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Environmental Health



**Pilot Scale Vapor Extraction System Status Report for May 2010
160 Holmes Street, Livermore, California**

Date:
June 15, 2010

Project No.:
160

Prepared For:
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June 15, 2010
Project No.: 160

Manwel and Samira Shuwayhat
54 Wolfe Canyon Road
Kentfield, California 94904

SUBJECT: Pilot Scale Vapor Extraction System Status Report for May 2010, Fuel Leak Case No. RO0000324, 160 Holmes Street, Livermore, California

Dear Manwel and Samira Shuwayhat:

Allterra Environmental, Inc. (Allterra) has prepared this interim remedial action status report to document work conducted at the property located at 160 Holmes Street in Livermore, California (Site). This report documents field observations and data collected while conducting pilot scale system operation and maintenance during May of 2010.

Site Location and Description

The subject property is located at the northeast intersection of Holmes Street and Second Street, in Livermore, California (Figure 1). A Vallero fuel station currently occupies the Site and the surrounding area is primarily residential with some retail businesses along 1st and 2nd Streets. The approximate surface elevation of the site is 465 feet above mean sea level (MSL) and slopes to the northwest. Pertinent site features, including the locations of the former underground storage tanks (USTs), existing monitoring and extraction wells, and previous soil borings are presented in Figure 2.

Pilot Scale Vapor Extraction System (VES) Description

The VES consisted of a remediation compound area that includes a vapor extraction blower, electrical controls, and vapor abatement equipment, as well as subsurface conveyance piping and wellhead connections to extraction well EW-3. The layout of the VES is presented in Figure 2.

Vapor Extraction Well

Well EW-3 was used as the soil vapor extraction well. Well EW-3 was selected because it has a screen interval from 25 to 30 feet bgs, which spans the targeted contaminant smear zone. A previous pilot test completed using EW-3 indicated it was conducive for vapor extraction.

Remediation Compound

A temporary remediation compound was constructed along the northeastern edge of the property (Figure 2). The compound consisted of vapor extraction and off-gas abatement equipment with associated electrical controls and conveyance piping and two 6,500-gallon tanks to contain groundwater extracted from EW-3.

Groundwater Extraction

Over the last several months, groundwater elevations increased to approximately 23-27 feet below ground surface (bgs), which is the target area for soil vapor extraction. Therefore, to maximize performance of the SVE system, Allterra dewatered EW-3 to expose the fuel-impacted soil between 25 and 30 feet bgs. Extracted groundwater is contained in two 6,500-gallon tanks and discharged under wastewater discharge permit.

Pilot Scale Remediation System Operation and Maintenance (O&M) – May 2010

During May 2010, Allterra operated and maintained vapor and groundwater extraction equipment located at the Site. O&M field activities included collection of vapor and groundwater samples for laboratory analyses, recording system operation data (total flows and flow rates, monitoring well groundwater elevations, qualitative observations, etc.), and collecting data from observation wells. Field logs for O&M activities are included in Appendix A. System data, such as groundwater flow rates and groundwater sample results, are presented in Tables 1 through 4.

VES Operation and Data Collection – May 2010

For May 2010, remediation consisted of operating a VES that removed soil vapors from well EW-3. During May, the VES operated for approximately 31 days at an average extraction rate of approximately 6 standard cubic feet per minute (scfm). On May 6, 20, and 28 Allterra collected vapor samples from the influent vapor streams of the VES. Vapor samples were collected from sample ports in 1-liter tedlar sample bags. VES operating parameters and other general observations were measured routinely through the month. Sample analytical results are presented in Table 1 and VES operation data is presented in Table 3. Operation and Maintenance Field Logs are included in Appendix A.

Groundwater Extraction System Operation and Data Collection – May 2010

During May, the groundwater extraction system (GWES) removed approximately 11,497-gallons of groundwater from well EW-3 at an approximate flow rate of 1.5 gallons per minute (gpm). On May 6, 20, and 28 Allterra collected groundwater stream samples from groundwater entering the storage tanks (GW-IN). GW-IN samples were collected to determine dissolved contaminant masses removed during groundwater extraction. Other general observations and GWES operating parameters were measured routinely through the month. Sample analytical results are presented in Table 2 and GWES operation data is presented in Tables 3 and 4. Operation and Maintenance Field Logs are included in Appendix A.

Laboratory Analyses – VES and GWES samples

Vapor samples from the VES and groundwater samples from the GWES were submitted under chain-of-custody protocol to McCampbell Analytical, Inc. of Pacheco, California, a state of California certified laboratory (ELAP #1644). Vapor and groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015C modified, and for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert-butyl ether (MTBE) by EPA Method 8021B. Analytical results from vapor samples are presented in Table 1, and analytical results from groundwater samples are presented in Table 2. The certified analytical reports for the samples, including quality assurance and quality control (QA/QC) data, are included in Appendix B.

Pilot Scale Remediation System Operation and Maintenance Results for May

During May the VES removed approximately 67,116 cubic feet of soil vapor at an approximate flow rate of 9.5 standard cubic feet per minute (scfm). Vapor extraction data is presented in Tables 1, 3, 4, and 5. Sample analytical results from the VES influent (VES-IN) samples collected in May indicated TPHg at concentrations ranging from 36 to 180 micrograms per liter ($\mu\text{g/L}$), benzene at less than laboratory detection limits (<0.25) to $1.4 \mu\text{g/L}$, toluene at less than laboratory detection limits (<0.25) to $12 \mu\text{g/L}$, ethyl-benzene at 0.5 to $2.7 \mu\text{g/L}$, xylenes at 5.2 to $24 \mu\text{g/L}$, and MTBE at 3.7 to $160 \mu\text{g/L}$. Analytical data from VES samples are presented in Table 1.

VES Mass Removal

During May, the VES removed approximately 67,116 cubic feet of soil vapor (Table 4). Based on soil vapor removal data and laboratory analytical results, the VES removed approximately 0.73 pounds of TPHg, 0.0025 pounds of benzene, and 0.35 pounds of MTBE during May (Table 5).

GWES Operation Results for May

During May the GWES removed approximately 11,497-gallons of groundwater from extraction well EW-3. Groundwater extraction data including flow rates and volumes is presented in Tables 3, 4, and 6. Analytical results from the system groundwater influent stream samples (GW-IN) collected on May 6, 20, and 28, 2010 are summarized below:

Sample ID	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
<i>Extraction Well EW-3 (results in $\mu\text{g/L}$)</i>							
GW-IN	5/6/10	27,000	350	1,800	1,100	5,000	200,000
	5/20/10	25,000	360	1,500	930	5,500	200,000
	5/28/10	37,000	400	1,900	1,200	6,200	190,000

Additionally, analytical data from GWES samples are presented in Table 2 and certified analytical reports are attached as Appendix B.

GWES Mass Removal

During April 2010, the GWES removed approximately 11,497-gallons of groundwater (Table 4). Based on the volume of groundwater extracted and laboratory analytical results, the GWES removed approximately 2.85 pounds of TPHg, 0.04 pounds of benzene, and 18.87 pounds of MTBE during May 2010 (Table 6).

Mass Removal – VES and GWES

During May 2010 approximately 3.58 pounds of TPHg, 0.040 pounds of benzene, and 19.22 pounds of MTBE were removed from the Site. Combined cumulative mass removal from VES and GWES is summarized in Table 7.

Conclusions

Based on data collected during May 2010, Allterra concludes the following:

- Water levels in site wells remain at the highest they have been in several years. Therefore, groundwater extraction was used in conjunction with vapor extraction to maximize contaminant removal.
- The VES removed approximately 67,116 cubic feet of soil vapor during May, resulting in the removal of approximately 0.73 pounds of vapor phase TPHg, 0.0025 pounds of vapor phase benzene, and 0.35 pounds of vapor phase MTBE.
- The GWES removed approximately 11,497-gallons of groundwater during May, resulting in the removal of approximately 2.85 pounds of TPHg, 0.04 pounds of benzene, and 18.87 pounds of MTBE.
- At the end of May, cumulative mass removed in both phases since startup is approximately 8.90 pounds of TPHg, 0.068 pounds of benzene, and 34.40 pound of MTBE.
- Vapor and groundwater extraction from EW-3 appears to be effective at extracting contaminant mass from the source area.

Recommendations

Based on the conclusions presented above, Allterra recommends the following:

- Continue operation of VES and GWES equipment for the duration of the quarter.

Limitations

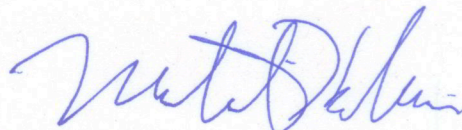
Allterra prepared this report for the use of Manwel and Samira Shuwayhat, Alameda County Health Services, and RWQCB in evaluating groundwater quality at selected on-site locations at the time of this study. Statements, conclusions, and recommendations in this report are based solely on the field observations and analytical results related to work performed by Allterra and there is no warranty, expressed or implied. Site conditions and data can change over time; therefore, data presented in this report is only applicable to the timeframe of this study. Allterra's services have been performed in accordance with environmental principles generally accepted at this time and location.

Should you have any questions, please contact Allterra at (831) 425-2608.

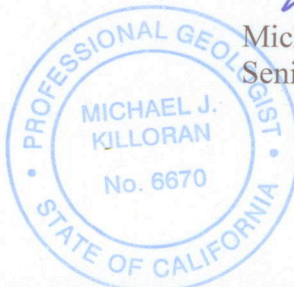
Sincerely,
Allterra Environmental, Inc.



