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Alameda County
Environmental Health

Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

November 30, 2007

Mr. Jerry Wickham
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: REPORT OF DPE EVENTS

SITE: Fuel Leak Case RO0000479
Lim Property
250 8th Street
Oakland, CA 94607

Dear Mr. Wickham:

Attached is Aqua Science Engineers, Inc.'s (ASE) report of the methods and findings of our second and third dual-phase extraction (DPE) events conducted at the subject site.

Should you have any questions or comments, please feel free to contact us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

David Allen

David Allen
Vice President, R.E.A.

Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

November 30, 2007

REPORT
OF
DUAL-PHASE EXTRACTION (DPE) EVENTS
PERFORMED AT THE
LIM PROPERTY
250 8TH STREET
OAKLAND, CALIFORNIA
FUEL LEAK CASE RO0000479
(ASE JOB NO. 2808)

for

Mr. Russell Lim
3111 Diablo Road
Lafayette, CA 94549

Submitted by:

Aqua Science Engineers
208 West El Pintado Road, Suite C
Danville, CA 94526
(925) 820-9391

Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

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1.0 INTRODUCTION

This report presents Aqua Science Engineers, Inc.'s (ASEs) methods and findings of two dual-phase extraction (DPE) events conducted for remediation of free-phase hydrocarbons and dissolved hydrocarbons in the soil and shallow groundwater at the Lim Property located at 250 8th Street in Oakland, California, Figures 1 and 2.

2.0 SITE HISTORY AND BACKGROUND INFORMATION

2.1 May 1992 Underground Storage Tank Removal

A gasoline service station previously occupied the site. In May 1992, ASE removed ten underground fuel storage tanks (USTs) from the site. The USTs consisted of one (1) 10,000-gallon gasoline tank, one (1) 5,000-gallon diesel tank, three (3) 2,000-gallon gasoline tanks, one (1) 2,000-gallon diesel tank, three (3) 500-gallon gasoline tanks and one (1) 250-gallon waste oil tank. Up to 10,000 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G) and 5,900 ppm total petroleum hydrocarbons as diesel (TPH-D) were detected in soil samples collected during the tank removal.

2.2 December 1992 through March 1993 Soil Overexcavation

Between December 1992 and March 1993, All Environmental of San Ramon, California overexcavated 1,762 cubic yards of soil from the site and off-hauled the soil to the BFI Landfill in Livermore, California for disposal. Analytical results show that all on-site soil with hydrocarbon concentrations greater than 10 ppm was removed from the site with the exception of soil along the 8th Street shoring. Up to 1,800 ppm TPH-G and 120 ppm TPH-D were detected in soil samples collected along the shoring indicating that contamination likely extends below 8th Street. This contamination left in place may still be a source for groundwater contamination.

2.3 January 1995 Monitoring Well Installation

In January 1995, ASE installed monitoring wells MW-1 and MW-2 at the site. High hydrocarbon concentrations were detected in monitoring well MW-2, downgradient of the site. Moderate hydrocarbon concentrations were detected in on-site monitoring well MW-1.

2.4 January 1996 Borings and Groundwater Sampling

In July 1996, ASE collected groundwater samples from each monitoring well and drilled borings BH-C and BH-D to further define the width of the hydrocarbon plume downgradient of the site. Relatively high hydrocarbon concentrations were detected in groundwater samples collected from monitoring well MW-2, downgradient of the site. Slightly lower but still very high hydrocarbon concentrations were detected in groundwater samples collected from boring BH-D, west of monitoring well MW-2. Very low hydrocarbon concentrations were detected in groundwater samples collected from monitoring well MW-1, located on the site, and boring

BH-C, east of monitoring well MW-2. Based on these findings, the plume appears to be moving to the south of Excavation I.

2.5 Quarterly Groundwater Monitoring

In April 1995, ASE began a quarterly groundwater monitoring program for the site. Since that time, the site has been on either a quarterly or semi-annual sampling schedule.

2.6 June 1997 Remedial Action Plan

On June 5, 1997, ASE prepared a remedial action plan (RAP) addressing the need for groundwater remediation at the site, describing the appropriateness of several remedial options and choosing an option. Low flow hydrogen peroxide injection was chosen as the groundwater remediation option of choice for the site in order to raise dissolved oxygen (DO) concentrations in the groundwater to stimulate in-situ bioremediation.

2.7 February 1999 Hydrogen Peroxide Remediation System Installation

On February 2 and 3, 1999, five (5) injection wells were installed at the site. On February 18, 1999, the injection system began operation. It delivered a water and hydrogen peroxide solution to each injection well on a constant basis. DO concentrations within the injection wells rose to above 20 ppm. Groundwater in downgradient monitoring well MW-2 never showed a measurable increase in DO.

2.8 June 1999 Discovery of Free-Floating Hydrocarbons

On June 22, 1999, while measuring the DO content within the injection wells, ASE discovered that the DO probe had a very strong gasoline odor when removed from injection well IW-5. A clear bailer was inserted into IW-5 to check for the presence of free-floating hydrocarbons. The bailer contained approximately 18-inches of what appeared to be aged gasoline. On June 24, 1999, ASE returned to the site with an interface probe to accurately measure the thickness of the free-floating hydrocarbons. On that day, 1.75-feet of free-floating hydrocarbons were measured on the water surface in IW-5. Injection well IW-4 (15-feet east of IW-5) was measured with the interface probe and did not contain a measurable thickness of floating hydrocarbons. On June 24, 1999, ASE bailed the free-floating hydrocarbons from IW-5 until only a sheen was present on the water surface. Approximately 3 gallons of product was removed from IW-5. ASE continued to measure and bail the floating product within well IW-5 on a bi-weekly basis.

2.9 January 2000 Monitoring Well Installation

In January 2000, ASE installed groundwater monitoring wells MW-3 and MW-4, east of injection well IW-5 and monitoring well MW-2. High hydrocarbon concentrations were detected in groundwater samples collected from both of these wells, including up to 140,000 parts per billion (ppb) TPH-G, 13,000 ppb TPH-D and 22,000 ppb benzene.

2.10 April 2000 Groundwater Sampling

In April 2000, ASE collected groundwater samples from all four monitoring wells. Elevated hydrocarbon concentrations were detected in groundwater samples collected from monitoring wells MW-2, MW-3 and MW-4, including up to 240,000 ppb TPH-G, 700,000 ppb TPH-D and 35,000 ppb benzene. Monitoring well MW-3 contained free-floating hydrocarbons.

2.11 Hydrogen Peroxide System Discontinuation

On November 27, 2000, with the approval of the Alameda County Health Care Services Agency, ASE turned off the hydrogen peroxide injection system since there was no noticeable DO increase in downgradient monitoring wells MW-2 and MW-4 on the south side of 8th Street.

