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Project: 2841

December 19, 2006

Mr. Jerry Wickham Alameda County Department of Environmental Health 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502-6577

Subject: Fuel Leak Case No. RO0002585, Wente Winery

Site Located at 5565 Tesla Road, Livermore, California

Dear Mr. Wickham:

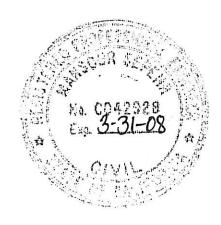
SOMA's "Fourth Quarter 2006 Groundwater Monitoring Report" for the subject site has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have any questions or comments.

Sincerely,

Mansour Sepehr, Ph.D., PE Principal Hydrogeologist

cc: Mr. Aris Krimetz w/report enclosure





# Fourth Quarter 2006 Groundwater Monitoring Report

WENTE WINERY
5565 Tesla Road
Livermore, California

December 19, 2006

Project 2841

**Prepared for** 

Mr. Aris Krimetz 5565 Tesla Road Livermore, California

Prepared by

SOMA Environmental Engineering, Inc. 6620 Owens Drive, Suite A Pleasanton, California

#### **CERTIFICATION**

This report has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Aris Krimetz, for Wente Winery, which is located at 5565 Tesla Road, Livermore, California to comply with the requirements of the Alameda County Environmental Health Services and the California Regional Water Quality Control Board for the Fourth Quarter 2006 groundwater monitoring event.

Mansour Sepehr, Ph.D., P.E. Principal Hydrogeologist



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#### 1.0 INTRODUCTION

This monitoring report has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Aris Krimetz, for Wente Winery, which is located at 5565 Tesla Road, Livermore, California. Figure 1 shows the location of the Site.

This report summarizes the results of the Fourth Quarter 2006 groundwater monitoring event conducted at the Site on November 2, 2006. This report also includes the laboratory analytical results on the groundwater samples.

A natural attenuation study was conducted during this monitoring event. The objective of the natural attenuation study was to evaluate whether the petroleum hydrocarbons found in the groundwater were biodegrading.

These activities were performed in accordance with the general guidelines of the California Regional Water Quality Control Board (CRWQCB) and the Alameda County Environmental Health Services (ACEHS). Appendix A details the groundwater monitoring procedures used during this monitoring event.

#### 1.1 Site Description

West of the winery buildings is an enclosed maintenance and agricultural storage area with a former underground storage tank (UST) pit that contained one gasoline and one diesel UST. The USTs were replaced with three aboveground storage tanks (ASTs), with a total capacity of 4,000 gallons. An on-site potable water supply well provides backup potable drinking water and processed water for the winery facility. This water supply well is located south of and presumably upgradient from the former UST area.

#### 1.2 Previous Activities and Investigations

In 1987, two fuel USTs were removed from the Site. There is no information regarding the condition of the tank or evidence of leakage. In 1990, the ACEHS issued a notice of violation (NOV) for discharging waste sludge into an open ditch adjacent to a former steam-cleaning bay.

Clayton Environmental Consultants (Clayton) conducted a Phase I Environmental Site Assessment of the maintenance and storage areas. The Phase I study revealed the existence of the former USTs, former waste discharge area, and a number of agricultural storage areas.

In 2003, Clayton performed a subsurface investigation at the Site to implement the recommendations of the Phase I report. As shown in Figure 2, boreholes were advanced near the ASTs and near other RECs. The study indicated that a fuel release in the former UST area impacted the groundwater. In the former steam-cleaning bay, gasoline and motor oil-range petroleum hydrocarbons were detected in the groundwater. Figure 2 illustrates the locations of the soil borings.

Wente then retained SOMA to review Clayton's report. SOMA subsequently submitted a workplan that included a vicinity well survey, a regional hydrogeologic study, and an additional site characterization. The site characterization included sampling and evaluating the water quality of the on-site water supply well, installing monitoring wells, and additional lithologic characterization to better define the shallow/perched water-bearing zone.

On May 5, 2005, SOMA oversaw Woodward Drilling (Woodward) install three monitoring wells, MW-1 through MW-3, as shown in Figure 2. On May 20, 2005, Woodward developed the newly installed wells.

On June 24, 2005, SOMA oversaw Woodward drill two confirmatory boreholes (B-9 and B-10). The purpose of this investigation was to confirm the presence of petroleum hydrocarbons in the soil and groundwater next to the former USTs and to evaluate the current soil and groundwater conditions in close proximity of the former steam cleaning area. The results of this investigation are presented in SOMA's report entitled "Phase I: Soil and Groundwater Investigation, Wente Winery, at 5565 Tesla Road, Livermore, California," dated July 25, 2005.