Nathaniel Allen
Project Scientist



Michael Killoran, P.G. 6670
Senior Geologist



ALLTERRA

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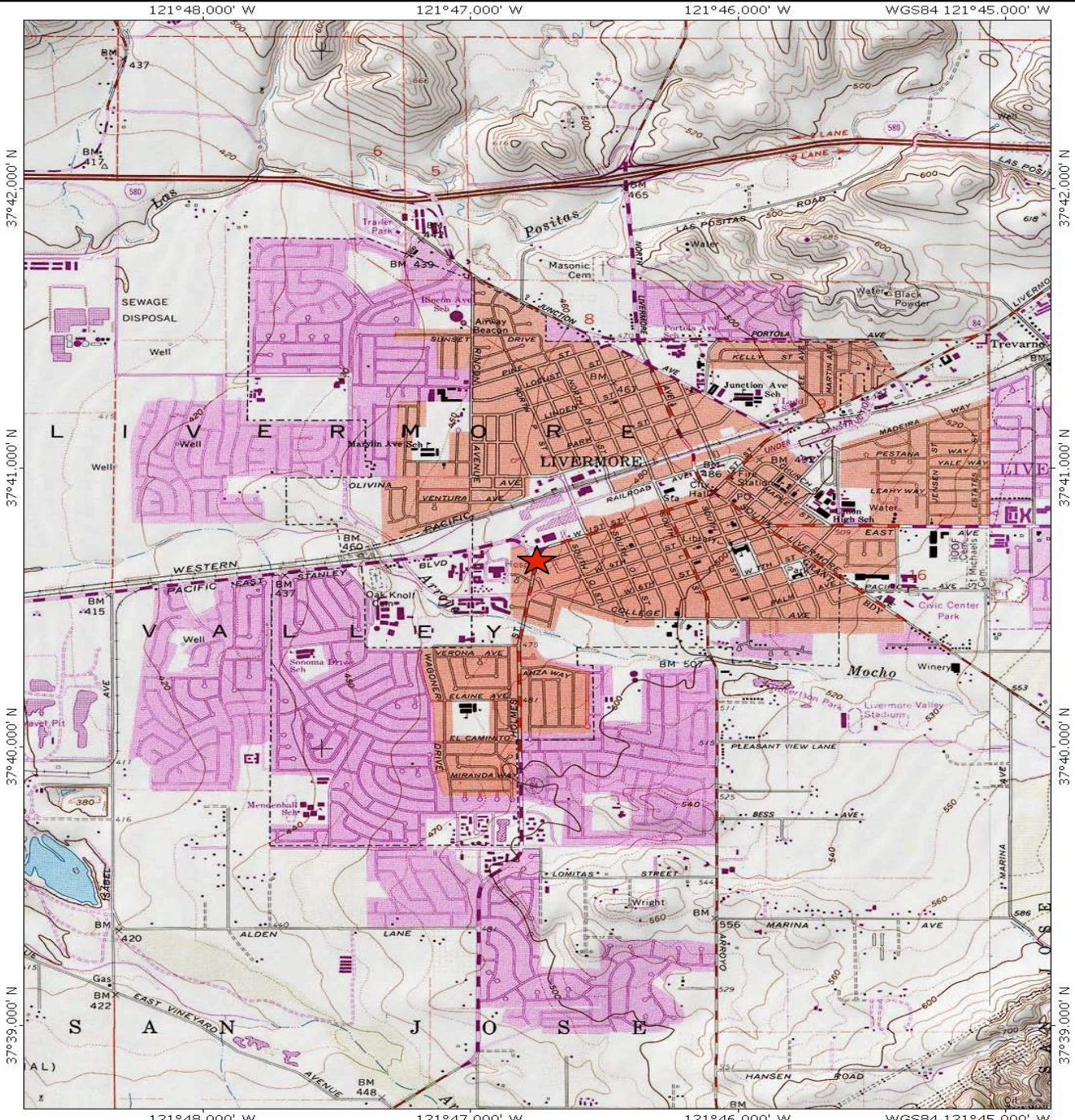
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cc: Mr. Jerry Wickham, Alameda County Department of Health Services

FIGURES 1 – 2



TN $\frac{1}{15^\circ}$ MN
 0 1000 FEET 0 500 1000 METERS
 121°48.000' W 121°47.000' W 121°46.000' W WGS84 121°45.000' W

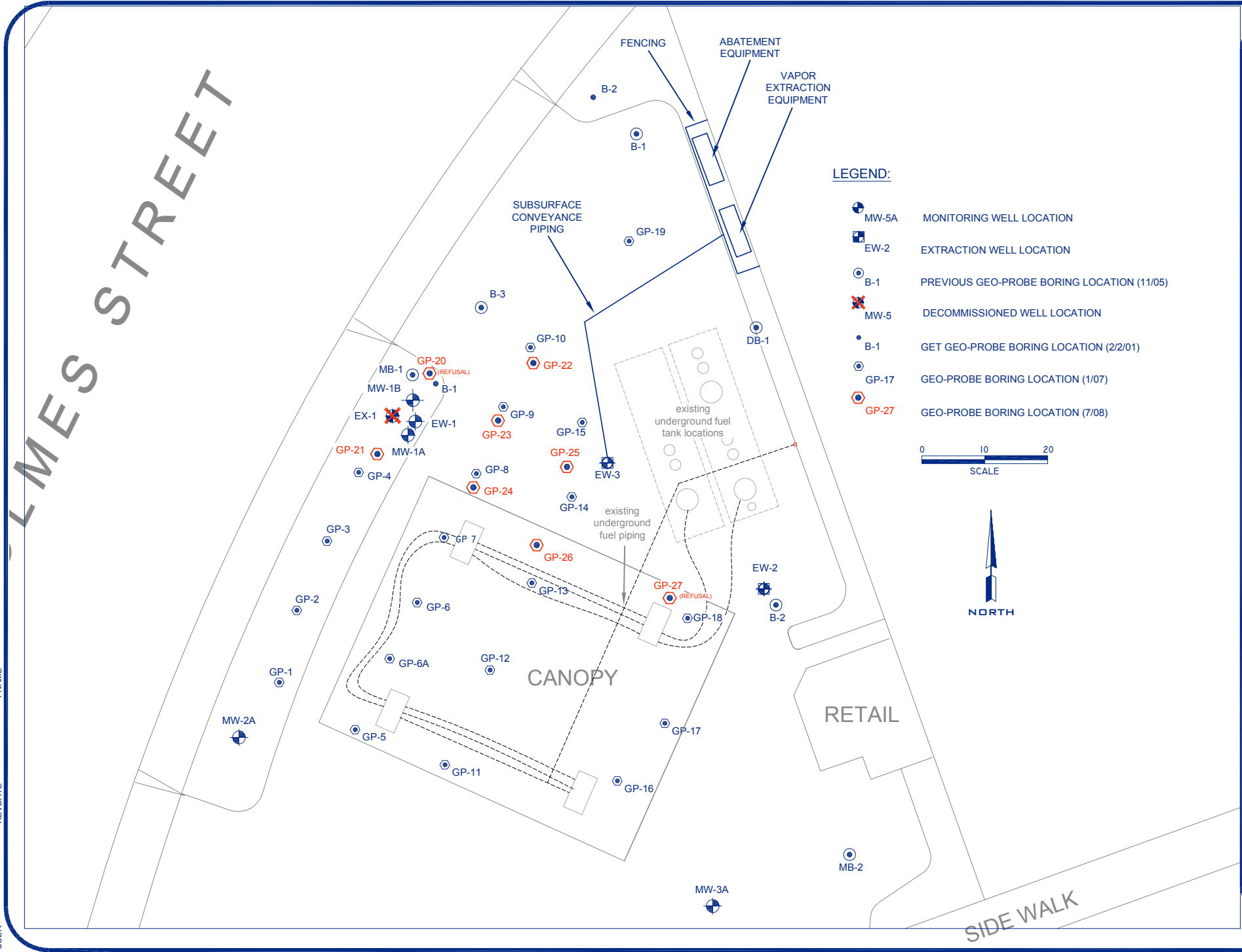
Site Vicinity Map
 Livermore Gas and Minimart
 160 Holmes Street
 Livermore, California

Figure 1

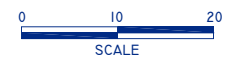
4/8/10

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USER: _____
 REV/DATE: _____
 FNAME: _____



- LEGEND:**
- MW-5A MONITORING WELL LOCATION
 - EW-2 EXTRACTION WELL LOCATION
 - B-1 PREVIOUS GEO-PROBE BORING LOCATION (11/05)
 - MW-5 DECOMMISSIONED WELL LOCATION
 - B-1 GET GEO-PROBE BORING LOCATION (2/2/01)
 - GP-17 GEO-PROBE BORING LOCATION (1/07)
 - GP-27 GEO-PROBE BORING LOCATION (7/08)



General Notes

stamp

160 HOLMES STREET
 SOIL AND GROUNDWATER INVESTIGATION
 AND REMEDIATION PROJECT



0	DRAFT/REVIEW	9/8
No.	Revision/Issue	Date

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Sheet Name and Address
PILOT SCALE VAPOR EXTRACTION SYSTEM
 160 HOLMES STREET
 LIVERMORE, CALIFORNIA

Project	160	Sheet FIGURE 2
Date	9-8-08	
Scale	see drawing	

TABLES 1-7

Table 1
Vapor Extraction Sample Results
 160 Holmes Street, Livermore, California

Sample ID	Sample Date	Total Petroleum Hydrocarbons as (µg/L)	Aromatic Volatile Organic Compounds (µg/L)				
		TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
<i>Extraction Well EW-3</i>							
VES-IN	4/5/10	770	2.3	26	5.5	47	310
	4/6/10	2,100	3.6	72	22	190	420
	4/7/10	1,500	3.3	57	19	110	400
	4/15/10	270	2.7	14	1.3	10	270
	4/30/10	170	<1.0	9.6	1.1	7.2	130
	5/6/10	180	1.4	8.9	1.0	11.0	160
	5/20/10	310	0.39	12	2.7	24	86
	5/28/10	36	<0.25	1.1	0.5	5.2	3.7
<i>VES-EFF</i>							
	4/5/10	39	2.6	1.6	0.46	4.1	<2.5
	4/6/10	25	2.9	1.6	0.36	2.7	<2.5
	4/7/10	33	1.7	1.2	<0.25	1.6	<2.5
	4/15/10	<25	0.98	0.48	<25	0.76	<2.5
	4/29/10	<25	<0.25	<0.25	<0.25	<0.25	<2.5
<i>Extraction Well EW-1</i>							
VES-IN	4/27/10*	<25	<0.25	0.31	<0.25	0.94	4.2