2.12 May 2002 Monitoring Well Installation

In May 2002, ASE installed groundwater monitoring wells MW-5 and MW-7 south of the site, across 8th Street, and MW-6 northwest of the site approximately 70 feet west of existing monitoring well MW-3. Low concentrations of MTBE were identified in groundwater samples collected from wells MW-5 and MW-6. High concentrations of petroleum hydrocarbons were identified in well MW-7, including up to 38,000 ppb TPH-G and 890 ppb benzene.

2.13 October 2004 DPE Event

In October 2004, CalClean mobilized to the site with a truck-mounted DPE system to perform both a DPE pilot test and a 14-day DPE interim remediation event at the site. At the completion of the DPE interim remediation event, a total of 94,470 gallons of free-product and groundwater were removed from three extraction wells. The average TPH-G concentration in the extracted groundwater was 13,900 ppb; the average benzene concentration of that extracted groundwater was 780 ppb. The extracted groundwater was treated on-site with activated carbon vessels, and then discharged, under permit, to the East Bay Municipal Utilities District (EBMUD) sanitary sewer system on-site.

A total of 2.3 million cubic feet of hydrocarbon-laden vapors were extracted from three extraction wells during the 15 day event. Based on field measurements and laboratory analytical data, over 7,000 pounds of petroleum hydrocarbons were extracted from three extraction wells during the 15-day event. This equates to approximately 1,150 gallons of petroleum hydrocarbons. The extracted vapors were treated on-site by CalClean's thermal oxidizer. Based on the success of this DPE event, ASE recommended a second DPE event for the site prior to designing and installing a long-term remediation system.

2.14 Current Quarterly Groundwater Monitoring Program

The site is currently on a quarterly groundwater monitoring program.

3.0 SCOPE OF WORK

The following is the ASE's scope of work completed during the March and April 2007 DPE events.

1) Secure permits from the City of Oakland for encroachment on a city street, closure of a sidewalk, and closure of parking spaces.

2) Prepare a health and safety plan.

3) Mobilize to the site with ASE personnel and equipment to perform the DPE event.

4) Connect the ASE DPE equipment to monitoring well MW-3 and injection well IW-5 located within the parking strip of 8th Street.

5) Extract free-product, groundwater and vadose-zone vapors from injection well IW-5 on March 14, 2007 and monitoring well MW-3 on April 19, 2007, both for a period of 10 hours each.

6) Remediate the petroleum-hydrocarbon laden vapors with the trailer-mounted granulated activated carbon (GAC) units, two by two plumbed in parallel.

7) Store the extracted free-phase product and hydrocarbon-laden groundwater in an on-site, 4,000 gallon, temporary holding tank.

8) Collect data to determine system operating parameters and a radius of influence of the DPE system.

9) Using a hand-held photoionization detector (PID), measure the influent vapor concentrations of the extracted hydrocarbons removed from the vadose-zone.

10) Collect influent water samples, influent vapor samples, and effluent vapor samples at the beginning and end of the DPE events.

11) Measure the depth to water in the extraction wells and observation wells at the completion of the DPE event.

12) Analyze water and vapor samples at a State of California Department of Health Services (CA DHS) certified analytical laboratory for TPH-G, benzene toluene, ethylbenzene and xylenes (collectively known as BTEX), and five oxygenates by EPA Method 8260B.

13) Profile the extracted water within the holding tank. Using a subcontracted vacuum-truck service, dispose of the water/product mixture at a licensed disposal facility.

4.0 DETAILS OF THE SCOPE OF WORK COMPLETED

Below is a detailed description of each task completed during the March 14, 2007 and April 19, 2007 DPE events.

4.1 Permitting

After discussions with the City of Oakland, ASE determined that permits for encroachment on a city street, closure of a sidewalk, and closure of parking spaces was not necessary. ASE has obtained a Permit to Operate the DPE system from the Bay Area Air Quality Management District (BAAQMD).

4.2 Health & Safety Plan

A Health and Safety Plan was prepared outlining all field activities performed at the site during the DPE activities. A copy of the Health and Safety Plan was available on-site during all field activities.

4.3 Mobilization

On the dates described above, ASE arrived at the subject site with the DPE system trailer (Figure 3). A 4,000 gallon black poly tank was previously delivered to the site by Baker Tank. This rented tank was used to store the extracted groundwater and free-product (Figure 4).

4.4 Depth to Groundwater/Product

The groundwater/free-product depth within monitoring well MW-3 and injections wells IW-5 and IW-4 well were measured using an electric interface probe.

March 14, 2007

- In monitoring well MW-3, the depth to product was measured at 15.77-feet below the top of well casing; the groundwater depth was measured at 16.03 feet below the top of the casing. The free-product thickness was therefore 0.26-feet.

- In injection well IW-5, the depth to product was measured at 15.23-feet below the top of well casing; the groundwater depth was measured at 15.89 feet below the top of the casing. The free-product thickness was therefore 0.66-feet.

- In injection well IW-4, the groundwater depth was measured at 15.06 feet below the top of the casing. Free-product was not present in this well.

April 19, 2007

- In monitoring well MW-3, the depth to product was measured at 16.21-feet below the top of well casing; the groundwater depth was measured at 16.37 feet below the top of the casing. The free-product thickness was therefore 0.16-feet.

- In injection well IW-5, the depth to product was measured at 16.28-feet below the top of well casing; the groundwater depth was measured at 16.35 feet below the top of the casing. The free-product thickness was therefore 0.07-feet.

4.5 Vacuum Influence Measurements

The top of monitoring wells MW-6, MW-3 and injection well IW-5 were fitted with Minihelic vacuum gauges to determine area of influence of the vapor extraction (depending on which well was being extracted from). The gauges were zeroed prior to start-up of the DPE system.

During the course of the DPE events, negative pressure was obvious in injection well IW-5 and monitoring well MW-3, approximately 32-feet from each other.

4.6 System Start-Up and Duration

The selected extraction well (either monitoring well MW-3 or injection well IW-5) was fitted with a manifold that would allow for simultaneous groundwater extraction and vapor extraction. The groundwater extraction pump was lowered into the well to the depth near the interface of free-product and groundwater. The extracted liquids were then pumped via ¾-inch tubing directly into the Baker Tank. The vacuum hose was then connected to the well. The DPE system was then turned on.

The system was operated for a period of 10 hours during each event conducted in March and April 2007 (see the field logs attached in Appendix A). In that time, the following conditions were met:

4.7 Groundwater Extraction, Sample Collection and Analysis

An estimated 1,000 gallons of groundwater were removed by the groundwater extraction pump (based on measurement of water line in poly tank). A grab groundwater sample was collected directly from the extraction pump tubing while the pump was operating during the April DPE event (sample name ST-2). The sample was analyzed by McCampbell Analytical of Pittsburg, California (ELAP # 1644) for TPH-G, BTEX, and the 5 oxygenates by EPA Method 8260.

- Sample ST-2 contained 84,000 ug/l TPH-G, 9,200 ug/l benzene, 1,300 ug/l ethylbenzene, 8,000 ug/l toluene, and 5,500 ug/l xylenes. No other compounds were identified above laboratory reporting limits.

A copy of the certified analytical report from McCampbell is attached in Appendix B.

