



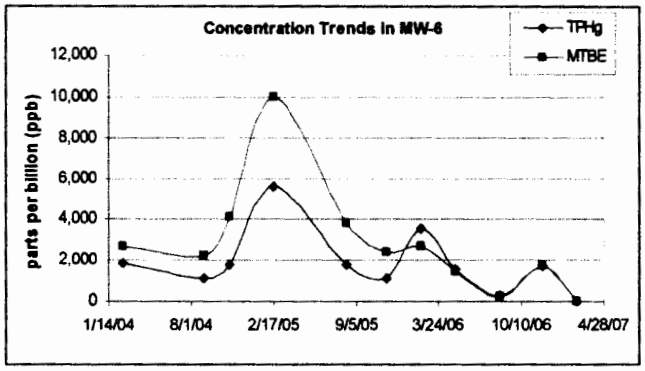
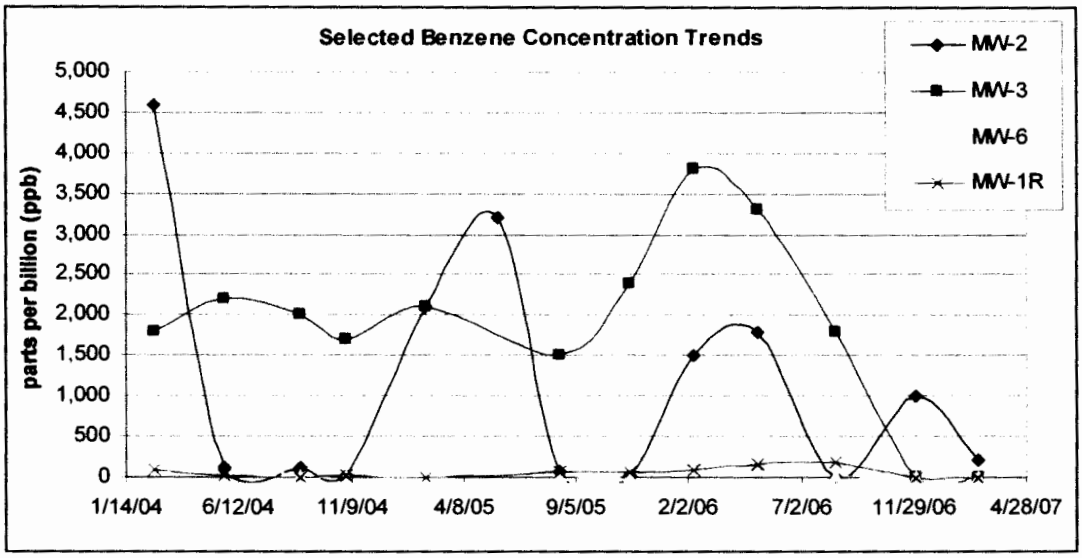




**Plate 2**: Selected Benzene Concentration Trends




## Soil Sampling

On Monday March 26, 2007, during a site visit, HerSchy employees noted that work was being conducted by Andes Construction, Inc. on 62nd Street and on Marshall Street to repair or replace sewer lines in the centerline of the street. After consulting site workers, it was found that trenches dug for the work would remain open for a day or two depending on weather. After approval from Andes Construction and Alameda County Environmental Health Services, four soil samples were taken on March 28, 2007 at a depth of 6.5 feet below grade (fbg) in the pre-dug trenches. Samples were advanced approximately 8 to 15-inches below the bottom of the trench. Three soil samples were logged as moist and one as wet which indicates that samples were likely taken at or near the groundwater table. Table 4 is a summary of analytical results for soil samples. A copy of certified analytical reports is included as Attachment D.

**Table 4: Soil Analytical Results**
Alaska Gasoline, Oakland

| | TPHg | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE | DIPE | ETBE | TAME | TBA | 1,2-DCA | EDB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-1 @ 6.5 fbg | 20 | ND | 3 | ND | 2 | 5 | ND | ND | ND | 730 | ND | ND |
| S-2 @ 6.5 fbg | 0.4 | ND | 3 | ND | ND | 7 | ND | ND | ND | 200 | ND | ND |
| S-3 @ 6.5 fbg | 30 | ND | 15 | 7 | 8 | 20 | ND | ND | ND | 400 | ND | ND |
| S-4 @ 6.5 fbg | 0.4 | ND | 5 | 1 | 5 | 3 | ND | ND | ND | 260 | ND | ND |

* all results in ppm * ND – non-detect

**Environmental Screening Limits for Shallow Soil**
**As determined by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB)**

| | TPHg | Benzene | Toluene | Ethylbenzene | Xylenes | MTBE | TBA |
|---|---|---|---|---|---|---|---|
| *ESL for shallow soil, residential, GW is a potential drinking source* | | | | | | | |
| (ppm) | 100 | 0.044 | 2.9 | 3.3 | 2.3 | 0.023 | 0.073 |
| *ESL for shallow soil, residential, GW is not a potential drinking source* | | | | | | | |
| (ppm) | 100 | 0.18 | 9.3 | 32 | 11 | 2 | 57 |

The reported values for TPHg, toluene, ethylbenzene, and xylenes in all soil samples were below the ESLs for shallow soil in residential areas where groundwater is not a potential drinking source set by the SFRWQCB; toluene, at 15 ppm in sample S-3 . exceeds this ESL (ESL is 9.3 ppm). The ESLs for MTBE and TBA are 2 ppm and 57 ppm, respectively, where groundwater is not a potential drinking source. The presence of MTBE and TBA at levels above the ESLs in downgradient vadose zone soil samples indicate that offsite migration of contaminants has occurred at some point in the past. The proposed direct push borings and subsequent permanent monitoring wells should give a more accurate impression of the status of groundwater downgradient of the source area.

## 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. Periods of down-time have been short and infrequent, usually related to propane delivery issues or water production issues. Table 3 presents a summary of the unit's operating and destruction efficiencies and amount of contaminants removed and discharged based on periodic monitoring of flow rates and laboratory results from samples collected.

| Table 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Alaska Gas SVES Destruction and Removal Efficiency (Catalytic Mode)** | | | | | | | | | | |
| Date | Hour Meter | Hours of Operation | Influent (ppmV) | Effluent (ppmV) | Air Flow (cfm) | Destruciton 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 |

ppmV – parts per million by Volume
cfm – cubic feet per minute
lbs - pounds

According to a combination of field data and analytical data, since the oxidizer was restarted in catalytic mode, approximately 0.23 lbs or 0.04 gallons of product have been removed by the system. Approximately 726.69 lbs of hydrocarbons or 117.59 gallons of product have been removed since soil vapor extraction began in August 2006. Destruction efficiency has been roughly 98.7 % with no more than 0.002 pounds of hydrocarbon product emitted per day to the atmosphere.

## CONCLUSIONS AND RECOMMENDATIONS

Toluene, total xylenes, and MTBE were the only fuel constituents reported in well MW-1R during the February 2007 sampling event and all were reported at levels below the Environmental Screening Levels (ESL) for groundwater in shallow soil set by the San Francisco Regional Water Quality Control Board (SWRWQCB). TPHg and MTBE were the only fuel constituents reported in well MW-5 this quarter at 73 and 1.7 ppb, respectively. The only reported constituent in well MW-6 this quarter was MTBE at 15 ppb.