Notes and Definitions:

* = Vapor sample collected from well EW-3 while groundwater was extracted from well EW-1
 VES-IN = vapor extraction system influent sample
 VES-EFF = vapor extraction system effluent sample
 TPHg = Total Petroleum Hydrocarbons as gasoline
 MTBE = Methyl tertiary butyl ether
 µg/L = Micrograms per liter
 TPHg samples analyzed using EPA Method 8015Cm, BTEX and MTBE samples analyzed using

Table 2
Groundwater Extraction Sample Results
 160 Holmes Street, Livermore, California

Sample ID	Sample Date	Total Petroleum Hydrocabons as	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
		Gasoline					
<i>Extraction Well EW-3</i>							
GW-IN	4/5/10	78,000	550	1,800	2,100	16,000	310,000
	4/15/10	33,000	470	1,900	1,400	6,300	300,000
	4/20/10	30,000	260	1,300	840	7,400	170,000
	4/29/10	30,000	300	1,500	1,000	5,300	190,000
	5/6/10	27,000	350	1,800	1,100	5,000	200,000
	5/20/10	25,000	360	1,500	930	5,500	200,000
	5/28/10	37,000	400	1,900	1,200	6,200	190,000
<i>Extraction Well EW-1</i>							
GW-IN	4/27/10	1,900	19	69	41	350	3,500

Notes and Definitions:

-- = not analyzed

All results in micrograms per liter

MTBE = Methyl tertiary butyl ether

GW-IN = Sample collected from influent groundwater stream

GW-MID = Sample collected from mid-poiont groundwater stream

GW-EFF = Sample collected from effluent groundwater stream

Samples analyzed for TPHg by EPA Method 8015CM, BTEX/MTBE by EPA Method 8021B.

Table 3
Pilot Scale Remediation System Operational Data
 160 Holmes Street, Livermore, California

Time	VES				GWES			
	Average Vapor Flow Rate (scfm)	Days Operated	Wells In Use	Date Added to VES	Average Flow Rate (gpm)	Total Flow (gallons)	Wells In Use	Date Added to GWTS
April 2010	6	25	EW-3*	4/5/10	2	10,761	EW-3*	4/5/10
May 2010	9.5	31	EW-3	4/5/10	1.5	11,497	EW-3	4/5/10

Notes:
 scfm = Standard cubic feet per minute
 gpm = gallons per minute
 Total flow = gallons processed through system
 * = On 4/27/10 groundwater was extracted from EW-1

Table 4
Pilot Scale Remediation System Flow Volumes
 160 Holmes Street, Livermore, California

Date	Quarter/ Month	Vapor Data		Groundwater Data		Notes
		Quarter's/Month's Flow Volume (cubic feet)	Cumulative Flow Volume (cubic feet)	Quarter's/Month's Flow Volume (gallons)	Cumulative Flow Volume (gallons)	
4/5/10	April	45,936	45,936	7,023	10,761	Groundwater extracted from EW-3 on April 5 to April 26 and April 28 to April 30. 3,738 gallons of groundwater extracted from EW-1 on April 27.
				3,738		
5/31/10	May	67,116	113,052	11,497	22,258	Soil vapor and groundwater extracted from EW-3

Notes:

SV = Soil vapor

GW = Groundwater

Table 5
Pilot Scale Remediation System – Vapor Phase Contaminant Mass Removal Data
 441 Leigh Avenue, Los Gatos, California

Date	Average Influent Concentrations			Cubic Feet Processed		Mass Removed (pounds)					
						Quarter (or Month) Total			Cumulative Total		
	TPHg	Benzene	MTBE	Quarter (or Month)	Total	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
April 2010	962	2.4	306	41,544	41,544	2.76	0.0069	0.88	2.76	0.0069	0.88
May 2010	175	0.6	83	67,116	108,660	0.73	0.0025	0.35	3.49	0.0094	1.23

Definitions and Notes:

All concentrations listed in micrograms per liter

All masses listed in pounds (lb)

TPHg = total petroleum hydrocarbons as gasoline

MTBE = methyl tertiary butyl ether

If multiple samples were collected the averaged concentration was used to calculate mass removed

Table 6
Pilot Scale Remediation System – Dissolved Phase Contaminant Mass Removal Data
 160 Holmes Street, Livermore, California

Date	Influent Concentration (average from Monthly Samples)			Gallons Processed		Mass Removed (pounds)					
	TPHg	Benzene	MTBE	Quarterly/ Monthly	Total	Quarter/ Month Total			Cumulative Total		
						TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
April 2010	42,750	395	242,500	7,023 (EW-3)	10,761	2.50	0.02	14.19	2.56	0.021	14.30
	1,900*	19*	3,500*	3,738 (EW-1)		0.06*	0.0006*	0.11*			
May 2010	29,667	370	196,667	11,497	22,258	2.85	0.0400	18.87	5.41	0.061	33.17

Definitions and Notes:

All concentrations listed in micrograms per liter (µg/L)

All masses listed in pounds (lb)

* = Concentrations and masses removed were calculated using extraction and lab data from EW-1 on April 27, 2010

Table 7
Pilot Scale Remediation System - Total Contaminant Mass Removal Data
 160 Holmes Street, Livermore, California

Date	Mass Removed (pounds)					
	Quarter/ Month Total			Cumulative Total		
	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
April 2010	5.32	0.028	15.18	5.32	0.028	15.18
May 2010	3.58	0.040	19.22	8.90	0.068	34.40

Definitions and Notes:

All concentrations listed in micrograms per liter ($\mu\text{g/L}$)

All masses listed in pounds (lb)

GWTS = Groundwater extraction and treatment system

APPENDIX A
O&M Field Logs



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: EA

DATE: 5/1/10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8541.1

Battery Status good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-40.6 In H₂O</u>
	VES-EFF	<u>-</u>
	EW-3	<u>-41.2</u>
Vapor Flow Rate	VES-IN	<u>390 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate 1.5 GPM

Tank Level (% Full)

Totalizer Reading 3580210

Influent Groundwater Stream

Product Odor (faint/strong)

Turbidity

pH

Color

Sheen

Notes

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny

Tank Condition good

Piping condition good

IC Engine Condition good

Misc. Notes well head broken by car

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B

MW-1A

EW-1

EW-2

Depth to Water

Onsite Wells

MW-1A

MW-1B

MW-2A

MW-3A

EW-1

EW-2

EW-3

Offsite Wells

MW-7A

MW-7B

MW-7C

MW-7A

MW-7B

MW-4A

MW-9A

MW-9B

MW-5A

MW-5B

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: EA

DATE: 5-3-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8546.4

Battery Status good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-38.5</u>
	VES-EFF	<u>✓</u>
	EW-3	<u>-39.6</u>
Vapor Flow Rate	VES-IN	<u>380 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 GPM

Tank Level (% Full) 80%

Totalizer Reading 3,580,400

Influent Groundwater Stream

Product Odor (faint/strong) Strong

Turbidity low

pH ✓

Color brn

Sheen ✓

Notes

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?

Tank Condition

Piping condition

IC Engine Condition

Misc. Notes

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B 0.0 ✓

MW-1A 0.0 ✓

EW-1 0.0 ✓

EW-2 0.0 ✓

Depth to Water

Onsite Wells

MW-1A

EW-1

MW-1B

EW-2

MW-2A

EW-3

MW-3A

Offsite Wells

MW-7A

MW-4A

MW-7B

MW-9A

MW-7C

MW-9B

MW-7A

MW-5A

MW-7B

MW-5B

Departure Checklist

IC Engine off ✓

IC Engine locked ✓

Wells secure ✓

Equipment secure ✓

GW piping secure ✓

Tank ladder removed ✓

Site cleared ✓

VES Operation and Maintenance Field Log
160 Holmes Street, Livermore, California

PERSONNEL: DO DATE: 5-4-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8551.4
 Battery Status good
 IC-Engine at 40-Inches Water (Yes) No
 IC-Engine Water Knockout (% full): 0

VES Data

Manometer Readings	VES-IN	<u>-40 in H₂O</u>
	VES-EFF	<u>—</u>
	EW-3	<u>-40 in H₂O</u>
Vapor Flow Rate	VES-IN	<u>300 ft/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 gpm
 Tank Level (% Full) ~90%
 Totalizer Reading 3580799

Influent Groundwater Stream

Product Odor (faint/strong) Strong/med
 Turbidity low
 pH —
 Color clear/light brown
 Sheen —
 Notes —

Groundwater Sampling

EW-3 (influent) None
 Tank Sample None

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny
 Tank Condition Good
 Piping condition Good
 IC Engine Condition Good
 Misc. Notes No Depth to water meter

Sample Collection

VES-IN None
 VES-EFF None

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>	<u>—</u>	<u>—</u>
MW-1A	<u>0</u>	<u>—</u>	<u>—</u>
EW-1	<u>0</u>	<u>—</u>	<u>—</u>
EW-2	<u>0</u>	<u>—</u>	<u>—</u>

Depth to Water

NO Onsite Wells Meter

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	<input checked="" type="checkbox"/>
IC Engine locked	<input checked="" type="checkbox"/>
Wells secure	<input checked="" type="checkbox"/>
Equipment secure	<input checked="" type="checkbox"/>
GW piping secure	<input checked="" type="checkbox"/>
Tank ladder removed	<input checked="" type="checkbox"/>
Site cleared	<input checked="" type="checkbox"/>



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: DO

DATE: 5-5-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8559.3

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0

VES Data

Manometer Readings	VES-IN	<u>-40 in H₂O</u>
	VES-EFF	<u>—</u>
	EW-3	<u>-40 in H₂O</u>
Vapor Flow Rate	VES-IN	<u>350 ft/min</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 gpm

Tank Level (% Full) 95%!