4.8 Vapor Extraction and Sample Collection and Analysis

Due to the porosity of the subsurface soil at the site, the vapor-extraction blower required a percentage of ambient air to be incorporated with the air removed from the vadose zone. A negative pressure of 50 to 60 inches of water column is the optimum vacuum for the blower. Higher negative pressure could lead to malfunction of the blower. In order to maintain this negative pressure, the ambient air by-pass valve was opened. Thus, the extracted air was a combination of vadose-zone air and ambient air. The vapor extraction blower operated at 135 standard cubic feet per minute (SCFM) for the majority of the DPE event. This is based on blower curves supplied by the manufacturer of the blower. PID readings were taken at the start and end of the DPE event from the effluent side of the activated carbon treatment units, and at the exit point to the atmosphere. The PID readings were zero at all effluent points measured.

Hourly PID readings, taken from a sample point on top of the extraction well, resulted in a range of 289 to 503 parts per million by volume (ppmv) during the two DPE events. These readings represent undiluted (no ambient air) vapor stream readings.

March 14, 2007

An influent air bag sample was collected on the positive side of the extraction blower, after the injection of ambient air. On March 14, 2007, one influent air bag sample was collected at 1500 hours (sample name INF-VE-3.14.07-1500). ASE also collected one effluent air bag sample during the DPE event which was collected from the exhaust stack after the vapors were treated by the activated carbon. This sample was labeled EFF-VE-3.14.07-1300. Both air bag samples were collected in new 1-liter Tedlar bags using a hand pump. The samples were analyzed by McCampbell for TPH-G, BTEX and five oxygenates by EPA Method 8260B. Results are detailed below:

- Sample INF-VE-3.14.07-1500 contained 2,400 ug/l TPH-G, 14 ug/l benzene, 8.9 ug/l ethylbenzene, 25 ug/l toluene, and 33 ug/l xylenes. No other compounds were identified above laboratory reporting limits.
- Sample EFF-VE-3.14.07-1300 contained no compounds that were tested above laboratory reporting limits.

A copy of the certified analytical reports from McCampbell is attached in Appendix B.

April 19, 2007

An influent air bag sample was collected on the positive side of the extraction blower, after the injection of ambient air. On April 19, 2007, one influent air bag sample was collected at 1400 hours (sample name INF-VE-4.19.07-1400). ASE also collected one effluent air bag sample during the DPE event which was collected from the exhaust stack after the vapors were treated by the activated carbon. This sample was labeled EFF-VE-4.19.07-1330. Both air bag samples were collected in new 1-liter Tedlar bags using a hand pump. The samples were analyzed by McCampbell for TPH-G, BTEX and 5 oxygenates by EPA Method 8260B. Results are detailed below:

- Sample INF-VE-4.19.07-1400 contained 5,000 ug/l TPH-G, 63 ug/l benzene, 14 ug/l ethylbenzene, 100 ug/l toluene, and 47 ug/l xylenes. No other compounds were identified above laboratory reporting limits.

- Sample EFF-VE-4.19.07-1330 contained only 53 ug/l TPH-G; no other compounds were identified above laboratory reporting limits.

A copy of the certified analytical reports from McCampbell is attached in Appendix B.

5.0 POST DPE EVENT MEASUREMENTS

The groundwater/free-product depth within monitoring well MW-3 and injection well IW-5 were measured using an electric interface probe immediately after the DPE equipment was turned off and removed from the extraction well.

- When extracting from injection well IW-5 on March 14, 2007, the post remediation depth to product was measured at 16.85-feet below the top of well casing; the groundwater depth was measured at 16.86-feet below the top of the casing. The free-product thickness was 0.01-feet.

- When extracting from monitoring well MW-3 on April 19, 2007, the post remediation groundwater depth was measured at 16.51-feet below the top of the casing. Free-product was not present in this well. The groundwater depth dropped only slightly as a result of the groundwater extraction.

6.0 EXTRACTION CALCULATIONS

6.1 Groundwater and Liquid Free-Product

The DPE system extracted an estimated 2,000 gallons of hydrocarbon-laden groundwater during the two DPE events. No measurable product was identified floating on the water within the tank on the day following the DPE events.

6.2 Vapor Phase Hydrocarbons

Using the average concentration of TPH-G in the influent air bag samples collected during each DPE event, ASE calculated the volume of hydrocarbons removed during the two DPE events (see Appendix C for the calculation sheets). Based on an extraction rate of 135 SCFM and the

TPH-G concentrations of the influent samples, the DPE system recovered approximately 6.57 gallons of gasoline during the two DPE events performed in March and April 2007.

7.0 CONCLUSIONS OF DPE EVENTS

The DPE system recovered approximately 19 gallons of hydrocarbons as gasoline during the three 10-hour DPE events performed during 2007. Free product within the extraction well was no longer present after the DPE events.

An influence of negative pressure was measured approximately 32-feet away from the extraction well.

8.0 REPORT LIMITATIONS

The results presented in this report represent conditions at the time of the air and water sampling, at the specific locations at where the samples were collected, and for the specific parameters analyzed by the laboratory.

This report does not fully characterize the site for contamination resulting from unknown sources or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent state certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

Aqua Science Engineers appreciates the opportunity provide environmental consulting services for this project. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Aqua Science Engineers, Inc.