Wells MW-2 and MW-3 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, aside from wells with free product. High concentrations of TAME and TBA exist in MW-3, with relatively moderate concentrations of TAME and TBA also present in MW-2. The low to non-detect concentrations in MW-5 are likely due to the up-gradient location of MW-5 relative to the underground storage tanks (USTs). Relatively high concentrations of petroleum hydrocarbons remain in soil and groundwater beneath the subject site. This is clearly evident by the fact that monitoring well MW-4 continues to contain free product. Isoconcentration maps for TPHg and MTBE are attached as Figures 2 and 3, respectively.

Soil vapor extraction was started in August 31, 2006. The system was initially run utilizing a thermal oxidizer, due to the high levels of hydrocarbons present on site. After running the system for

approximately five months, hydrocarbon concentrations greatly reduced. After notification to the Bay Area Air Quality Management District, the system was modified to run in catalytic mode to accommodate the influent concentrations appropriately.

Following the free product test and soil vapor extraction operational analyses, HerSchy proposed a dual phase extraction (DPE) test to assess feasibility. During periods of increased groundwater elevation, it appears that the rise in groundwater effectively locks any available petroleum hydrocarbons below the water table and makes them unavailable for soil vapor extraction. On May 7, 2007 a DPE test was begun utilizing the existing site vapor extraction system. Due to high temperatures, outside of the operating parameters for a catalytic oxidizer, coupled with increasing influent vapor concentrations the test was ended after 4 hours of operation to protect site equipment. Upon starting the test, influent vapor concentrations increased rapidly from near 1 ppm (prior to test start) to a rough average of 350 ppm. The high reading for the span of the test was 842 ppm. System temperatures did not stabilize during the life of the test and varied between 800° Fahrenheit (F) up to a high of approximately 1550°F. Based on consultation with the remediation unit designers, the ideal operating temperature range for a catalytic oxidizer is roughly between 600°F and 1000°F, with a high limit maximum of 1200°F. The lifespan of a catalytic cell drastically shortens with temperatures above the high limit maximum. Water production during the test totaled roughly 250-gallons, which gives a production rate of just over 1 gallon per minute (gpm). Although the length of the test was cut quite short at 4 hours, as opposed to the 96 hours proposed, the preliminary data suggests that dual phase extraction would be an effective alternative to vapor extraction alone during periods of increased groundwater elevation. We are currently looking into the feasibility of conducting the test utilizing a more robust system to handle any temperature spikes or free product that might be produced.

We are currently working towards obtaining access agreements with a private property owner, Mr. Paul Wang, and the City of Oakland Housing Authority to install off-site direct push borings to further delineate the current groundwater plume. Comments from the ACEHS requested that two additional borings be installed to help further plume delineation. The boring requested directly to the west of the middle of the Alaska Gas property is not feasible due to the location of the apartment complex next door. A revised map including the approximate location of the apartment complex and facilities as well as the proposed direct push borings is included as Figure 1. The direct push work will also provide a preliminary assessment for the placement of the permanent wells.

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

Attachments
A - Groundwater Field Sampling Data Sheets
B - SVES Field Monitoring Data
C - Certified Analytical Reports for Groundwater Sampling
D - Certified Analytical Reports for Soil Sampling