Totalizer Reading 3581185

Influent Groundwater Stream

Product Odor (faint/strong) ~~low~~ Med/strong

Turbidity low

pH —

Color ~~light~~ ~~tan~~ Clear

Sheen —

Notes —

Groundwater Sampling

EW-3 (influent) —

Tank Sample —

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny

Tank Condition Good

Piping condition Good

IC Engine Condition Good

Misc. Notes No Depth Meter

Sample Collection

VES-IN —

VES-EFF —

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>	<u>—</u>	<u>—</u>
MW-1A	<u>0</u>	<u>—</u>	<u>—</u>
EW-1	<u>0</u>	<u>—</u>	<u>—</u>
EW-2	<u>0</u>	<u>—</u>	<u>—</u>

Depth to Water

Onsite Wells

MW-1A	<u> </u>	EW-1	<u> </u>
MW-1B	<u> </u>	EW-2	<u> </u>
MW-2A	<u> </u>	EW-3	<u> </u>
MW-3A	<u> </u>		<u> </u>

Offsite Wells

MW-7A	<u> </u>	MW-4A	<u> </u>
MW-7B	<u> </u>	MW-9A	<u> </u>
MW-7C	<u> </u>	MW-9B	<u> </u>
MW-7A	<u> </u>	MW-5A	<u> </u>
MW-7B	<u> </u>	MW-5B	<u> </u>

Departure Checklist

IC Engine off	<input checked="" type="checkbox"/>
IC Engine locked	<input checked="" type="checkbox"/>
Wells secure	<input checked="" type="checkbox"/>
Equipment secure	<input checked="" type="checkbox"/>
GW piping secure	<input checked="" type="checkbox"/>
Tank ladder removed	<input checked="" type="checkbox"/>
Site cleared	<input checked="" type="checkbox"/>



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: GA

DATE: 5-6-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8567.7

Battery Status Good

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	
	VES-EFF	
	EW-3	
Vapor Flow Rate	VES-IN	

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 GPM

Tank Level (% Full) 95%

Totalizer Reading 3581755

Influent Groundwater Stream

Product Odor (faint/strong)

Turbidity

pH

Color

Sheen

Notes

Groundwater Sampling

EW-3 (influent)

Tank Sample ✓ (tank 2)

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?

Tank Condition

Piping condition

IC Engine Condition

Misc. Notes

put recirculation in T2

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B

MW-1A

EW-1

EW-2

Depth to Water

Onsite Wells

MW-1A

EW-1

MW-1B

EW-2

MW-2A

EW-3

MW-3A

Offsite Wells

MW-7A

MW-4A

MW-7B

MW-9A

MW-7C

MW-9B

MW-7A

MW-5A

MW-7B

MW-5B

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared



VES Operation and Maintenance Field Log
160 Holmes Street, Livermore, California

PERSONNEL: GA

DATE: 5-14-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8570.1
 Battery Status Good
 IC-Engine at 40-Inches Water (Yes) No
 IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	
	VES-EFF	
	EW-3	
Vapor Flow Rate	VES-IN	

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate 2.0 GPM
 Tank Level (% Full) 0%
 Totalizer Reading 3,588,228

Influent Groundwater Stream

Product Odor (faint/strong) Strong
 Turbidity low
 pH —
 Color brn
 Sheen no
 Notes

Groundwater Sampling

EW-3 (influent)
 Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny
 Tank Condition empty
 Piping condition good
 IC Engine Condition good

Misc. Notes: Started filling tank 2,
 discharging tank 1

Sample Collection

VES-IN
 VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0.0</u>	<u>—</u>	<u>—</u>
MW-1A	<u>0.0</u>	<u>—</u>	<u>—</u>
EW-1	<u>0.0</u>	<u>—</u>	<u>—</u>
EW-2	<u>0.0</u>	<u>—</u>	<u>—</u>

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off
 IC Engine locked
 Wells secure
 Equipment secure
 GW piping secure
 Tank ladder removed
 Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: EA

DATE: 5-17-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8575.5

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-40.0</u>
	VES-EFF	<u>✓</u>
	EW-3	<u>-41.0</u>
Vapor Flow Rate	VES-IN	<u>350 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 GPM

Tank Level (% Full)

Totalizer Reading 35885,773

Influent Groundwater Stream

Product Odor (faint/strong) strong

Turbidity low

pH ✓

Color brn

Sheen N

Notes

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?

Tank Condition

Piping condition

IC Engine Condition

Misc. Notes replaced broken PVC in

GLTS

Sample Collection

VES-IN	
VES-EFF	

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B		
MW-1A		
EW-1		
EW-2		

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	<u>✓</u>
IC Engine locked	
Wells secure	<u>✓</u>
Equipment secure	<u>✓</u>
GW piping secure	<u>✓</u>
Tank ladder removed	<u>✓</u>
Site cleared	<u>✓</u>



VES Operation and Maintenance Field Log
160 Holmes Street, Livermore, California

PERSONNEL: DO

DATE: 5-18-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 85803

Battery Status GOOD

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-39.8</u>
	VES-EFF	<u>-</u>
	EW-3	<u>-40.3</u>
Vapor Flow Rate	VES-IN	<u>400</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 GPM

Tank Level (% Full) ~10%

Totalizer Reading 3589051

Influent Groundwater Stream

Product Odor (faint/strong) Med/Strong

Turbidity low

pH -

Color light brown

Sheen -

Notes -

Groundwater Sampling

EW-3 (influent) -

Tank Sample -

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? cloudy

Tank Condition GOOD

Piping condition GOOD

IC Engine Condition GOOD

Misc. Notes NO Depth to Water Meter

Sample Collection

VES-IN -

VES-EFF -

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B 0

MW-1A 1

EW-1 1

EW-2 1

Depth to Water

Onsite Wells

MW-1A 1

MW-1B 1

MW-2A 1

MW-3A 1

Offsite Wells

MW-7A 1

MW-7B 1

MW-7C 1

MW-7A 1

MW-7B 1

MW-4A 1

MW-9A 1

MW-9B 1

MW-5A 1

MW-5B 1

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: DO

DATE: 5-19-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8588.0

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-40 in H₂O</u>
	VES-EFF	
	EW-3	<u>-40 in H₂O</u>
Vapor Flow Rate	VES-IN	<u>4.00 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5 gpm

Tank Level (% Full) ~10%

Totalizer Reading 3589469

Influent Groundwater Stream

Product Odor (faint/strong) Med/strong

Turbidity low

pH -

Color light brown

Sheen -

Notes -

Groundwater Sampling

EW-3 (influent) -

Tank Sample -

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	
Tank Condition	
Piping condition	
IC Engine Condition	
Misc. Notes	<u>No DTW Meter</u>

No samples collected

Sample Collection

VES-IN	<u>-</u>
VES-EFF	<u>-</u>

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>	<u>1</u>	<u>1</u>
MW-1A	<u>0</u>		
EW-1	<u>0</u>		
EW-2	<u>0</u>		

Depth to Water

Onsite Wells

MW-1A	<u>1</u>	EW-1	<u>1</u>
MW-1B	<u>1</u>	EW-2	<u>1</u>
MW-2A	<u>1</u>	EW-3	<u>1</u>
MW-3A	<u>1</u>		<u>1</u>

Offsite Wells

MW-7A	<u>1</u>	MW-4A	<u>1</u>
MW-7B	<u>1</u>	MW-9A	<u>1</u>
MW-7C	<u>1</u>	MW-9B	<u>1</u>
MW-7A	<u>1</u>	MW-5A	<u>1</u>
MW-7B	<u>1</u>	MW-5B	<u>1</u>

Departure Checklist

IC Engine off	<u>✓</u>
IC Engine locked	<u>✓</u>
Wells secure	<u>✓</u>
Equipment secure	<u>✓</u>
GW piping secure	<u>✓</u>
Tank ladder removed	<u>✓</u>
Site cleared	<u>✓</u>



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: EA

DATE: 5-20-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8575.8

Battery Status Good

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	-40.0
	VES-EFF	/
	EW-3	/
Vapor Flow Rate	VES-IN	-390 f/m

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~ 1.8 GPM
 Tank Level (% Full) 40%
 Totalizer Reading 3589,700

Influent Groundwater Stream

Product Odor (faint/strong) Strong
 Turbidity /
 pH /
 Color brn
 Sheen /
 Notes

Groundwater Sampling

EW-3 (influent)
 Tank Sample ✓

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny
 Tank Condition Good
 Piping condition Good
 IC Engine Condition Good
 Misc. Notes breaker off inside

Sample Collection

VES-IN
 VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B		
MW-1A		
EW-1		
EW-2		

Depth to Water

Onsite Wells

MW-1A	EW-1
MW-1B	EW-2
MW-2A	EW-3
MW-3A	

Offsite Wells

MW-7A	MW-4A
MW-7B	MW-9A
MW-7C	MW-9B
MW-7A	MW-5A
MW-7B	MW-5B

Departure Checklist

IC Engine off
 IC Engine locked
 Wells secure
 Equipment secure
 GW piping secure
 Tank ladder removed
 Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: JA / LB

DATE: 5-21-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8600.7

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): Yes

VES Data

Manometer Readings	VES-IN	<u>-41</u>
	VES-EFF	<u>---</u>
	EW-3	<u>---</u>
Vapor Flow Rate	VES-IN	<u>490 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~ 1.5 GPM

Tank Level (% Full) 60%

Totalizer Reading 3589858

Influent Groundwater Stream

Product Odor (faint/strong) strong

Turbidity low

pH ---

Color brn

Sheen N

Notes

Groundwater Sampling

EW-3 (influent) ---

Tank Sample ---

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny

Tank Condition

Piping condition

IC Engine Condition

Misc. Notes

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0.0</u>	<u>---</u>	<u>---</u>
MW-1A	<u>0.0</u>	<u>---</u>	<u>---</u>
EW-1	<u>0.0</u>	<u>---</u>	<u>---</u>
EW-2	<u>0.0</u>	<u>---</u>	<u>---</u>

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared

prepare off
Keys returned



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: LB

DATE: 5/23/2010

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 86 11.3

Battery Status GOOD

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): _____

VES Data

Manometer Readings	VES-IN	<u>-40.2</u>
	VES-EFF	
	EW-3	
Vapor Flow Rate	VES-IN	<u>500 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate 1.0

Tank Level (% Full) 60%

Totalizer Reading A:3590323 D:

Influent Groundwater Stream

Product Odor (faint/strong)	<u>strong</u>
Turbidity	
pH	
Color	<u>light brown</u>
Sheen	<u>None</u>
Notes	<u>wear gloves next time</u>

Groundwater Sampling

EW-3 (influent)	
Tank Sample	

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	<u>Sunny</u>
Tank Condition	<u>GOOD</u>
Piping condition	<u>GOOD</u>
IC Engine Condition	<u>GOOD</u>
Misc. Notes	<u>First DAY!, Filled propane.</u>

Sample Collection

VES-IN	
VES-EFF	

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>		
MW-1A	<u>0</u>	<u>2A 0</u>	<u>3A 0</u>
EW-1	<u>0</u>		
EW-2	<u>0</u>		

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	<input checked="" type="checkbox"/>
IC Engine locked	<input checked="" type="checkbox"/>
Wells secure	<input checked="" type="checkbox"/>
Equipment secure	<input checked="" type="checkbox"/>
GW piping secure	<input checked="" type="checkbox"/>
Tank ladder removed	<input checked="" type="checkbox"/>
Site cleared	<input checked="" type="checkbox"/>

A= Arrival
D= Departure



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: EA

DATE: 5/24/16

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8618.1

Battery Status Good

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-40</u>
	VES-EFF	<u>—</u>
	EW-3	<u>—</u>
Vapor Flow Rate	VES-IN	<u>480 F/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate -1.5 GPM

Tank Level (% Full) 70%

Totalizer Reading 3590,811

Influent Groundwater Stream

Product Odor (faint/strong) Strong

Turbidity low

pH —

Color brn

Sheen —

Notes —

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	
Tank Condition	
Piping condition	
IC Engine Condition	
Misc. Notes	

Sample Collection

VES-IN	
VES-EFF	

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B		
MW-1A		
EW-1		
EW-2		

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	
IC Engine locked	
Wells secure	
Equipment secure	
GW piping secure	
Tank ladder removed	
Site cleared	



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: DO

DATE: 5-25-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 86232

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0

VES Data

Manometer Readings	VES-IN	<u>-40 in H₂O</u>
	VES-EFF	<u>—</u>
	EW-3	<u>-40 in H₂O</u>
Vapor Flow Rate	VES-IN	<u>400 A/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~ 1.5 gpm

Tank Level (% Full) 60%

Totalizer Reading 3590566

Influent Groundwater Stream

Product Odor (faint/strong) Strong

Turbidity low

pH —

Color light brown

Sheen —

Notes —

Groundwater Sampling

EW-3 (influent) —

Tank Sample —

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? cloudy/rain

Tank Condition Good

Piping condition Good

IC Engine Condition Good

Misc. Notes

Sample Collection

VES-IN —

VES-EFF —

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>	<u>1</u>	<u>1</u>
MW-1A	<u>0</u>	<u>1</u>	<u>1</u>
EW-1	<u>0</u>	<u>1</u>	<u>1</u>
EW-2	<u>0</u>	<u>1</u>	<u>1</u>

Depth to Water

Onsite Wells

MW-1A	<u>1</u>	EW-1	<u>1</u>
MW-1B	<u>1</u>	EW-2	<u>1</u>
MW-2A	<u>1</u>	EW-3	<u>1</u>
MW-3A	<u>1</u>		

Offsite Wells

MW-7A	<u>1</u>	MW-4A	<u>1</u>
MW-7B	<u>1</u>	MW-9A	<u>1</u>
MW-7C	<u>1</u>	MW-9B	<u>1</u>
MW-7A	<u>1</u>	MW-5A	<u>1</u>
MW-7B	<u>1</u>	MW-5B	<u>1</u>

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: DO

DATE: 5-26-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 86316

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0%

VES Data

Manometer Readings	VES-IN	<u>-40 in H₂O</u>
	VES-EFF	
	EW-3	<u>-40 in H₂O</u>
Vapor Flow Rate	VES-IN	<u>400 ft/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~ 1.5 gpm

Tank Level (% Full) 90%

Totalizer Reading 3590834

Influent Groundwater Stream

Product Odor (faint/strong) Strong

Turbidity low

pH

Color light brown

Sheen

Notes

Groundwater Sampling

EW-3 (influent) -

Tank Sample -

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	<u>Cloudy</u>
Tank Condition	<u>Good</u>
Piping condition	<u>Good</u>
IC Engine Condition	<u>Good</u>
Misc. Notes	<u>No Depth to Water meter</u>

Sample Collection

VES-IN -

VES-EFF -

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>	<u>-</u>	<u>-</u>
MW-1A	<u>0</u>	<u>-</u>	<u>-</u>
EW-1	<u>0</u>	<u>-</u>	<u>-</u>
EW-2	<u>0</u>	<u>-</u>	<u>-</u>

Depth to Water

Onsite Wells

MW-1A	<u> </u>	EW-1	<u> </u>
MW-1B	<u> </u>	EW-2	<u> </u>
MW-2A	<u> </u>	EW-3	<u> </u>
MW-3A			

Offsite Wells

MW-7A	<u> </u>	MW-4A	<u> </u>
MW-7B	<u> </u>	MW-9A	<u> </u>
MW-7C	<u> </u>	MW-9B	<u> </u>
MW-7A	<u> </u>	MW-5A	<u> </u>
MW-7B	<u> </u>	MW-5B	<u> </u>

Departure Checklist

IC Engine off	<input checked="" type="checkbox"/>
IC Engine locked	<input checked="" type="checkbox"/>
Wells secure	<input checked="" type="checkbox"/>
Equipment secure	<input checked="" type="checkbox"/>
GW piping secure	<input checked="" type="checkbox"/>
Tank ladder removed	<input checked="" type="checkbox"/>
Site cleared	<input checked="" type="checkbox"/>



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: GA

DATE: 5/27/10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8638.1

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0

VES Data

Manometer Readings	VES-IN	<u>-40.0</u>
	VES-EFF	<u>-</u>
	EW-3	<u>-41.2</u>
Vapor Flow Rate	VES-IN	<u>500 E/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.5
 Tank Level (% Full) 80%
 Totalizer Reading 3591,005

Influent Groundwater Stream

Product Odor (faint/strong) _____
 Turbidity _____
 pH _____
 Color _____
 Sheen _____
 Notes _____

Groundwater Sampling

EW-3 (influent) _____
 Tank Sample _____

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? rainy
 Tank Condition _____
 Piping condition _____
 IC Engine Condition _____
 Misc. Notes filled propane

Sample Collection

VES-IN _____
 VES-EFF _____

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0.0</u>	<u>✓</u>
MW-1A	<u>0.0</u>	<u>✓</u>
EW-1	<u>0.0</u>	<u>✓</u>
EW-2	<u>0.0</u>	<u>✓</u>

Depth to Water

Onsite Wells

MW-1A	EW-1
MW-1B	EW-2
MW-2A	EW-3
MW-3A	

Offsite Wells

MW-7A	MW-4A
MW-7B	MW-9A
MW-7C	MW-9B
MW-7A	MW-5A
MW-7B	MW-5B

Departure Checklist

IC Engine off _____
 IC Engine locked _____
 Wells secure _____
 Equipment secure _____
 GW piping secure _____
 Tank ladder removed _____
 Site cleared _____



VES Operation and Maintenance Field Log
160 Holmes Street, Livermore, California

PERSONNEL: GA

DATE: 5-28-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8642.5

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): _____

VES Data

Manometer Readings	VES-IN	<u>-40.4</u>
	VES-EFF	<u>✓</u>
	EW-3	<u>-41.0</u>
Vapor Flow Rate	VES-IN	<u>500 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~ 1.5 GPM

Tank Level (% Full) 70%

Totalizer Reading 3591,567

Influent Groundwater Stream

Product Odor (faint/strong)	<u>strong</u>
Turbidity	<u>low</u>
pH	<u>✓</u>
Color	<u>brn</u>
Sheen	<u>✓</u>
Notes	<u>✓</u>

Groundwater Sampling

EW-3 (influent) ✓

Tank Sample _____

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	<u>Sunny</u>
Tank Condition	<u>good</u>
Piping condition	<u>good</u>
IC Engine Condition	<u>good</u>
Misc. Notes	

Sample Collection

VES-IN ✓

VES-EFF _____

BEIJAN

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B		
MW-1A		
EW-1		
EW-2		

Depth to Water

Onsite Wells

MW-1A	EW-1
MW-1B	EW-2
MW-2A	EW-3
MW-3A	

Offsite Wells

MW-7A	MW-4A
MW-7B	MW-9A
MW-7C	MW-9B
MW-7A	MW-5A
MW-7B	MW-5B

Departure Checklist

IC Engine off _____

IC Engine locked _____

Wells secure _____

Equipment secure _____

GW piping secure _____

Tank ladder removed _____

Site cleared _____



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: LB

DATE: 5/29/10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8648.1

Battery Status GOOD

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): _____

VES Data

Manometer Readings	VES-IN	<u>-40.1</u>
	VES-EFF	
	EW-3	<u>~40.3</u>
Vapor Flow Rate	VES-IN	<u>500 500 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate ~1.7 GPM

Tank Level (% Full) 75% - 80%

Totalizer Reading 3591172.5

Influent Groundwater Stream

Product Odor (faint/strong)	<u>Moderate</u>
Turbidity	
pH	
Color	<u>lt. Brown</u>
Sheen	
Notes	

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	<u>Sunny</u>
Tank Condition	<u>GOOD</u>
Piping condition	<u>GOOD</u>
IC Engine Condition	<u>GOOD</u>
Misc. Notes	<u>Filled propane @ arrival</u>

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B

MW-1A

EW-1

EW-2

Depth to Water

Onsite Wells

MW-1A

EW-1

MW-1B

EW-2

MW-2A

EW-3

MW-3A

Offsite Wells

MW-7A

MW-4A

MW-7B

MW-9A

MW-7C

MW-9B

MW-7A

MW-5A

MW-7B

MW-5B

Departure Checklist

IC Engine off

IC Engine locked

Wells secure

Equipment secure

GW piping secure

Tank ladder removed

Site cleared



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: LB

DATE: 5/30/10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8654.1

Battery Status GOOD

IC-Engine at 40-Inches Water (Yes) No

IC-Engine Water Knockout (% full): _____

VES Data

Manometer Readings	VES-IN	<u>-40.3</u>
	VES-EFF	
	EW-3	<u>-40.9</u>
Vapor Flow Rate	VES-IN	<u>420 f/m</u>

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate 1.25 GPM

Tank Level (% Full) 75-80%

Totalizer Reading 3951596

Influent Groundwater Stream

Product Odor (faint/strong) moderate

Turbidity

pH

Color lt. brown

Sheen

Notes

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions? Sunny, hot

Tank Condition GOOD

Piping condition GOOD

IC Engine Condition GOOD

Misc. Notes Found slight suction in EW-1,

manometer fluctuated between 0.0-.1 after IC running for 5 hours.