David Allen

David Allen, R.E.A.
Vice President

E. Kitay

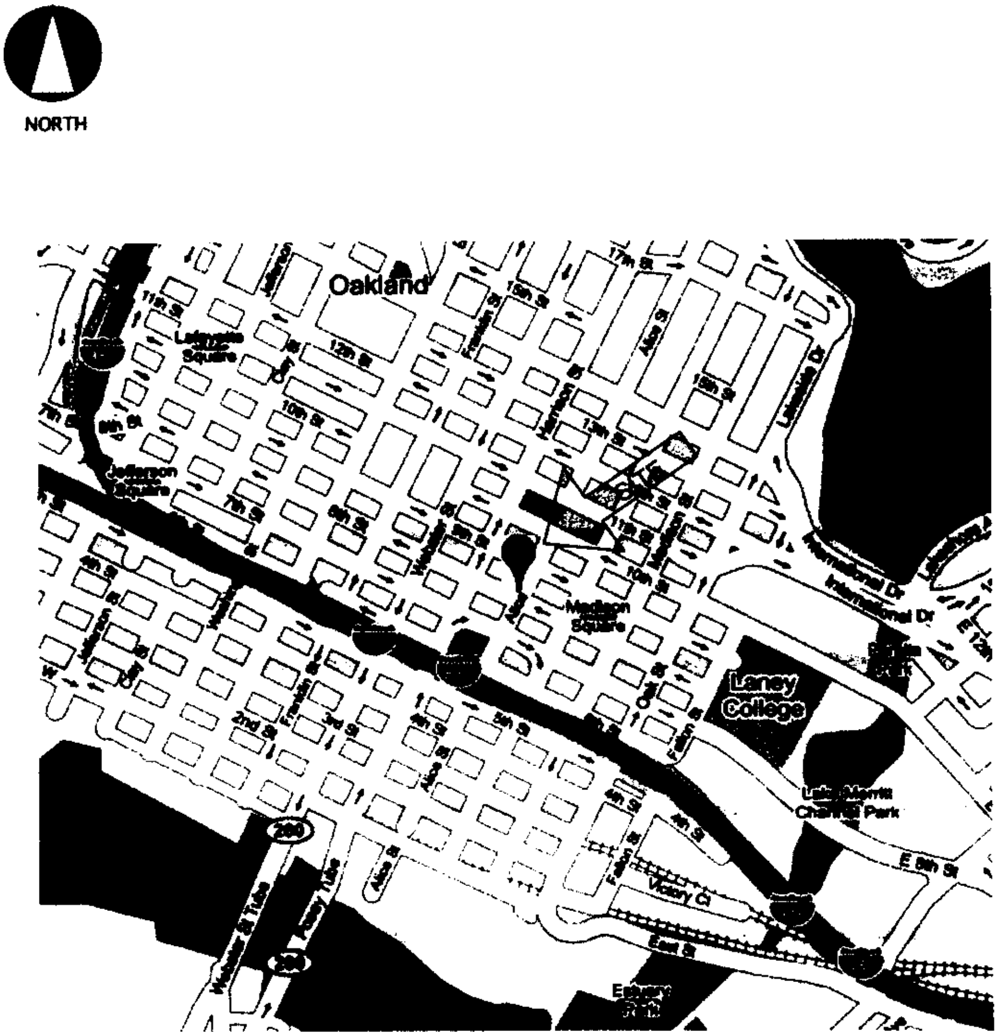
Robert Kitay, P.G., R.E.A.
Senior Geologist

PROFESSIONAL GEOLOGIST
ROBERT E. KITAY
No. 6588
STATE OF CALIFORNIA

cc: Responsible Party Representative, Mr. Russell Lim, 3111 Diablo Road, Lafayette, CA 94549