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

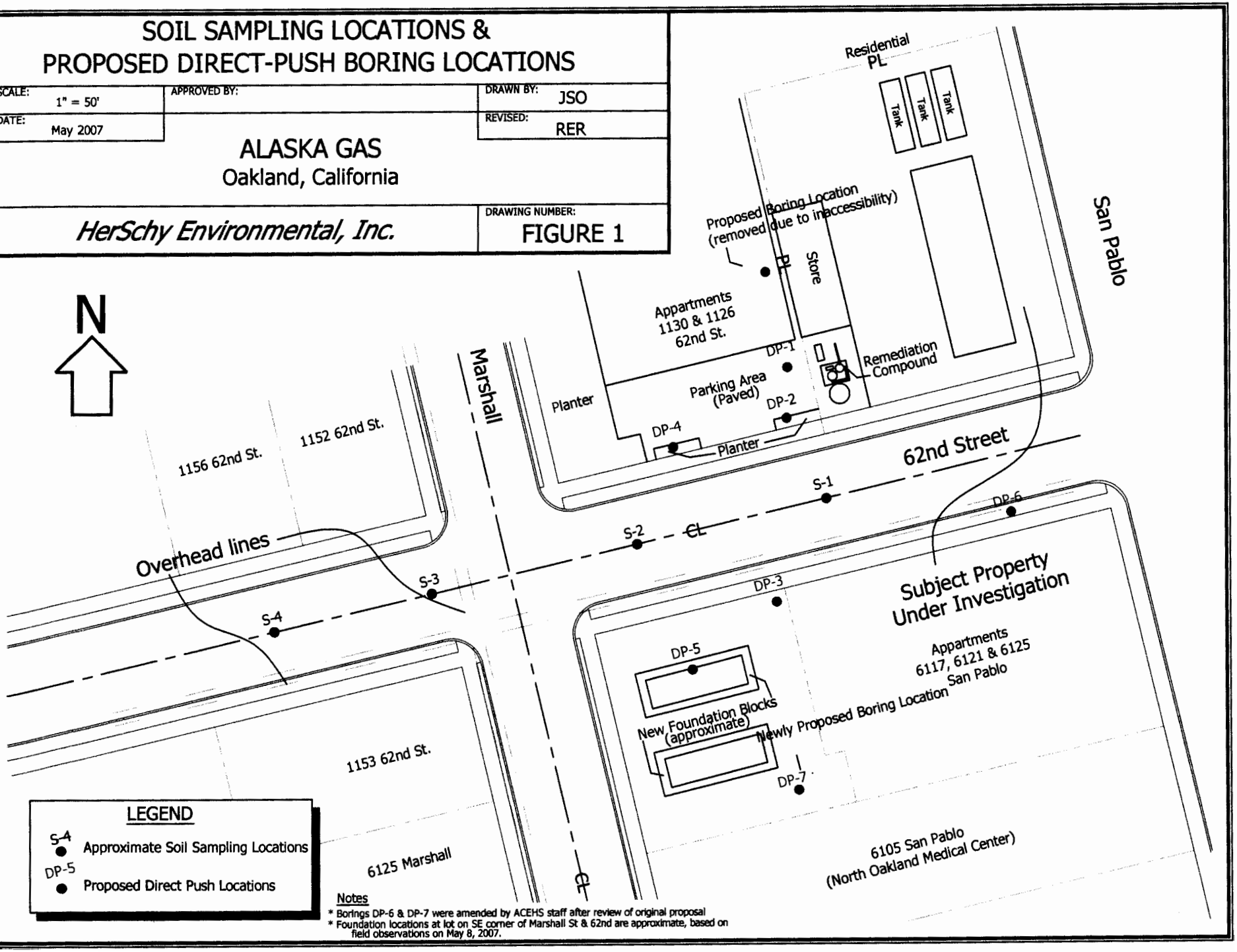
# SOIL SAMPLING LOCATIONS & PROPOSED DIRECT-PUSH BORING LOCATIONS

| | | |
|---|---|---|
| SCALE: 1" = 50' | APPROVED BY: | DRAWN BY: JSO |
| DATE: May 2007 | | REVISED: RER |

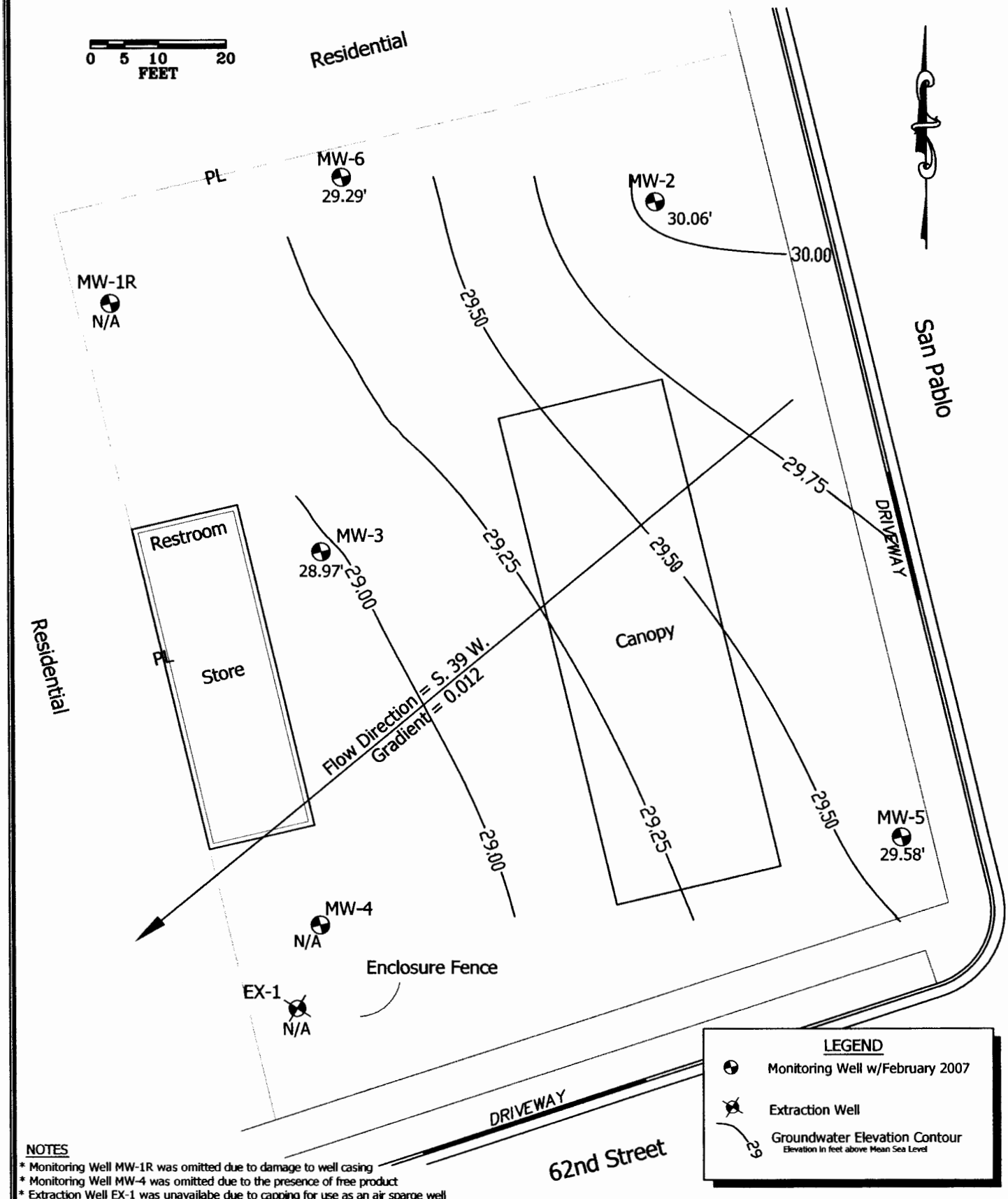
## ALASKA GAS
Oakland, California

*HerSchy Environmental, Inc.*

DRAWING NUMBER: FIGURE 1




Notes
* Borings DP-6 & DP-7 were amended by ACEHS staff after review of original proposal
* Foundation locations at lot on SE corner of Marshall St & 62nd are approximate, based on field observations on May 8, 2007.




NOTES

* Monitoring Well MW-1R was omitted due to damage to well casing
* Monitoring Well MW-4 was omitted due to the presence of free product
* Extraction Well EX-1 was unavailabe due to capping for use as an air sparge well

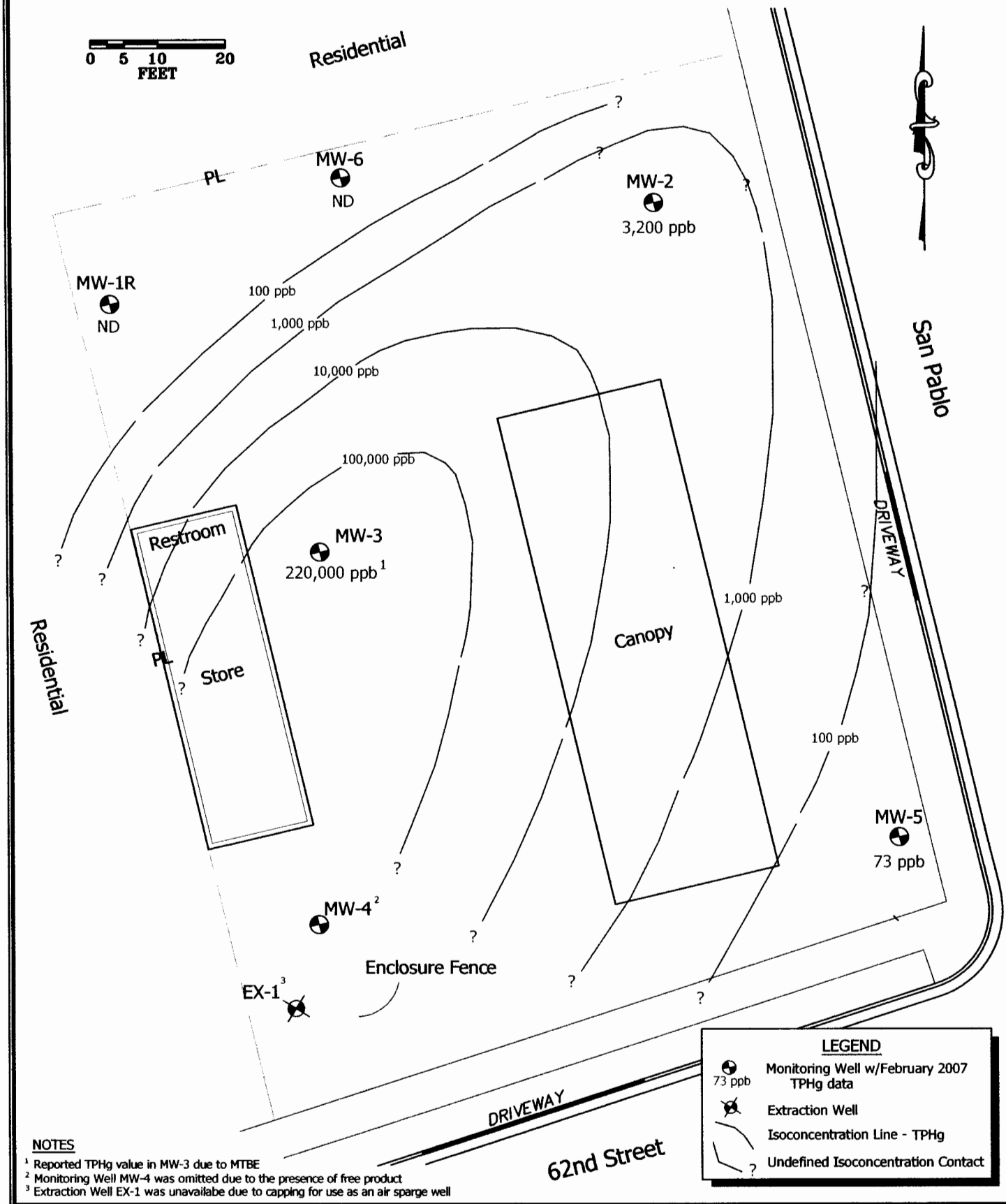

*HerSchy Environmental, Inc.*
Environmental Consulting and Remediation

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


Groundwater Conditions
February 23, 2007
ALASKA GASOLINE COMPANY
6211 San Pablo Avenue, Oakland, California