Sample Collection

VES-IN

VES-EFF

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B	<u>0</u>				<u>0</u>
MW-1A	<u>0</u>				<u>0</u>
EW-1	<u>0</u>				<u><.1</u>
EW-2	<u>0</u>				<u>0</u>

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	<u>X</u>
IC Engine locked	<u>X</u>
Wells secure	<u>X</u>
Equipment secure	<u>X</u>
GW piping secure	<u>X</u>
Tank ladder removed	<u>✓</u>
Site cleared	<u>X</u>



VES Operation and Maintenance Field Log

160 Holmes Street, Livermore, California

PERSONNEL: SA

DATE: 5-31-10

VES OBSERVATIONS and MEASUREMENTS UPON ARRIVAL

Hours Operated upon Arrival 8660.1

Battery Status Good

IC-Engine at 40-Inches Water Yes No

IC-Engine Water Knockout (% full): 0

VES Data

Manometer Readings	VES-IN	
	VES-EFF	
	EW-3	
Vapor Flow Rate	VES-IN	

Groundwater Extraction Observations and Measurements

Groundwater Flow Rate 1.5 GPM

Tank Level (% Full) 75%

Totalizer Reading 3951707

Influent Groundwater Stream

Product Odor (faint/strong)	
Turbidity	
pH	
Color	
Sheen	
Notes	

Groundwater Sampling

EW-3 (influent)

Tank Sample

General OBSERVATIONS and MEASUREMENTS

Weather Conditions?	
Tank Condition	
Piping condition	
IC Engine Condition	
Misc. Notes	<u>T1 @ 75% too</u>

Sample Collection

VES-IN	
VES-EFF	

Observation Wells

Induced Vacuums (1st/2nd/3rd)

MW-1B			
MW-1A			
EW-1			
EW-2			

Depth to Water

Onsite Wells

MW-1A		EW-1	
MW-1B		EW-2	
MW-2A		EW-3	
MW-3A			

Offsite Wells

MW-7A		MW-4A	
MW-7B		MW-9A	
MW-7C		MW-9B	
MW-7A		MW-5A	
MW-7B		MW-5B	

Departure Checklist

IC Engine off	
IC Engine locked	
Wells secure	
Equipment secure	
GW piping secure	
Tank ladder removed	
Site cleared	

APPENDIX B
Certified Analytical Reports and Chains of Custody



McC Campbell 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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore, CA	Date Sampled: 05/06/10
		Date Received: 05/06/10
	Client Contact: James Allen	Date Reported: 05/12/10
	Client P.O.:	Date Completed: 05/12/10

WorkOrder: 1005153

May 12, 2010

Dear James:

Enclosed within are:

- 1) The results of the **3** analyzed samples from your project: **160 Holmes Street, Livermore, CA,**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

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

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.

RUSH

1005153

Only tank sample on a rush per Eric

ALLTERRA

849 Almar Avenue, Suite C, #281

Santa Cruz, California 95060

Website: www.allterraenv.com

Phone: (831) 425-2608 Facsimile: (831) 425-2609

Chain of Custody Record

Turn Around Time (circle one) RUSH 24HR 48HR 72HR 5 Day

Report and Bill to: Allterra Environmental, Inc.

Project Number: 160

Project Location: 160 Holmes Street, Livermore, CA

Project Name:

Sampler Signature: *[Signature]*

Field Point Name Sample ID	Sample Collection		Sample Containers		Matrix					Preservation			
	Date	Time	Number of Containers	Container Type	Air	Water	Soil	Sludge	Other	Ice	HCl	HNO ₃	Other
VES-IN	5-6-10	11:00	1	Teddy	✓					✓			
GL-IN	1	1	4	Veg		✓				✓	✓		
Tank-2	1		4	1		✓				✓	✓		

TPHg/ BTEX/ MTBE (EPA 8015/8021)	TPH (EPA 8015)	5-fuel oxys (EPA 8260)	Ethanol and Methanol (EPA 8260)	Lead Scavengers (8260)	Total HVOCS (EPA 8260)	Hardness/Total dissolved solids	CAM-17 Metals (EPA 6010/6020)	LUFT 5 Metals (EPA 6010/6020)	PAHs/ PNA's (EPA 8270.625/8310)	Fish Toxicity/Bioassay	Lead (EPA 6010/200.9/200.8)	EDF required
✓	✓											✓

Sampled By: <i>[Signature]</i> Erin Allen	Date: 5-6-10	Time: 12:00	Received By: <i>[Signature]</i>
Received By: <i>[Signature]</i>	Date: 5/6/10	Time: 10:20	Received By: <i>[Signature]</i> the vall
Received By:	Date:	Time:	Received By:

Comments:

ICE 11° 36

GOOD CONDITION Y APPROPRIATE CONTAINERS Y

HEAD SPACE ABSENT Y PRESERVED IN LAB Y

DECHLORINATED IN LAB Y PRESERVED IN LAB Y

PRESERVATION Y VOCS Y O & G Y METALS Y OTHER Y

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1005153

ClientCode: ATRS

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

James Allen
Allterra Environmental, Inc
849 Almar Ave, Ste. C #281
Santa Cruz, CA 95060
831-425-2608 FAX 831-425-2609

Email: allterraenvironmental@yahoo.com, mic
cc:
PO:
ProjectNo: 160 Holmes Street, Livermore, CA

Bill to:

Accounts Payable
Allterra Environmental
849 Almar Ave, Ste. C #281
Santa Cruz, CA 95060
micah@allterraenv.com

Requested TAT: 5 days

Date Received: 05/06/2010

Date Printed: 05/06/2010

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1005153-001	VES-IN	Air	5/6/2010 11:00	<input type="checkbox"/>	A		A										
1005153-002	GW-IN	Water	5/6/2010 11:00	<input type="checkbox"/>		A											
1005153-003	Tank-2	Water	5/6/2010 11:00	<input type="checkbox"/>		A											

Test Legend:

1	G-MBTEX_AIR	2	G-MBTEX_W	3	PREFD REPORT	4		5	
6		7		8		9		10	
11		12							

The following SampID: 001A contains testgroup.

Prepared by: Melissa Valles

Comments: 003-24hr

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



Sample Receipt Checklist

Client Name: **Allterra Environmental, Inc**

Date and Time Received: **5/6/2010 5:14:17 PM**

Project Name: **160 Holmes Street, Livermore, CA**

Checklist completed and reviewed by: **Melissa Valles**

WorkOrder N°: **1005153** Matrix Air/Water

Carrier: Benjamin Yslas (MAI Courier)

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No
- Container/Temp Blank temperature Cooler Temp: 3.6°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes No No VOA vials submitted
- Sample labels checked for correct preservation? Yes No
- Metal - pH acceptable upon receipt (pH<2)? Yes No NA
- Samples Received on Ice? Yes No

(Ice Type: WET ICE)

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

Client contacted:

Date contacted:

Contacted by:

Comments:



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore, CA	Date Sampled: 05/06/10
	Client Contact: James Allen	Date Received: 05/06/10
	Client P.O.:	Date Extracted: 05/07/10
		Date Analyzed: 05/07/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005153

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	VES-IN	A	180	160	1.4	8.9	1.0	11	2	115	d1

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	0.25	μg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	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 McC Campbell Analytical is not responsible for their interpretation:

d1) weakly modified or unmodified gasoline is significant



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	Client Contact: James Allen	Date Received: 05/06/10
	Client P.O.:	Date Extracted: 05/07/10
		Date Analyzed: 05/07/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005153

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	VES-IN	A	49	42	0.42	2.3	0.24	2.4	2	115	d1

ppm (mg/L) to ppmv (ul/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	A	7.0	0.68	0.077	0.065	0.057	0.057	1	uL/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

* vapor samples are reported in $\mu\text{L/L}$, soil/sludge/solid samples in mg/kg, wipe samples in $\mu\text{g/wipe}$, product/oil/non-aqueous liquid samples in mg/L, water samples and all TCLP & SPLP extracts are reported in $\mu\text{g/L}$.