Mr. Jerry Wickham, ACHCSA

FIGURES

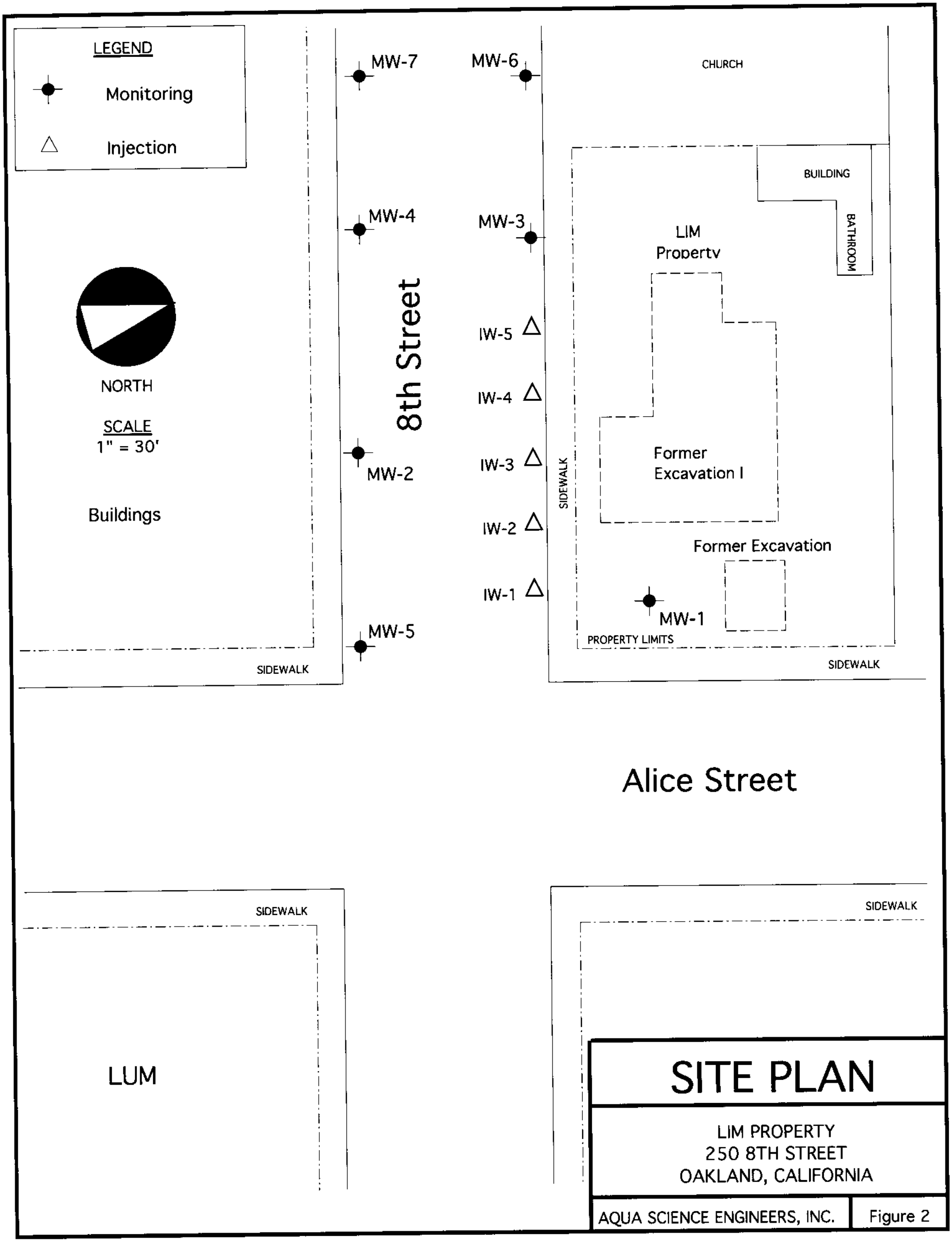


LOCATION MAP

LIM PROPERTY
250 8TH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS

FIGURE 1

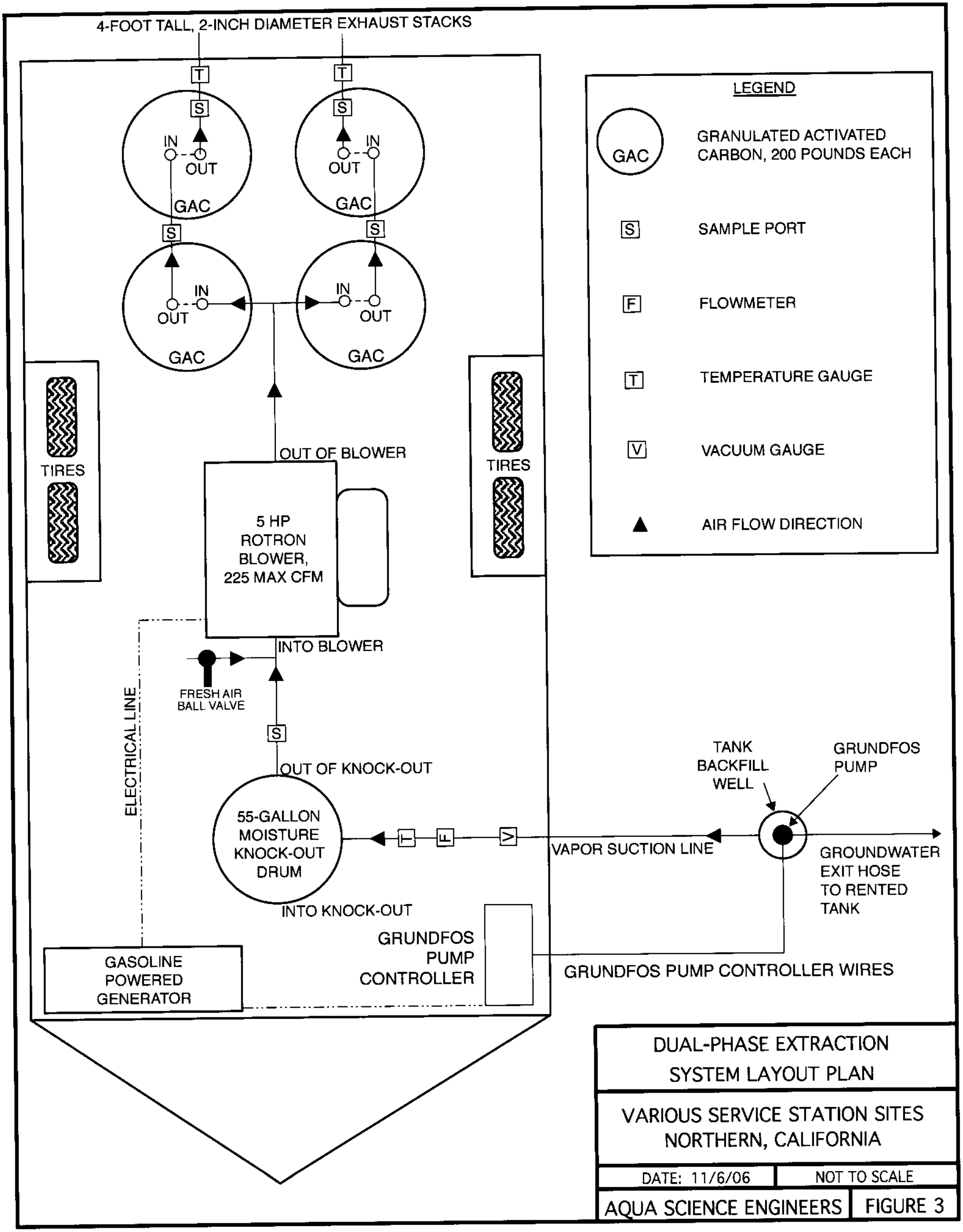


SITE PLAN

LIM PROPERTY
250 8TH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

Figure 2



DUAL-PHASE EXTRACTION
SYSTEM LAYOUT PLAN

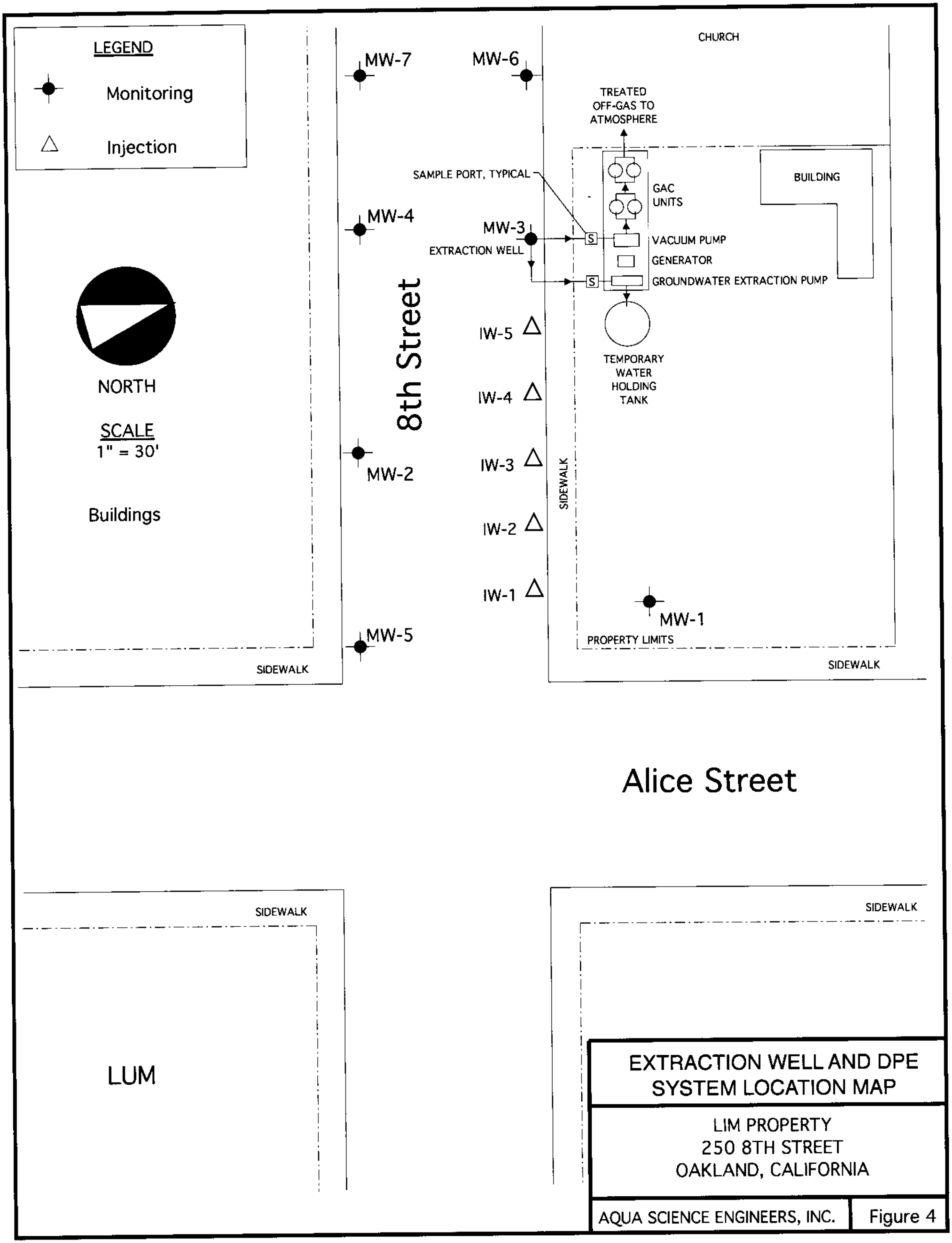
VARIOUS SERVICE STATION SITES
NORTHERN, CALIFORNIA

DATE: 11/6/06

NOT TO SCALE

AQUA SCIENCE ENGINEERS

FIGURE 3



EXTRACTION WELL AND DPE SYSTEM LOCATION MAP

LIM PROPERTY
250 8TH STREET
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC.