DATE: April 17, 2007
FILE NO.: A51-01
DRAWN BY: RER

FIGURE 2




NOTES

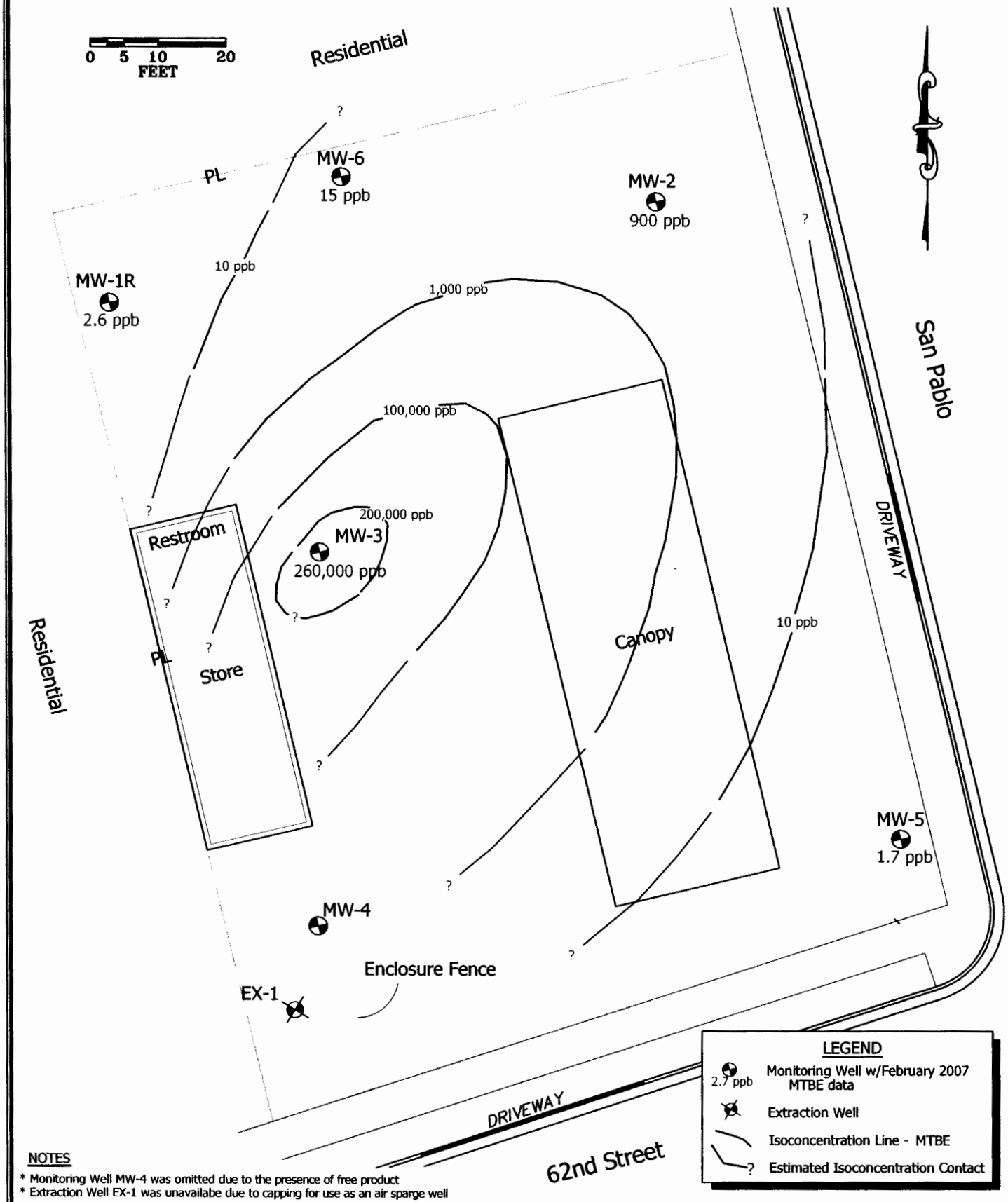
[1] Reported TPHg value in MW-3 due to MTBE
[2] Monitoring Well MW-4 was omitted due to the presence of free product
[3] Extraction Well EX-1 was unavailabe due to capping for use as an air sparge well


*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 - TPHg
February 23, 2007
ALASKA GASOLINE COMPANY
6211 San Pablo Avenue, Oakland, California

DATE: April 17, 2007
FILE NO.: A51-01
DRAWN BY: RER

FIGURE 3




NOTES

* Monitoring Well MW-4 was omitted due to the presence of free product
* Extraction Well EX-1 was unavailabe due to capping for use as an air sparge well


*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 23, 2007

ALASKA GASOLINE COMPANY

6211 San Pablo Avenue, Oakland, California

DATE: April 17, 2007
FILE NO.: A51-01
DRAWN BY: RER

FIGURE 4

# ATTACHMENT A

## Groundwater Field Sampling Data Sheets

.HerSchy **WATER SAMPLE FIELD DATA SHEET**
**Environmental**

Client Name: ALASKA GAS Location: OAKLAND

Purged By: WEST Sampled by: WEST

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

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

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

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

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

Date Purged: ____ Date Sampled: ____

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Sheen Y/N?: ____ Odor: ____

Purging Equipment: ____

Sampling Equipment: ____

Remarks: DID NOT TAG OR SAMPLE DUE TO SPARGE & LINE ATTACHED TO WELL HEAD

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 X Surface Water ____ Other ____

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

Casing Elevation (feet/MSL): 36.69 Volume in Casing (gal.): 1.9

Depth of Well (feet): 19.11 Calculate Purge Volume (gal.): 5.9

Depth to Water (feet): 7.13 Actual Purge Volume (gal.): 6+

Date Purged: 02-23-07 Date Sampled: 02-23-07 0805

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| 0754 | ~ | 6.95 | 445 | 62.4 | CLOUDY |
| 0803 | 6 | 6.88 | 424 | 62.1 | LESS CLOUDY |
| | | | | | |
| | | | | | |

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: WELL PIPE HAS SUNK DOWN, DEEPER APPROX 1'

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 X Surface Water ____ Other ____

Casing Diameter (inches): 2 X 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.): 7.1