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

d1) weakly modified or unmodified gasoline is significant



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Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore, CA	Date Sampled: 05/06/10
	Client Contact: James Allen	Date Received: 05/06/10
	Client P.O.:	Date Extracted: 05/07/10
		Date Analyzed: 05/07/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005153

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
003A	Tank-2	W	8300	73,000	120	450	100	2000	50	106	d1

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

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

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

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

d1) weakly modified or unmodified gasoline is significant

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Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore, CA	Date Sampled: 05/06/10
	Client Contact: James Allen	Date Received: 05/06/10
	Client P.O.:	Date Extracted: 05/07/10-05/10/10
		Date Analyzed: 05/07/10-05/10/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005153

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
002A	GW-IN	W	27,000	200,000	350	1800	1100	5000	200	99	d1

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

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

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

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

d1) weakly modified or unmodified gasoline is significant



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water/Air

QC Matrix: Water

BatchID: 50480

WorkOrder 1005153

Analyte	EPA Method SW8021B/8015Bm		Extraction SW5030B						Spiked Sample ID: 1005149-002A			
	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	94.1	113	18.1	103	97.3	5.77	70 - 130	20	70 - 130	20
MTBE	ND	10	112	101	10.4	103	98.7	4.70	70 - 130	20	70 - 130	20
Benzene	ND	10	89.8	85.5	4.97	82.6	80.3	2.74	70 - 130	20	70 - 130	20
Toluene	ND	10	87.3	85.9	1.64	80.8	79.1	2.11	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	86.3	84.3	2.43	81	78.9	2.58	70 - 130	20	70 - 130	20
Xylenes	ND	30	84.5	84.2	0.339	80.6	78.7	2.39	70 - 130	20	70 - 130	20
%SS:	107	10	102	94	8.35	94	94	0	70 - 130	20	70 - 130	20

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

BATCH 50480 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1005153-001A	05/06/10 11:00 AM	05/07/10	05/07/10 11:59 AM	1005153-002A	05/06/10 11:00 AM	05/07/10	05/07/10 3:59 PM
1005153-002A	05/06/10 11:00 AM	05/10/10	05/10/10 10:56 PM				

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

NR = 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/8015Bm

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 50486

WorkOrder 1005153

Analyte	EPA Method SW8021B/8015Bm		Extraction SW5030B						Spiked Sample ID: 1005171-002A			
	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	109	91.8	17.4	103	99.9	3.56	70 - 130	20	70 - 130	20
MTBE	ND	10	96.3	96.5	0.147	95.8	93.8	2.14	70 - 130	20	70 - 130	20
Benzene	ND	10	76.8	79.3	3.01	81.3	82.5	1.49	70 - 130	20	70 - 130	20
Toluene	ND	10	80.8	82.3	1.77	80.3	80.8	0.592	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	79.8	83.1	4.06	80.6	79.9	0.838	70 - 130	20	70 - 130	20
Xylenes	ND	30	79.1	81.3	2.80	79.5	77.7	2.34	70 - 130	20	70 - 130	20
%SS:	103	10	97	100	2.66	95	96	1.40	70 - 130	20	70 - 130	20

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

BATCH 50486 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1005153-003A	05/06/10 11:00 AM	05/07/10	05/07/10 6:47 AM	1005153-003A	05/06/10 11:00 AM	05/07/10	05/07/10 10:59 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.

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

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



McC Campbell 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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: #160 Holmes Street	Date Sampled: 05/20/10
		Date Received: 05/20/10
	Client Contact: Nathaniel Allen	Date Reported: 05/25/10
	Client P.O.:	Date Completed: 05/25/10

WorkOrder: 1005524

May 25, 2010

Dear Nathaniel:

Enclosed within are:

- 1) The results of the **1** analyzed sample from your project: **#160 Holmes Street**,
- 2) A QC report for the above sample,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

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

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.

1005574



849 Almar Avenue, Suite C, #281

Santa Cruz, California 95060

Website: www.allterraenv.com

Phone: (831) 425-2608 Facsimile: (831) 425-2609

Chain of Custody Record

Turn Around Time (circle one) RUSH ~~24HR~~ 48HR 72HR 5 Day

Report and Bill to: Allterra Environmental, Inc.

Project Number: 160

Project Location: 160 Holmes Street, Livermore, CA

Project Name:

Sampler Signature: *EPA*

Field Point Name / Sample ID	Sample Collection		Sample Containers		Matrix					Preservation			TPH/g/ BTEX/ MTBE (EPA 801.5/8021)	BTEX (EPA 8020)	TPHd (EPA 8015)	5-fuel olys (EPA 8260)	Ethanol and Methanol (EPA 8260)	Lead Scavengers (8260)	Total HVOCs (EPA 8260)	Hardness/Total dissolved solids	CAM-17 Metals (EPA 6010/6020)	LUFT 5 Metals (EPA 6010/6020)	PAH's/ PNA's (EPA 8270.625/8310)	Fish Toxicity/Bioassay	Lead (EPA 6010/200.9/200.8)	EDF required
	Date	Time	Number of Containers	Container Type	Air	Water	Soil	Sludge	Other	Ice	HCl	HNO3														
VES-IN	5-20-10	11:30	1	tedlar	✓					✓				✓												✓

Sampled By: <i>Erin Allen</i>	Date: 5/20/10	Time: 1550	Received By: <i>[Signature]</i>
Received By: <i>[Signature]</i>	Date: 5/20/10	Time: 1735	Received By: <i>[Signature]</i>
Received By:	Date:	Time:	Received By:

Comments: ICE / t° MA ✓
 GOOD CONDITION ✓
 HEAD SPACE ABSENT MA APPROPRIATE CONTAINERS ✓
 DECHLORINATED IN LAB MA PRESERVED IN LAB MA
 PRESERVATION VOAS O & G METALS OTHER

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1005524

ClientCode: ATRS

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Nathaniel Allen
 Allterra Environmental, Inc
 849 Almar Ave, Ste. C #281
 Santa Cruz, CA 95060
 831-425-2608 FAX 831-425-2609

Email: allterraenvironmental@yahoo.com, mic
 cc:
 PO:
 ProjectNo: #160 Holmes Street

Bill to:

Accounts Payable
 Allterra Environmental
 849 Almar Ave, Ste. C #281
 Santa Cruz, CA 95060
 micah@allterraenv.com

Requested TAT: 5 days

Date Received: 05/20/2010

Date Printed: 05/20/2010

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1005524-001	VES-IN	Air	5/20/2010 11:30	<input type="checkbox"/>	A	A											

Test Legend:

1	G-MBTEX AIR	2	PREDF REPORT	3		4		5	
6		7		8		9		10	
11		12							

The following SampID: 001A contains testgroup.

Prepared by: Samantha Arbuckle

Comments:

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



Sample Receipt Checklist

Client Name: **Allterra Environmental, Inc**

Date and Time Received: **5/20/2010 6:50:54 PM**

Project Name: **#160 Holmes Street**

Checklist completed and reviewed by: **Samantha Arbuckle**

WorkOrder N°: **1005524** Matrix Air

Carrier: Benjamin Yslas (MAI Courier)

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

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

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

Client contacted:

Date contacted:

Contacted by:

Comments:



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: #160 Holmes Street	Date Sampled: 05/20/10
		Date Received: 05/20/10
	Client Contact: Nathaniel Allen	Date Extracted: 05/20/10
	Client P.O.:	Date Analyzed: 05/20/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005524

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	VES-IN	A	310	86	0.39	12	2.7	24	1	114	d1

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	0.25	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	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 McC Campbell Analytical is not responsible for their interpretation:

d1) weakly modified or unmodified gasoline is significant



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Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: #160 Holmes Street	Date Sampled: 05/20/10
		Date Received: 05/20/10
	Client Contact: Nathaniel Allen	Date Extracted: 05/20/10
	Client P.O.:	Date Analyzed: 05/20/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005524

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	VES-IN	A	88	24	0.12	3.0	0.60	5.5	1	114	d1

ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	A	7.0	0.68	0.077	0.065	0.057	0.057	1	uL/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

d1) weakly modified or unmodified gasoline is significant



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Air

QC Matrix: Water

BatchID: 50763

WorkOrder 1005524

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 1005530-001A			
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) ^f	ND	60	86.5	86.5	0	94.1	86.4	8.47	70 - 130	20	70 - 130	20
MTBE	ND	10	104	104	0	105	109	3.53	70 - 130	20	70 - 130	20
Benzene	ND	10	97.8	95.8	2.06	99.1	100	1.31	70 - 130	20	70 - 130	20
Toluene	ND	10	85.2	83	2.59	89.7	90.4	0.835	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	88	85.7	2.66	88.7	89.3	0.690	70 - 130	20	70 - 130	20
Xylenes	ND	30	100	98.1	2.34	102	102	0	70 - 130	20	70 - 130	20
%SS:	104	10	100	100	0	98	101	3.00	70 - 130	20	70 - 130	20

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

BATCH 50763 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1005524-001A	05/20/10 11:30 AM	05/20/10	05/20/10 8:18 PM				

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

NR = 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.



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: #160 Holmes Street	Date Sampled: 05/20/10
		Date Received: 05/20/10
	Client Contact: Nathaniel Allen	Date Reported: 05/25/10
	Client P.O.:	Date Completed: 05/25/10

WorkOrder: 1005525

May 25, 2010

Dear Nathaniel:

Enclosed within are:

- 1) The results of the **1** analyzed sample from your project: **#160 Holmes Street**,
- 2) A QC report for the above sample,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

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

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.

1065525



849 Almar Avenue, Suite C, #281
 Santa Cruz, California 95060
 Website: www.allterraenv.com
 Phone: (831) 425-2608 Facsimile: (831) 425-2609

Chain of Custody Record

Turn Around Time (circle one) RUSH 24HR 48HR 72HR 5 Day

Report and Bill to: Allterra Environmental, Inc.