Figure 4

APPENDIX A

Field Forms

LIM PROPERTY DUAL-PHASE EXTRACTION TEST DATA
PERFORMED ON MONITORING WELL IW-5

#2

DATE 3-14-07

TIME TEST BEGAN 700

TIME TEST ENDED 500

NEGATIVE PRESSURE (VACUUM) READINGS

OBSERV. POINT	INITIAL READING	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
	0												
	0												

TREATMENT SYSTEM OPERATING PARAMETERS

TIME	VACUUM ON IW-5 IN INCHES OF WATER	AIRFLOW FROM IW-5 IN CFM	INFLUENT PID READING (PPMV)	EFFLUENT PID READING (PPMV)
800	50	135	315	0
900	〃	135	290	0
1000	〃	135	320	〃
1100	〃	135	344	〃
1200	〃	〃	414	〃
1300	〃	〃	345	〃
1400	〃	〃	330	〃
1500	〃	〃	315	〃
1600	〃	〃	320	〃
1700	50	135	330	0

PRODUCT & WATER ELEVATION IN MW-3 AT START
PRODUCT: 15.77 WATER: 16.03

PRODUCT & WATER ELEVATION IN MW-3 AT END
PRODUCT: 16.37 WATER: 16-77

PRODUCT & WATER ELEVATION IN IW-5 AT START
PRODUCT: 15.23 WATER: 15.89

PRODUCT & WATER ELEVATION IN IW-5 AT END
PRODUCT: 16.85 WATER: 16.86

PRODUCT & WATER ELEVATION IN IW-4 AT START
PRODUCT: - WATER: 15.06

PRODUCT & WATER ELEVATION IN IW-4 AT END
PRODUCT: - WATER: 15.71

TIME AIRBAG SAMPLES WERE COLLECTED
BEGINNING: 1300

END: 1500

ESTIMATE OF GROUNDWATER REMOVED:

DTW: 3.55
Tot: 11.57

LIM PROPERTY DUAL-PHASE EXTRACTION TEST DATA
PERFORMED ON MONITORING WELL MW-3

DATE 4-19-07

TIME TEST BEGAN 600 a

TIME TEST ENDED 400 p

NEGATIVE PRESSURE (VACUUM) READINGS

OBSERV. POINT	INITIAL READING	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME	TIME
	0												
	0												

TREATMENT SYSTEM OPERATING PARAMETERS

TIME	VACUUM ON MW-3 IN INCHES OF WATER	AIRFLOW FROM MW-3 IN CFM	INFLUENT PID READING (PPMV)	EFFLUENT PID READING (PPMV)
630	50	135	289	0
800	50	135	356	0
930	"	135	503	0
1100	"	135	412	0
1230	"	135	389	0
200	"	135	478	0
330	"	135	412	0

PRODUCT & WATER ELEVATION IN MW-3 AT START
PRODUCT: 16.21 WATER: 16.37

PRODUCT & WATER ELEVATION IN MW-3 AT END
PRODUCT: — WATER: 16.51

PRODUCT & WATER ELEVATION IN IW-5 AT START
PRODUCT: 16.28 WATER: 16.35

PRODUCT & WATER ELEVATION IN IW-5 AT END
PRODUCT: — WATER: —

PRODUCT & WATER ELEVATION IN IW-4 AT START
PRODUCT: — WATER: —

PRODUCT & WATER ELEVATION IN IW-4 AT END
PRODUCT: — WATER: —

TIME AIRBAG SAMPLES WERE COLLECTED
BEGINNING: → INF-1400

END: → EFF-1330

ESTIMATE OF GROUNDWATER
REMOVED:

Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

APPENDIX B

Certified Analytical Report

McCampbell Analytical, Inc.
"When Quality Counts"

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

Aqua Science Engineers, Inc. 208 West El Pintado Road Danville, CA 94526	Client Project ID: #2808; Lim	Date Sampled: 03/14/07 Date Received: 03/15/07
	Client Contact: Mike Rauser	Date Reported: 03/21/07
	Client P.O.:	Date Completed: 03/21/07

WorkOrder: 0703372

~~March 21, 2007~~

Dear Mike:

Enclosed are:

1). the results of 2 analyzed samples from your **#2808; Lim project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

Aqua Science Engineers, Inc. 208 West El Pintado Road Danville, CA 94526	Client Project ID: #2808; Lim	Date Sampled: 03/14/07
		Date Received: 03/15/07
	Client Contact: Mike Rauser	Date Extracted: 03/15/07-03/16/07
	Client P.O.:	Date Analyzed 03/15/07-03/16/07

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*

Extraction method SW5030B Analytical methods SW8015Cm Work Order: 0703372

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001A	EFF-VE-3.14.07-1300	A	ND	1	82
002A	INF-VE-3.14.07-1500	A	2400,a	4	84

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	A	25	μg/L
	S	NA	NA

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS ELAP Certification N° 1644

AR Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.

"When Quality Counts"

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

Aqua Science Engineers, Inc. 208 West El Pintado Road Danville, CA 94526	Client Project ID: #2808; Lim	Date Sampled: 03/14/07
		Date Received: 03/15/07
	Client Contact: Mike Rauser	Date Extracted: 03/16/07
	Client P.O.:	Date Analyzed: 03/16/07

Oxygenates and BTEX by GC/MS*

Extraction Method: SW5030B   Analytical Method: SW8260B   Work Order: 0703372

Lab ID	0703372-001B	0703372-002B			Reporting Limit for DF =1	
Client ID	EFF-VE-3.14.07-1300	INF-VE-3.14.07-1500				
Matrix	A	A				
DF	1	4			S	A
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	ND<1.0			NA	0.25
Benzene	ND	14			NA	0.25
t-Butyl alcohol (TBA)	ND	ND<10			NA	2.5
Diisopropyl ether (DIPE)	ND	ND<1.0			NA	0.25
Ethylbenzene	ND	8.9			NA	0.25
Ethyl tert-butyl ether (ETBE)	ND	ND<1.0			NA	0.25
Methyl-t-butyl ether (MTBE)	ND	ND<1.0			NA	0.25
Toluene	ND	25			NA	0.25
Xylenes	ND	33			NA	0.25
Surrogate Recoveries (%)						
%SS1:	104	108				
%SS2:	99	98				
%SS3:	97	94				
Comments						

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

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

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

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Air QC Matrix: Water WorkOrder 0703372

EPA Method SW8021B/8015Cm Extraction SW5030B BatchID: 26827 Spiked Sample ID: 0703365-005A