Depth to Water (feet): 6.27 Actual Purge Volume (gal.): 7.1+

Date Purged: 02-23-07 Date Sampled: 02-23-07 0857

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| 0846 | - | 6.50 | 787 | 63.9 | Cloudy |
| 0855 | 7.1 | 6.59 | 774 | 64.1 | Cloudy |
| | | | | | |
| | | | | | |

Sheen Y/N?: N Odor: PETROLEUM

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: ____

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 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): _____ Calculate Purge Volume (gal.): N/A

Depth to Water (feet): 5.37 Actual Purge Volume (gal.): _____

Date Purged: _____ Date Sampled: _____

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| | | | | | |
| | | N/A | | | |
| | | | | | |
| | | | | | |

Sheen Y/N?: _____ Odor: _____

Purging Equipment: _____

Sampling Equipment: _____

Remarks: 4.40 TO PRODUCT 5.37 TO WATER

.97 FLOATING PRODUCT

5.37
4.40
.97

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 X Surface Water ____ Other ____

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

Casing Elevation (feet/MSL): 33.12 Volume in Casing (gal.): 2.4

Depth of Well (feet): 21.20 Calculate Purge Volume (gal.): 7.4

Depth to Water (feet): 6.15 Actual Purge Volume (gal.): 7.4+

Date Purged: 02-23-07 Date Sampled: 02-23-07 0745

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| 0730 | - | 6.30 | 492 | 60.3 | CLOUDY |
| 0741 | 7.4 | 6.63 | 616 | 63.8 | LESS CLOUDY |
| | | | | | |
| | | | | | |

Sheen Y/N?: N Odor: PETROLEUM

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: ____

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 X Surface Water ____ Other ____

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

Casing Elevation (feet/MSL): 35.17 Volume in Casing (gal.): 3.1

Depth of Well (feet): 24.90 Calculate Purge Volume (gal.): 9.5

Depth to Water (feet): 5.59 Actual Purge Volume (gal.): 9.5+

Date Purged: 02-23-07 Date Sampled: 02-23-07 0920

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| 0905 | - | 6.78 | 688 | 64.3 | Cloudy |
| 0915 | 9.5 | 6.68 | 652 | 64.9 | Less Cloudy |
| | | | | | |
| | | | | | |

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: ____

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

.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 X Surface Water ____ Other ____

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

Casing Elevation (feet/MSL): 36.07 Volume in Casing (gal.): 2.6

Depth of Well (feet): 23.10 Calculate Purge Volume (gal.): 8.0

Depth to Water (feet): 6.78 Actual Purge Volume (gal.): 8+

Date Purged: 02-23-07 Date Sampled: 02-23-07 0836

| TIME | VOLUME | pH | E. C. | TEMP. | TURBIDITY |
|---|---|---|---|---|---|
| 0821 | - | 6.87 | 474 | 63.2 | CLOUDY |
| 0833 | 8 | 6.83 | 492 | 64.1 | CLOUDY |
| | | | | | |
| | | | | | |

Sheen Y/N?: N Odor: NONE

Purging Equipment: WATERRA

Sampling Equipment: WATERRA

Remarks: ____

Sampler's Signature: John S. West

/Water Sample Sheet.wpd

# ATTACHMENT B

## SVES Field Monitoring Data

# Alaska Gas Remediation System Field Data

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

| Date | Total Hours | Hours | Flow - pitot (#3) (scfm) | Flow - Manifold (scfm) | Pressure ( "- water) | Recirc Valve (# turns open) | SVE Wells operating | 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 | 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 | 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 | 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 | 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 | (H20 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/5 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 | n/m * | n/m * | 220 | 992 | 878 | 878 | 72 |

# Alaska Gas Remediation System Field Data (*Continued*)

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

| Date | Total Hours | Hours | Flow - pitot (#3) (scfm) | Flow - Manifold (scfm) | Pressure ( "- water) | Recirc Valve (# turns open) | SVE Wells operating | Influent (ppm) | Effluent (ppm) | Water in Tank (approx. gal's) | Temp. Cont.(F) | Dilution Cont. (F) | High Limit (F) | Propane (% full) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/21/2007 | 4092.9 | 672.4 | -- | 44.2 | ~43 | 6 turns back from full open | All open | 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 | | 1088 | -- | -- | -- |
| | -after 5 minutes, recirc closed 1/2 turn more after readings taken | | | | | | | | | | | | | |
| | | | 13 | -- | ~80 | | | | | | 1098 | -- | -- | -- |
| | -after 15 minutes | | | | | | | | | | | | | |
| | | | 25 | -- | ~90 | | | | | | 1048 | -- | -- | -- |
| | * Notes: aprroximately 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 | 0.0 | n/m | 0 | 1145 | 987 | 986 | 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 | 899 | 79 |

# ATTACHMENT 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 Rafilainen

Client Project ID: Alaska Gasoline - Oakland
Reference Number: 9860
Sample Description: Water
Sample Prep/Analysis Method: EPA 5030/8015, 8020
Lab Numbers: 9860-1W, 2W, 3W, 4W, 5W

Sampled: 02-23-07
Received: 02-23-07
Extracted: 02-27-07
Analyzed: 02-27-07
Reported: 03-08-07

## TOTAL PETROLEUM HYDROCARBONS - GASOLINE WITH BTEX DISTINCTION

| 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) |
|---|---|---|---|---|---|---|
| MTBE | 0.50 | 3.3 | 920 | 260000 | 3.4 | 14 |
| BENZENE | 0.50 | ND | 210 | ND | ND | ND |
| TOLUENE | 0.50 | 0.51 | ND | ND | ND | ND |
| ETHYL BENZENE | 0.50 | ND | 270 | ND | ND | ND |
| TOTAL XYLENES | 0.50 | 1.4 | 85 | ND | ND | ND |
| GASOLINE RANGE HYDROCARBONS | 50 | ND | 3200 | 220000* | 73 | ND |
| Report Limit Multiplication Factor: | | 1 | 10 | 500 | 1 | 1 |
| Report Limit Multiplication Factor for MTBE only: | | | 100 | 10000 | | |

| | | | | | |
|---|---|---|---|---|---|
| Surrogate % Recovery: | FID: 120% / PID: 120% | FID: 170% / PID: 143% | FID: 110% / PID: 116% | FID: 108% / PID: 105% | FID: 111% / 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*
*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 | Client Project ID: Alaska Gasoline - Oakland | Method: EPA 5030/8015M,8020 |
| P.O. Box 229 | Reference Number: 9860 | Instrument ID: Var-GC1 |
| Bass Lake, CA 93604 | Sample Description: Water | Extracted: 02-27-07 |
| Attn: Red Rafilainen | Analyst: Jim Phillips | Analyzed: 02-27-07 |
| | | Reported: 03-08-07 |

## QUALITY CONTROL DATA REPORT

| ANALYTE | Gasoline | MTBE | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|---|
| Spike Concentration: | 209 | 22.8 | 1.45 | 5.44 | 1.70 | 9.00 |
| Units: | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L |
| LCS Batch #: | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 |
| LCS % Recovery: | 77.2% | 97.3% | 120% | 113% | 126% | 108% |
| Surrogate Recovery: | 107% | 101% | 101% | 101% | 101% | 101% |
| Control Limits: | 70-130 % | 70-130 % | 70-130 % | 70-130 % | 70-130 % | 70-130 % |
| MS/MSD Batch #: | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 | VW-2277HP2 |
| Spike Concentration: | 209 | 22.8 | 1.45 | 5.44 | 1.70 | 9.00 |
| MS % Recovery: | 74.3% | 81.7% | 97.6% | 121% | 120% | 110% |
| Surrogate Recovery: | 107% | 107% | 107% | 107% | 107% | 107% |
| MSD % Recovery: | 64.8% | 100% | 100% | 115% | 129% | 118% |
| Surrogate Recovery: | 118% | 115% | 115% | 115% | 115% | 115% |
| Relative % Difference: | 12.8% | 20.5% | 2.37% | 4.62% | 6.95% | 7.04% |
| Method Blank : | ND | ND | ND | ND | ND | ND |
| Surrogate Recovery: | 100% | 100% | 100% | 100% | 100% | 100% |