Project Number: 160
 Project Location: 160 Holmes Street, Livermore, CA
 Project Name:
 Sampler Signature: *Erin Allen*

Field Point Name / Sample ID	Sample Collection		Sample Containers		Matrix					Preservation			
	Date	Time	Number of Containers	Container Type	Air	Water	Soil	Sludge	Other	Ice	HCl	HNO ₃	Other
+ GL-IN	5-20-10	11:30	4	VOC		✓				✓	✓		

TPH _g /BTEX/MTBE (EPA 8015/8021)	✓
BTEX (EPA 8020)	
TPH _d (EPA 8015)	
5-fuel oxys (EPA 8260)	
Ethanol and Methanol (EPA 8260)	
Lead Scavengers (8260)	
Total HVOCs (EPA 8260)	
Hardness/Total dissolved solids	
CAM-17 Metals (EPA 6010/6020)	
LUFT 5 Metals (EPA 6010/6020)	
PAHs/ PNA's (EPA 8270,625/8310)	
Fish Toxicity/Bioassay	
Lead (EPA 6010/200.9/200.8)	
EDF required	✓

Sampled By: <i>Erin Allen</i>	Date: 5-20-10	Time: 1550	Received By: <i>[Signature]</i>
Received By: <i>[Signature]</i>	Date: 5/20/10	Time: 1705	Received By: <i>[Signature]</i>
Received By:	Date:	Time:	Received By:

Comments: *M 224*

ICE / I-MA 224
 GOOD CONDITION MA APPROPRIATE
 HEAD SPACE ABSENT MA CONTAINERS MA
 DECHLORINATED IN LAB MA PRESERVED IN LAB MA
 PRESERVATION MA VOAS | O & G | METALS | OTHER

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1005525

ClientCode: ATRS

WaterTrax
 WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Nathaniel Allen
 Allterra Environmental, Inc
 849 Almar Ave, Ste. C #281
 Santa Cruz, CA 95060
 831-425-2608 FAX 831-425-2609

Email: allterraenvironmental@yahoo.com, mic
 cc:
 PO:
 ProjectNo: #160 Holmes Street

Bill to:

Accounts Payable
 Allterra Environmental
 849 Almar Ave, Ste. C #281
 Santa Cruz, CA 95060
 micah@allterraenv.com

Requested TAT: 5 days

Date Received: 05/20/2010

Date Printed: 05/20/2010

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1005525-001	GW-IN	Water	5/20/2010 11:30	<input type="checkbox"/>	A	A											

Test Legend:

1	G-MBTX_W	2	PREDF REPORT	3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Samantha Arbuckle

Comments:

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



Sample Receipt Checklist

Client Name: **Allterra Environmental, Inc** Date and Time Received: **5/20/2010 6:55:41 PM**
 Project Name: **#160 Holmes Street** Checklist completed and reviewed by: **Samantha Arbuckle**
 WorkOrder N°: **1005525** Matrix Water Carrier: Benjamin Yslas (MAI Courier)

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Container/Temp Blank temperature Cooler Temp: 22.4°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No No VOA vials submitted
 Sample labels checked for correct preservation? Yes No
 Metal - pH acceptable upon receipt (pH<2)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

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

Client contacted: Date contacted: Contacted by:

Comments:



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: #160 Holmes Street	Date Sampled: 05/20/10
		Date Received: 05/20/10
	Client Contact: Nathaniel Allen	Date Extracted: 05/21/10-05/25/10
	Client P.O.:	Date Analyzed: 05/21/10-05/25/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005525

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	GW-IN	W	25,000	200,000	360	1500	930	5500	200	102	d1

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

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

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

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

d1) weakly modified or unmodified gasoline is significant



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 50763

WorkOrder 1005525

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 1005530-001A			
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) ^f	ND	60	86.5	86.5	0	94.1	86.4	8.47	70 - 130	20	70 - 130	20
MTBE	ND	10	104	104	0	105	109	3.53	70 - 130	20	70 - 130	20
Benzene	ND	10	97.8	95.8	2.06	99.1	100	1.31	70 - 130	20	70 - 130	20
Toluene	ND	10	85.2	83	2.59	89.7	90.4	0.835	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	88	85.7	2.66	88.7	89.3	0.690	70 - 130	20	70 - 130	20
Xylenes	ND	30	100	98.1	2.34	102	102	0	70 - 130	20	70 - 130	20
%SS:	104	10	100	100	0	98	101	3.00	70 - 130	20	70 - 130	20

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

BATCH 50763 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1005525-001A	05/20/10 11:30 AM	05/21/10	05/21/10 2:33 PM	1005525-001A	05/20/10 11:30 AM	05/25/10	05/25/10 5:26 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.

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

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



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore	Date Sampled: 05/28/10
		Date Received: 05/28/10
	Client Contact: James Allen	Date Reported: 06/03/10
	Client P.O.:	Date Completed: 06/02/10

WorkOrder: 1005741

June 04, 2010

Dear James:

Enclosed within are:

- 1) The results of the **2** analyzed samples from your project: **160 Holmes Street, Livermore,**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

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

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.



849 Almar Avenue, Suite C, #281
 Santa Cruz, California 95060
 Website: www.allterraenv.com
 Phone: (831) 425-2608 Facsimile: (831) 425-2609

1005741

Chain of Custody Record

Turn Around (circle one) RUSH 24HR 48HR 72HR 5 Day

Report and Bill to: Allterra Environmental, Inc.
 Project Number: 160
 Project Location: 160 Holmes Street, Livermore
 Project Name:
 Sampler Signature: *[Signature]*

Sample ID	Sample Collection		Sample Containers		Matrix					Preservation				TPHg and BTEX & MTBE (EPA 8015/8020)	BTEX (EPA 8020)	TPHd (EPA 8015)	5-fuel olys (EPA 8260)	Ethanol and Methanol (EPA 8260)	Lead Scavengers (8260)	Total HVOCs (EPA 8260)	Hardness/Total dissolved solids	CAM-17 Metals (EPA 6010/6020)	LUFT 5 Metals (EPA 6010/6020)	PAH's/ PNA's (EPA 8270,625/8310)	Fish Toxicity/Bioassay	Lead (EPA 6010/200.9/200.8)	MTBE (8260)	EDF required		
	Date	Time	Number of Containers	Container Type	Air	Water	Soil	Sludge	Other	Ice	HCl	HNO ₃	Other																	
(+) G6-IN VES-IN	5-28-10		4	Voa tedlar	✓	✓				✓	✓			✓																✓

Sampled By: <i>[Signature]</i>	Date: 5-28-10	Time: 1530	Received By: <i>[Signature]</i>
Received By: <i>[Signature]</i>	Date: 5/28/10	Time: 1830	Received By: <i>[Signature]</i>
Received By:	Date:	Time:	Received By:

Comments:
 ICE 1" 6.0"
 GOOD CONDITION APPROPRIATE
 HEAD SPACE ABSENT CONTAINERS
 DECHLORINATED IN LAB PRESERVED IN LAB
 OBSERVATION VOAS O & G METALS OTHER

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1005741

ClientCode: ATRS

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to: James Allen
Allterra Environmental, Inc
849 Almar Ave, Ste. C #281
Santa Cruz, CA 95060
831-425-2608 FAX 831-425-2609

Email: allterraenvironmental@yahoo.com, micah

ProjectNo: 160 Holmes Street, Livermore

Bill to: Accounts Payable
Allterra Environmental
849 Almar Ave, Ste. C #281
Santa Cruz, CA 95060
micah@allterraenv.com

Requested TAT: **5 days**

Date Received: 05/28/2010
Date Printed: 05/28/2010

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1005741-001	GW-IN	Water	5/28/2010	<input type="checkbox"/>		A	A										
1005741-002	VES-IN	Air	5/28/2010	<input type="checkbox"/>	A												

Test Legend:

1	G-MBTEX_AIR	2	G-MBTEX_W	3	PREFD REPORT	4		5	
6		7		8		9		10	
11		12							

The following SampID: 002A contains testgroup.

Prepared by: Melissa Valles

Comments:

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



Sample Receipt Checklist

Client Name: **Allterra Environmental, Inc** Date and Time Received: **5/28/2010 7:18:35 PM**
 Project Name: **160 Holmes Street, Livermore** Checklist completed and reviewed by: **Melissa Valles**
 WorkOrder N°: **1005741** Matrix Air/Water Carrier: Benjamin Yslas (MAI Courier)

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Container/Temp Blank temperature Cooler Temp: 6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No No VOA vials submitted
 Sample labels checked for correct preservation? Yes No
 Metal - pH acceptable upon receipt (pH<2)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

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

Client contacted: Date contacted: Contacted by:

Comments:



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

Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore	Date Sampled: 05/28/10
	Client Contact: James Allen	Date Received: 05/28/10
	Client P.O.:	Date Extracted: 05/29/10
		Date Analyzed: 05/29/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005741

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
002A	VES-IN	A	36	3.7	ND	1.1	0.48	5.2	1	99	d1

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	0.25	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	0.005	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 McC Campbell Analytical is not responsible for their interpretation:

d1) weakly modified or unmodified gasoline is significant



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Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore	Date Sampled: 05/28/10
	Client Contact: James Allen	Date Received: 05/28/10
	Client P.O.:	Date Extracted: 05/29/10
		Date Analyzed: 05/29/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005741

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
002A	VES-IN	A	10	1.0	ND	0.27	0.11	1.2	1	99	d1

ppm (mg/L) to ppmv (ul/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	A	7.0	0.68	0.077	0.065	0.057	0.057	1	uL/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

d1) weakly modified or unmodified gasoline is significant



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Allterra Environmental, Inc 849 Almar Ave, Ste. C #281 Santa Cruz, CA 95060	Client Project ID: 160 Holmes Street, Livermore	Date Sampled: 05/28/10
	Client Contact: James Allen	Date Received: 05/28/10
	Client P.O.:	Date Extracted: 06/01/10-06/03/10
		Date Analyzed: 06/01/10-06/03/10

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

Extraction method: SW5030B

Analytical methods: SW8021B/8015Bm

Work Order: 1005741

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	GW-IN	W	37,000	190,000	400	1900	1200	6200	200	104	d1

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

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

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

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

d1) weakly modified or unmodified gasoline is significant



QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water/Air

QC Matrix: Water

BatchID: 50922

WorkOrder 1005741

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 1005705-006A			
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
TPH(btex) [£]	ND	60	92.6	93.9	1.40	97	95.7	1.34	70 - 130	20	70 - 130	20
MTBE	ND	10	105	105	0	109	111	1.38	70 - 130	20	70 - 130	20
Benzene	ND	10	89.4	87.7	1.96	89.2	90	0.916	70 - 130	20	70 - 130	20
Toluene	ND	10	90.2	88.4	2.00	89.5	88.7	0.977	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	89	87.2	2.09	88.8	88.9	0.163	70 - 130	20	70 - 130	20
Xylenes	ND	30	90.6	88.9	1.89	90.6	91	0.414	70 - 130	20	70 - 130	20
%SS:	98	10	97	96	1.25	96	95	1.09	70 - 130	20	70 - 130	20

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

BATCH 50922 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1005741-001A	05/28/10	06/01/10	06/01/10 6:17 PM	1005741-001A	05/28/10	06/03/10	06/03/10 12:33 AM
1005741-002A	05/28/10	05/29/10	05/29/10 8:15 AM	1005741-002A	05/28/10	05/29/10	05/29/10 8:15 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.

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.