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex£	ND	60	88.7	93.9	5.67	95.1	93.3	1.96	70 - 130	30	70 - 130	30
MTBE	ND	10	90.7	92.7	2.20	96.3	103	6.57	70 - 130	30	70 - 130	30
Benzene	ND	10	94.5	94.7	0.230	98	98.3	0.348	70 - 130	30	70 - 130	30
Toluene	ND	10	94.8	95	0.233	90.3	89.9	0.422	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	99.4	98.2	1.23	100	99.6	0.800	70 - 130	30	70 - 130	30
Xylenes	ND	30	110	110	0	96	95.7	0.348	70 - 130	30	70 - 130	30
%SS:	110	10	94	92	2.36	97	97	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 26827 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703372-001A	03/14/07 1:00 PM	03/15/07	03/15/07 11:53 PM	0703372-002A	03/14/07 3:00 PM	03/16/07	03/16/07 12:26 AM

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Air QC Matrix: Water WorkOrder 0703372

EPA Method SW8260B **Extraction SW5030B** **BatchID: 26855** **Spiked Sample ID: 0703379-006A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	102	100	1.53	102	104	1.54	70 - 130	30	70 - 130	30
Benzene	ND	10	96.5	95.1	1.44	97.7	98.4	0.767	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	100	103	2.94	98.3	101	3.03	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	110	112	1.12	116	115	0.671	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	107	108	0.246	111	111	0	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	112	111	1.01	111	114	2.43	70 - 130	30	70 - 130	30
Toluene	ND	10	78.9	82.1	4.02	93.2	87.2	6.64	70 - 130	30	70 - 130	30
%SS1:	103	10	105	104	1.11	102	103	1.16	70 - 130	30	70 - 130	30
%SS2:	100	10	90	94	4.22	103	97	5.86	70 - 130	30	70 - 130	30
%SS3:	98	10	84	88	5.21	96	91	5.25	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 26855 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703372-001B	03/14/07 1:00 PM	03/16/07	03/16/07 4:40 PM	0703372-002B	03/14/07 3:00 PM	03/16/07	03/16/07 5:25 PM

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

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

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

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

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

QA/QC Officer

0703312 ASEP

Aqua Science Engineers, Inc
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

PAGE 1 of 1

SAMPLER (SIGNATURE)

PROJECT NAME LIM

JOB NO. 2809

ADDRESS 250 8th Street, Oakland, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0
EFF-VE-3.14.07-1300	3/14	1300	Air	1								X							X
INF-VE-3.14.07-1500	"	1500	"	"								X							X

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
(signature) (time)	ADIL 1:00 (signature) (time)	ADIL 5:40 (signature) (time)	3/15/07 (signature) (time)	TURN AROUND TIME
M. RAUSER 3.15.07 (printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	[✓ STANDARD] 24Hr 48Hr 72Hr
Company- ASE, INC.	Company-	Company-	Company-	OTHER:

0 [illegible] 2408 4/07

McCampbell Analytical, Inc.
"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Aqua Science Engineers, Inc. 55 Oak Court Suite 220 Danville, CA 94526	Client Project ID: Lim Property	Date Sampled: 04/19/07
		Date Received: 04/19/07
	Client Contact: Mike Rauser	Date Reported: 04/25/07
	Client P.O.:	Date Completed: 04/25/07

WorkOrder: 0704398

April 25, 2007

Dear Mike:

Enclosed are:

1). the results of **3** analyzed samples from your **Lim Property project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.

"When Quality Counts"

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Aqua Science Engineers, Inc. 55 Oak Court Suite 220 Danville, CA 94526	Client Project ID: Lim Property	Date Sampled: 04/19/07
		Date Received: 04/19/07
	Client Contact: Mike Rauser	Date Extracted: 04/20/07
	Client P.O.:	Date Analyzed: 04/20/07

Oxygenated Volatile Organics by P&T and GC/MS*

Extraction Method: SW5030B
Analytical Method: SW8260B
Work Order: 0704398

					Reporting Limit for DF =1	
Lab ID	0704398-001A	0704398-002A				
Client ID	INF-VE-4-19-07-1400	EFF-VE-4-19-07-1330				
Matrix	A	A				
DF	4	1			S	A
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND<1.0	ND			NA	0.25
t-Butyl alcohol (TBA)	ND<10	ND			NA	2.5
Diisopropyl ether (DIPE)	ND<1.0	ND			NA	0.25
Ethyl tert-butyl ether (ETBE)	ND<1.0	ND			NA	0.25
Methyl-t-butyl ether (MTBE)	ND<1.0	ND			NA	0.25
Surrogate Recoveries (%)						
%SS1:	98	101				
Comments	j					

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

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

surrogate diluted out of range or surrogate coelutes with another peak.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

Aqua Science Engineers, Inc. 55 Oak Court Suite 220 Danville, CA 94526	Client Project ID: Lim Property	Date Sampled: 04/19/07
		Date Received: 04/19/07
	Client Contact: Mike Rauser	Date Extracted: 04/23/07
	Client P.O.:	Date Analyzed: 04/23/07

Oxygenated Volatile Organics by P&T and GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0704398

Lab ID	0704398-003B				Reporting Limit for DF =1	
Client ID	ST-2					
Matrix	W					
DF	50				S	W
Compound	**Concentration**				ug/kg	μg/L
tert-Amyl methyl ether (TAME)	ND<25				NA	0.5
t-Butyl alcohol (TBA)	ND<250				NA	5.0
Diisopropyl ether (DIPE)	ND<25				NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<25				NA	0.5
Methyl-t-butyl ether (MTBE)	ND<25				NA	0.5
Surrogate Recoveries (%)						
%SS1:	91					
Comments	j					

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

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

surrogate diluted out of range or surrogate coelutes with another peak.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

Angela Rydelius, Lab Manager

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Telephone: 877-252-9262 Fax: 925-252-9269

Aqua Science Engineers, Inc. 55 Oak Court Suite 220 Danville, CA 94526	Client Project ID: Lim Property	Date Sampled: 04/19/07 Date Received: 04/19/07
	Client Contact: Mike Rauser	Date Extracted: 04/20/07
	Client P.O.:	Date Analyzed: 04/20/07

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0704398

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	INF-VE-4-19-07-1400	A	5000,a	ND<110	63	100	14	47	4	87
002A	EFF-VE-4-19-07-1330	A	53,m	ND	ND	ND	ND	ND	1	95

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	A	25	2.5	0.25	0.25	0.25	0.25	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

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Aqua Science Engineers, Inc.
55 Oak Court Suite 220
Danville, CA 94526

Client Project ID: Lim Property

Client Contact: Mike Rauser

Client P.O.:

Date Sampled: 04/19/07
Date Received: 04/19/07
Date Extracted: 04/20/07
Date Analyzed: 04/20/07

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0704398

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
003A	ST-2	W	84,000,a	ND<1100	9200	8000	1300	5500	50	92

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Air QC Matrix: Water WorkOrder: 0704398