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 | Client Project ID: Alaska Gasoline - Oakland | Sampled: 02-23-07 |
| P.O. Box 229 | Reference Number: 9860 | Received: 02-23-07 |
| Bass Lake, CA 93604 | Sample Description: Water | Extracted: 02-27-07 |
| Attn: Red Rafilainen | Sample Prep/Analysis Method: EPA 5030/8260 | Analyzed: 02-27-07 |
| | Lab Numbers: 9860-1W, 2W, 3W, 4W, 5W | Reported: 03-08-07 |

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

| ANALYTE | REPORTING LIMIT (µg/L) | SAMPLE ID MW-1R (µg/L) | SAMPLE ID MW-2 (µg/L) | SAMPLE ID MW-3 (µg/L) | SAMPLE ID MW-5 (µg/L) | SAMPLE ID MW-6 (µg/L) |
|---|---|---|---|---|---|---|
| **FUEL OXYGENATES** | | | | | | |
| Methyl tert-Butyl Ether (MTBE) | 0.50 | 2.6 | 900 | 260000 | 1.7 | 15 |
| 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 | 33 | 15000 | ND | ND |
| tert-Butanol (TBA) | 20 | ND | 1400 | 33000 | ND | ND |
| **VOLATILE HALOCARBONS & AROMATICS** | | | | | | |
| 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 | 5* | 1000* | 1 | 1 |
| Report Limit Multiplication Factor for MTBE: | | | 100 | 10000 | | |

** Report limit raised due to matrix interference*

| Surrogate Recoveries | | | | | |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 111% | 108% | 116% | 104% | 120% |
| Toluene-d8 | 103% | 86.1% | 94.9% | 97.1% | 108% |

Instrument ID: HP 5972 MS & 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
(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 Rafilainen

Client Project ID: Alaska Gasoline - Oakland
Reference Number: 9860
Matrix: Water
Analyst: Scott Foster

Method: EPA 5030/8260
Instrument ID: HP 5972 MS
Prepared: 02-27-07
Analyzed: 02-27-07
Reported: 03-08-07

## QUALITY CONTROL DATA REPORT

**SPIKE ID: VWMS-2277**

| | Reporting Limit µg/L | BLANK Result µg/L | Spiking Level µg/L | Control Spike %R | %R Limits |
|---|---|---|---|---|---|
| **COMPOUNDS** | | | | | |
| t-Butyl Alcohol (t-BA) | 20 | ND | 75.0 | 74.8% | 32.4 - 175.3 |
| Methyl t-butyl ether (MTBE) | 0.50 | ND | 2.50 | 91.2% | 61.2 - 136.4 |
| Diisopropyl ether (DIPE) | 0.50 | ND | 2.50 | 96.8% | 66.1 - 128.0 |
| Ethyl t-Butyl ether (ETBE) | 0.50 | ND | 2.50 | 98.4% | 63.4 - 127.3 |
| t-Amyl methyl ether (TAME) | 0.50 | ND | 2.50 | 96.4% | 53.4 - 133.9 |
| 1,2-Dichloroethane (1,2-DCA) | 0.50 | ND | 2.50 | 111% | 59.7 - 144.1 |
| Ethylene dibromide (EDB) | 0.50 | ND | 2.50 | 98.4% | 56.7 - 144.1 |
| Surrogates: | | | | | |
| 1,2-Dichloroethane-d4 | 1.00 | 107% | 10.0 | 97.7% | 74.5 - 130.6 |
| Toluene-d8 | 1.00 | 102% | 10.0 | 97.3% | 76.2 - 128.3 |

| | Spiking Level µg/L | MATRIX SPIKE %R | MATRIX SPIKE DUP %R | %R Limits | %RPD |
|---|---|---|---|---|---|
| **COMPOUNDS** | | | | | |
| t-Butyl Alcohol (t-BA) | 75.0 | 84.1% | 101% | 35.7 - 169.9 | 18.3% |
| Methyl t-butyl ether (MTBE) | 2.50 | 108% | 118% | 46.6 - 144.2 | 6.91% |
| Diisopropyl ether (DIPE) | 2.50 | 97.6% | 104% | 56.5 - 125.2 | 5.80% |
| Ethyl t-Butyl ether (ETBE) | 2.50 | 101% | 102% | 57.1 - 127.9 | 0.394% |
| t-Amyl methyl ether (TAME) | 2.50 | 93.2% | 97.6% | 54.9 - 117.2 | 4.31% |
| 1,2-Dichloroethane (1,2-DCA) | 2.50 | 109% | 108% | 48.1 - 144.3 | 0.735% |
| Ethylene dibromide (EDB) | 2.50 | 94.8% | 102% | 53.3 - 132.8 | 7.71% |
| Surrogate: | | | | | |
| 1,2-Dichloroethane-d4 | 10.0 | 112% | 102% | 55.7 - 147.1 | 9.29% |
| Toluene-d8 | 10.0 | 90.9% | 99.4% | 61.0 - 134.2 | 8.93% |

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
Mailing Address: 2333 Shuttle Drive, Atwater, CA 95301
Phone: (209) 384-2930 - Fax: (209) 384-1507

Certificate No. 2480

PAGE 1 OF 1

Customer: ALASKA GAS
Address:
City/State/ZIP: OAKLAND
Phone / FAX:
Proj # / P.O. #:
Report Attention: Ron
Sampler Signature: John S. West
Printed: JOHN S. WEST

| Lab ID# | SAMPLE ID | DATE | TIME | DESCRIPTION/LOCATION | SAMPLE TYPE (g) grab (c) composite (d) discrete | SAMPLE MATRIX (s) solid (l) liquid (o) other | BTEX/TPH-GAS | MTBE | TPH-DIESEL | TRPH 418.1M | Oxy's / EDB / DCA by 8260 | 8260 | | | | | Electronic Deliverables (EDF) | NUMBER OF CONTAINERS | OBSERVATIONS/REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9860-1W | MW-1R | 02-23 | 0805 | | G | L | X | X | | | X | | | | | | | 3 | |
| -2W | MW-2 | " | 0851 | | " | " | " | " | | | " | | | | | | | " | |
| -3W | MW-3 | " | 0745 | | " | " | " | " | | | " | | | | | | | " | |
| -4W | MW-5 | " | 0920 | | " | " | " | " | | | " | | | | | | | " | |
| -5W | MW-6 | " | 0836 | | " | " | " | " | | | " | | | | | | | " | |

Method of Shipment:

Notes:

| | Signature | Printed Name | Date | Time | Company Name |
|---|---|---|---|---|---|
| Relinquished by: | John S. West | JOHN S. WEST | 02-23 | 1345 | HEROSHY ENV |
| Received by: | | James Phillips | 2-23-07 | 1345 | Castle Analytical |
| Relinquished by: | | | | | |
| Received by: | | | | | |
| Relinquished by: | | | | | |
| Received by: | | | | | |

5 Total number of containers submitted to the laboratory

Note: All special requests (e.g. quick turn times) must be cleared through authorized laboratory personnel .