EPA Method SW8021B/8015Cm **Extraction SW5030B** **BatchID: 27539** **Spiked Sample ID: 0704375-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	112	128	13.1	100	90.7	10.2	70 - 130	30	70 - 130	30
MTBE	ND	10	111	117	5.23	120	118	1.02	70 - 130	30	70 - 130	30
Benzene	ND	10	108	114	5.28	109	111	1.87	70 - 130	30	70 - 130	30
Toluene	ND	10	123	124	0.767	98.6	99.5	0.918	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	115	119	3.07	106	105	1.15	70 - 130	30	70 - 130	30
Xylenes	ND	30	119	125	5.41	103	103	0	70 - 130	30	70 - 130	30
%SS:	99	10	100	100	0	94	96	1.74	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 27539 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0704398-001A	04/19/07 2:00 PM	04/20/07	04/20/07 7:40 AM	0704398-002A	04/19/07 1:30 PM	04/20/07	04/20/07 11:12 AM

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Air QC Matrix: Water WorkOrder: 0704398

EPA Method SW8260B **Extraction SW5030B** **BatchID: 27564** **Spiked Sample ID: 0704400-002B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	109	111	1.39	105	103	2.73	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	88.5	93.9	5.35	87.4	89.5	2.42	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	128	127	0.337	117	115	1.41	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	117	117	0	112	110	2.61	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	116	120	3.25	112	109	2.57	70 - 130	30	70 - 130	30
%SS1:	101	10	97	98	0.412	94	92	2.70	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 27564 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0704398-001A	04/19/07 2:00 PM	04/20/07	04/20/07 9:23 PM	0704398-002A	04/19/07 1:30 PM	04/20/07	04/20/07 8:37 PM

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

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

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

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

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

QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0704398

EPA Method SW8021B/8015Cm **Extraction SW5030B** **BatchID: 27539** **Spiked Sample ID: 0704375-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex[£]	ND	60	112	128	13.1	100	90.7	10.2	70 - 130	30	70 - 130	30
MTBE	ND	10	111	117	5.23	120	118	1.02	70 - 130	30	70 - 130	30
Benzene	ND	10	108	114	5.28	109	111	1.87	70 - 130	30	70 - 130	30
Toluene	ND	10	123	124	0.767	98.6	99.5	0.918	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	115	119	3.07	106	105	1.15	70 - 130	30	70 - 130	30
Xylenes	ND	30	119	125	5.41	103	103	0	70 - 130	30	70 - 130	30
%SS:	99	10	100	100	0	94	96	1.74	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 27539 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0704398-003A	04/19/07 2:10 PM	04/20/07	04/20/07 4:45 AM				

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

DHS ELAP Certification N° 1644

_______ QA/QC Officer

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0704398

EPA Method SW8260B **Extraction SW5030B** **BatchID: 27564** **Spiked Sample ID: 0704400-002B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	109	111	1.39	105	103	2.73	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	88.5	93.9	5.35	87.4	89.5	2.42	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	128	127	0.337	117	115	1.41	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	117	117	0	112	110	2.61	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	116	120	3.25	112	109	2.57	70 - 130	30	70 - 130	30
%SS1:	101	10	97	98	0.412	94	92	2.70	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 27564 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0704398-003B	04/19/07 2:10 PM	04/23/07	04/23/07 8:48 AM				

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

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

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

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

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

0704398 ASED

Aqua Science Engineers, Inc
208 W. El Pintado Road
Danville, CA 94526
(925) 820-9391
FAX (925) 837-4853

Chain of Custody

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SAMPLER (SIGNATURE)

PROJECT NAME Lim Property JOB NO.

ADDRESS 250 8th Str, Oakland, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID	DATE	TIME	MATRIX	[illegible]	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020) 5 oxys	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	CAM 17 METALS (EPA 6010+7000)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	[illegible]	[illegible]	[illegible]ENATES (EPA [illegible])	PURGEABLE HALOCARBONS (EPA 601/8010)	TPH-G BTEX & 5 OXYS (EPA METHOD 8260) [illegible]	MULTI-RANGE HYDROCARBONS WITH SILICA GEL CLEANUP (EPA 8015)	VOLATILE ORGANICS (EPA 624/8240/8260)	LUFT METALS [illegible]	[illegible]	[illegible]		HOLD
INF-VE-4-19-07-1400	4-19-07	1400	A	1	X									X					X		
EFF-VE-4-19-07-1330	|	1330	A	1	X									X					X		
✓ ST-2	↓	1410	W	4	X									X					X		

~~A~~#219 ✓ ✓ ✓ ✓

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY LABORATORY
5:00	Shelli Cryderman 4/19/07		
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)
4-19-07	Shelli Cryderman 4/19/07		
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)
Company-ASE, INC	Company-	Company-	Company

COMMENTS
HCl = VOA

TURN AROUND TIME
[✓ STANDARD] 24Hr 48Hr 72Hr
OTHER

Aqua Science Engineers, Inc. 55 Oak Court, Suite 220, Danville, CA 94526
(925) 820-9391 - Fax (925) 837-4853 - www.aquascienceengineers.com

APPENDIX C

Vapor Extraction Calculations

MASS EXTRACTION CALCULATIONS
LIM PROPERTY DUAL-PHASE EXTRACTION SYSTEM
250 8th STREET
OAKLAND, CALIFORNIA
AIR BAG SAMPLES COLLECTED ON 03/14/07

AVERAGE VAPOR EXTRACTION FLOW RATE		VOLUME CONVERSION FACTOR		TEST DURATION		**TPH-G** CONCENTRATION IN ***INFLUENT*** SAMPLE		MASS CONVERSION FACTOR		MASS CONVERSION FACTOR		MASS **TPH-G** EXTRACTION RATE		MASS **TPH-G** EXTRACTION RATE
CFM	MULTPLY	l/cu. ft.	MULTPLY	minutes	MULTPLY	ug/l	DIVIDE	ugs/gm	DIVIDE	gms/lb	EQUALS	lbs/event	EQUALS	gallons/event
135		28.32		660		2,400		1,000,000		454		**13.34**		**2.13**

GALLONS OF GASOLINE EXTRACTED IN VAPOR PHASE DURING THE DPE EVENT ON MARCH 14, 2007.	2.13

MASS EXTRACTION CALCULATIONS
LIM PROPERTY DUAL-PHASE EXTRACTION SYSTEM
250 8th STREET
OAKLAND, CALIFORNIA
AIR BAG SAMPLES COLLECTED ON 04/19/07

AVERAGE VAPOR EXTRACTION FLOW RATE	MULTPLY	VOLUME CONVERSION FACTOR	MULTPLY	TEST DURATION	MULTPLY	**TPH-G** CONCENTRATION IN ***INFLUENT*** SAMPLE	DIVIDE	MASS CONVERSION FACTOR	DIVIDE	MASS CONVERSION FACTOR	EQUALS	MASS **TPH-G** EXTRACTION RATE	EQUALS	MASS **TPH-G** EXTRACTION RATE
CFM		l/cu. ft.		minutes		ug/l		ugs/gm		gms/lb		lbs/event		gallons/event
135		28.32		660		5,000		1,000,000		454		**27.79**		**4.44**

GALLONS OF GASOLINE EXTRACTED IN VAPOR PHASE DURING THE DPE EVENT ON APRIL 19, 2007. 4.44