RESULTS DUE : _____

☐ VERBAL ☐ WRITTEN

# ATTACHMENT D

## Certified Analytical Reports for Soil Sampling

# Analysis Report

Lancaster Laboratories

## ANALYTICAL RESULTS

Prepared for:

Herschy Environmental
PO Box 229
Bass Lake CA 93604-0229

559-760-0037

Prepared by:

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

SAMPLE GROUP

The sample group for this submittal is 1031270. Samples arrived at the laboratory on Wednesday, March 28, 2007.

| Client Description | Lancaster Labs Number |
|---|---|
| Soil-1@6.5 fbg Grab Soil Sample | 5016066 |
| Soil-2@6.5 fbg Grab Soil Sample | 5016067 |
| Soil-3@6.5 fbg Grab Soil Sample | 5016068 |
| Soil-4@6.5 fbg Grab Soil Sample | 5016069 |

1 COPY TO Herschy Environmental Attn: Scott Herschy

Questions? Contact Environmental Client Services

Respectfully Submitted,

Marla S. Lord
Senior Specialist

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

# Analysis Report

Lancaster Laboratories



**Lancaster Laboratories Sample No. SW 5016066**

**Soil-1@6.5 fbg Grab Soil Sample**
**Alaska Gas**

Collected:03/27/2007 10:30 by RR

Account Number: 01907

Submitted: 03/28/2007 09:30
Reported: 04/11/2007 at 13:18
Discard: 04/26/2007

Herschy Environmental
PO Box 229
Bass Lake CA 93604-0229

ALAS1

| CAT No. | Analysis Name | CAS Number | Dry Result | | Dry Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | n.a. | 20. | | 0.2 | mg/kg | 25 |
| | The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. | | | | | | |
| 00111 | Moisture | n.a. | 18.8 | | 0.50 | % | 1 |
| | "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis. | | | | | | |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | | | | | | |
| 02016 | Methyl Tertiary Butyl Ether | 1634-04-4 | 5. | J | 0.6 | ug/kg | 1.01 |
| 02017 | di-Isopropyl ether | 108-20-3 | N.D. | | 1. | ug/kg | 1.01 |
| 02018 | Ethyl t-butyl ether | 637-92-3 | N.D. | | 1. | ug/kg | 1.01 |
| 02019 | t-Amyl methyl ether | 994-05-8 | N.D. | | 1. | ug/kg | 1.01 |
| 02020 | t-Butyl alcohol | 75-65-0 | 730. | | 25. | ug/kg | 1.01 |
| 05460 | Benzene | 71-43-2 | N.D. | | 0.6 | ug/kg | 1.01 |
| 05461 | 1,2-Dichloroethane | 107-06-2 | N.D. | | 1. | ug/kg | 1.01 |
| 05466 | Toluene | 108-88-3 | 3. | J | 1. | ug/kg | 1.01 |
| 05471 | 1,2-Dibromoethane | 106-93-4 | N.D. | | 1. | ug/kg | 1.01 |
| 05474 | Ethylbenzene | 100-41-4 | N.D. | | 1. | ug/kg | 1.01 |
| 06301 | Xylene (Total) | 1330-20-7 | 2. | J | 1. | ug/kg | 1.01 |

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | TPH GRO SW-846 8015B mod | 1 | 03/29/2007 16:38 | Linda C Pape | 25 |
| 00111 | Moisture | EPA 160.3 modified | 1 | 03/29/2007 18:02 | Scott W Freisher | 1 |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | SW-846 8260B | 1 | 04/03/2007 21:28 | Emiley A King | 1.01 |
| 00374 | GC/MS - Bulk Sample Prep | SW-846 5030A | 1 | 04/03/2007 15:55 | Emiley A King | n.a. |
| 01150 | GC - Bulk Soil Prep | SW-846 5035 | 1 | 03/29/2007 14:09 | Eric L Vera | n.a. |

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# Analysis Report

Lancaster Laboratories



**Lancaster Laboratories Sample No. SW 5016067**

**Soil-2@6.5 fbg Grab Soil Sample**
**Alaska Gas**

Collected:03/27/2007 10:45 by RR

Account Number: 01907

Submitted: 03/28/2007 09:30
Reported: 04/11/2007 at 13:18
Discard: 04/26/2007

Herschy Environmental
PO Box 229
Bass Lake CA 93604-0229

ALAS2

| CAT No. | Analysis Name | CAS Number | Dry Result | | Dry Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | n.a. | 0.4 | J | 0.2 | mg/kg | 25 |
| | The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. | | | | | | |
| 00111 | Moisture | n.a. | 16.3 | | 0.50 | % | 1 |
| | "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis. | | | | | | |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | | | | | | |
| 02016 | Methyl Tertiary Butyl Ether | 1634-04-4 | 7. | | 0.6 | ug/kg | 1 |
| 02017 | di-Isopropyl ether | 108-20-3 | N.D. | | 1. | ug/kg | 1 |
| 02018 | Ethyl t-butyl ether | 637-92-3 | N.D. | | 1. | ug/kg | 1 |
| 02019 | t-Amyl methyl ether | 994-05-8 | N.D. | | 1. | ug/kg | 1 |
| 02020 | t-Butyl alcohol | 75-65-0 | 200. | | 24. | ug/kg | 1 |
| 05460 | Benzene | 71-43-2 | N.D. | | 0.6 | ug/kg | 1 |
| 05461 | 1,2-Dichloroethane | 107-06-2 | N.D. | | 1. | ug/kg | 1 |
| 05466 | Toluene | 108-88-3 | 3. | J | 1. | ug/kg | 1 |
| 05471 | 1,2-Dibromoethane | 106-93-4 | N.D. | | 1. | ug/kg | 1 |
| 05474 | Ethylbenzene | 100-41-4 | N.D. | | 1. | ug/kg | 1 |
| 06301 | Xylene (Total) | 1330-20-7 | N.D. | | 1. | ug/kg | 1 |

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | TPH GRO SW-846 8015B mod | 1 | 03/29/2007 17:11 | Linda C Pape | 25 |
| 00111 | Moisture | EPA 160.3 modified | 1 | 03/29/2007 18:02 | Scott W Freisher | 1 |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | SW-846 8260B | 1 | 04/03/2007 21:51 | Emiley A King | 1 |
| 00374 | GC/MS - Bulk Sample Prep | SW-846 5030A | 1 | 04/03/2007 15:50 | Emiley A King | n.a. |
| 01150 | GC - Bulk Soil Prep | SW-846 5035 | 1 | 03/29/2007 14:17 | Eric L Vera | n.a. |

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# Analysis Report

Lancaster Laboratories



**Lancaster Laboratories Sample No. SW 5016068**

**Soil-3@6.5 fbg Grab Soil Sample**
**Alaska Gas**

Collected:03/27/2007 11:30 by RR

Account Number: 01907

Submitted: 03/28/2007 09:30
Reported: 04/11/2007 at 13:18
Discard: 04/26/2007

Herschy Environmental
PO Box 229
Bass Lake CA 93604-0229

ALAS3

| CAT No. | Analysis Name | CAS Number | Dry Result | | Dry Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | n.a. | 30. | | 0.3 | mg/kg | 25 |
| | The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. | | | | | | |
| 00111 | Moisture | n.a. | 22.2 | | 0.50 | % | 1 |
| | "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis. | | | | | | |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | | | | | | |
| 02016 | Methyl Tertiary Butyl Ether | 1634-04-4 | 20. | J | 3. | ug/kg | 4.95 |
| 02017 | di-Isopropyl ether | 108-20-3 | N.D. | | 6. | ug/kg | 4.95 |
| 02018 | Ethyl t-butyl ether | 637-92-3 | N.D. | | 6. | ug/kg | 4.95 |
| 02019 | t-Amyl methyl ether | 994-05-8 | N.D. | | 6. | ug/kg | 4.95 |
| 02020 | t-Butyl alcohol | 75-65-0 | 400. | J | 130. | ug/kg | 4.95 |
| 05460 | Benzene | 71-43-2 | N.D. | | 3. | ug/kg | 4.95 |
| 05461 | 1,2-Dichloroethane | 107-06-2 | N.D. | | 6. | ug/kg | 4.95 |
| 05466 | Toluene | 108-88-3 | 15. | J | 6. | ug/kg | 4.95 |
| 05471 | 1,2-Dibromoethane | 106-93-4 | N.D. | | 6. | ug/kg | 4.95 |
| 05474 | Ethylbenzene | 100-41-4 | 7. | J | 6. | ug/kg | 4.95 |
| 06301 | Xylene (Total) | 1330-20-7 | 8. | J | 6. | ug/kg | 4.95 |
| | The reporting limits for the GC/MS volatile compounds were raised due to the level of non-target compounds. | | | | | | |

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | TPH GRO SW-846 8015B mod | 1 | 03/29/2007 17:42 | Linda C Pape | 25 |
| 00111 | Moisture | EPA 160.3 modified | 1 | 03/29/2007 18:02 | Scott W Freisher | 1 |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | SW-846 8260B | 1 | 04/03/2007 22:36 | Emiley A King | 4.95 |
| 00374 | GC/MS - Bulk Sample Prep | SW-846 5030A | 1 | 04/03/2007 15:59 | Emiley A King | n.a. |
| 01150 | GC - Bulk Soil Prep | SW-846 5035 | 1 | 03/29/2007 14:19 | Eric L Vera | n.a. |

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# Analysis Report

Lancaster Laboratories



**Lancaster Laboratories Sample No. SW 5016068**

**Soil-3@6.5 fbg Grab Soil Sample**
**Alaska Gas**

Collected:03/27/2007 11:30 by RR

Account Number: 01907

Submitted: 03/28/2007 09:30
Reported: 04/11/2007 at 13:18
Discard: 04/26/2007

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ALAS3

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# Analysis Report

Lancaster Laboratories



**Lancaster Laboratories Sample No. SW 5016069**

**Soil-406.5 fbg Grab Soil Sample**
**Alaska Gas**

Collected:03/27/2007 11:45 by RR

Account Number: 01907

Submitted: 03/28/2007 09:30
Reported: 04/11/2007 at 13:18
Discard: 04/26/2007

Herschy Environmental
PO Box 229
Bass Lake CA 93604-0229

ALAS4

| CAT No. | Analysis Name | CAS Number | Dry Result | | Dry Method Detection Limit | Units | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | n.a. | 0.4 | J | 0.2 | mg/kg | 25 |
| | The analysis for volatiles was performed on a sample which was preserved in methanol. Therefore, the reporting limits were raised. | | | | | | |
| 00111 | Moisture | n.a. | 17.0 | | 0.50 | % | 1 |
| | "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis. | | | | | | |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | | | | | | |
| 02016 | Methyl Tertiary Butyl Ether | 1634-04-4 | 3. | J | 0.6 | ug/kg | 0.99 |
| 02017 | di-Isopropyl ether | 108-20-3 | N.D. | | 1. | ug/kg | 0.99 |
| 02018 | Ethyl t-butyl ether | 637-92-3 | N.D. | | 1. | ug/kg | 0.99 |
| 02019 | t-Amyl methyl ether | 994-05-8 | N.D. | | 1. | ug/kg | 0.99 |
| 02020 | t-Butyl alcohol | 75-65-0 | 260. | | 24. | ug/kg | 0.99 |
| 05460 | Benzene | 71-43-2 | N.D. | | 0.6 | ug/kg | 0.99 |
| 05461 | 1,2-Dichloroethane | 107-06-2 | N.D. | | 1. | ug/kg | 0.99 |
| 05466 | Toluene | 108-88-3 | 5. | J | 1. | ug/kg | 0.99 |
| 05471 | 1,2-Dibromoethane | 106-93-4 | N.D. | | 1. | ug/kg | 0.99 |
| 05474 | Ethylbenzene | 100-41-4 | 1. | J | 1. | ug/kg | 0.99 |
| 06301 | Xylene (Total) | 1330-20-7 | 5. | J | 1. | ug/kg | 0.99 |

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

## Laboratory Chronicle

| CAT No. | Analysis Name | Method | Trial# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|
| 05551 | TPH-GRO (Soils) | TPH GRO SW-846 8015B mod | 1 | 03/29/2007 18:13 | Linda C Pape | 25 |
| 00111 | Moisture | EPA 160.3 modified | 1 | 03/29/2007 18:02 | Scott W Freisher | 1 |
| 07361 | BTEX+5 Oxygenates+EDC+EDB | SW-846 8260B | 1 | 04/03/2007 22:14 | Emiley A King | 0.99 |
| 00374 | GC/MS - Bulk Sample Prep | SW-846 5030A | 1 | 04/03/2007 15:58 | Emiley A King | n.a. |
| 01150 | GC - Bulk Soil Prep | SW-846 5035 | 1 | 03/29/2007 14:23 | Eric L Vera | n.a. |

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2425 New Holland Pike
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717-656-2300 Fax: 717-656-2681

Lancaster Laboratories



# Quality Control Summary

Client Name: Herschy Environmental  Group Number: 1031270
Reported: 04/11/07 at 01:18 PM

## Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

| Analysis Name | MS %REC | MSD %REC | MS/MSD Limits | RPD | RPD MAX | BKG Conc | DUP Conc | DUP RPD | Dup RPD Max |
|---|---|---|---|---|---|---|---|---|---|

## Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO (Soils)
Batch number: 07086A16B

| | Trifluorotoluene-F |
|---|---|
| 5016066 | 84 |
| 5016067 | 85 |
| 5016068 | 80 |
| 5016069 | 82 |
| Blank | 87 |
| LCS | 95 |
| MS | 79 |
| MSD | 82 |
| Limits: | 61-122 |

Analysis Name: BTEX+5 Oxygenates+EDC+EDB
Batch number: A070931AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 5016066 | 96 | 91 | 86 | 93 |
| 5016067 | 96 | 91 | 92 | 85 |
| 5016068 | 86 | 87 | 106 | 97 |
| 5016069 | 91 | 86 | 95 | 86 |
| Blank | 95 | 94 | 92 | 82 |
| LCS | 94 | 93 | 96 | 90 |
| MS | 93 | 89 | 99 | 88 |
| MSD | 93 | 89 | 98 | 87 |
| Limits: | 71-114 | 70-109 | 70-123 | 70-111 |

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

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