#### 1.3 Regional Hydrogeologic Features

The subject site is located in the Livermore Valley Groundwater Basin (LVGB). The LVGB consists of a structural trough that is an important source of irrigation water for the Livermore Valley. In the western part of the basin up to 40 feet of clay caps these water-bearing sediments. The water-bearing zone is predominantly a permeable unit consisting of sand and gravel in a clayey sand matrix. The potentiometric surface of valley-fill groundwater near the Site is at approximately 20 to 30 feet below ground surface (bgs).

The groundwater flow in the valley-fill and underlying Livermore Formations is to the northwest/north. The nearby water supply wells west of and presumably downgradient from the Site are potentially exposed to the on-site contaminant plume.

There is one on-site well and five wells in the properties immediately west of and presumably downgradient from the Site. North/northeast of and presumably up/cross gradient from the subject site there are seven wells within 2,000 feet of the investigation area. Approximately 1,800 feet south of the Site there is another water supply well. Available records indicate that six of the seven wells located north/northeast of and within 2,000 feet of the Site may be used as drinking water wells.

#### 2.0 Results

The following sections provide the results of the field measurements and laboratory analyses for the November 2, 2006 groundwater monitoring event.

#### 2.1 Field Measurements

Table 1 presents the depths to groundwater, as well as the corresponding groundwater elevations for the monitoring wells. The depths to groundwater ranged from 8.97 feet in well MW-1 to 9.39 feet in well MW-3. The corresponding groundwater elevations ranged from 606.19 feet in well MW-1 to 607.93 feet in well MW-3.

The groundwater elevation contour map is displayed in Figure 3. The groundwater flows north to northwesterly across the Site, at a gradient of approximately 0.009 feet/feet. The flow direction has remained consistent; however, the groundwater gradient has increased.

Refer to Table 1 for the historical site-wide groundwater elevation trends.

The field notes in Appendix B show the detailed measurements of the physical and chemical parameters of the groundwater for each well during this monitoring event. The more positive the redox potential of an electron acceptor, the more energetically favorable is the reaction utilizing that electron acceptor. The most energetically preferred electron acceptor for redox reactions is dissolved oxygen (DO). Evaluating the distribution of electron acceptors can provide evidence of where and to what extent hydrocarbon biodegradation is occurring.

DO concentrations ranged from 4.76 mg/L in well MW-3 to 5.68 mg/L in the off-site supply well. Oxygen reduction potential (ORP) showed positive redox potentials throughout the Site. As previously noted, positive redox potentials are more energetically favorable in utilizing electron acceptors during chemical reactions. This promotes the removal of organic mass from the contaminated groundwater by indigenous bacteria in the subsurface during the release of the transfer of electrons.

#### 2.2 Sampling of Off-Site Well at 5443 Tesla Road

SOMA's field personnel began extracting groundwater from the off-site supply well using the downhole pump within the well. During the purging activities, the groundwater was measured for parameters such as DO, pH, temperature, EC, and ORP using a Hanna HI-9828 multi-parameter instrument. Turbidity was measured using a Hanna HI-98703 portable turbidimeter. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacturer.

A groundwater sample was collected when all of the field parameters stabilized. This occurred when approximately 30 gallons of groundwater had been purged. The field measurements taken from the supply well during purging activities are shown in Appendix B.

Based on the information supplied by Wente, the total depth of this off-site well is

125 feet bgs. In 1972 the pump was installed at 100 feet bgs. The water from this well is used solely for irrigation of the vineyards. The letter referencing the off-site supply well and piping diagram of the pump are included in Appendix C.

#### 2.3 Laboratory Analysis

The historical total petroleum hydrocarbons as gasoline (TPH-g), total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as motor oil (TPH-mo), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and Methyl tertiary Butyl Ether (MtBE) groundwater analytical results are shown in Table 1.

All TPH-g, TPH-d, TPH-mo, BTEX, and MtBE constituents were below the laboratory reporting limit throughout the Site.

Table 2 shows the analytical results for gasoline oxygenates and lead scavengers. All gasoline oxygenates and lead scavengers were below the laboratory reporting limit in all of the groundwater samples collected during this monitoring event.

Table 3 shows the historical concentrations of volatile organic compounds (VOCs) in the groundwater. Tetrachloroethene, 1,1,1-Trichloroethane, Cis-1,2-dichloroethene, Trans-1,2-dichloroethene, vinyl chloride, 1,2-Dichloropropane, and 1,1-Dichloroethene were all below the laboratory reporting limit in all of the groundwater samples collected during this monitoring event. All other VOCs were also below the laboratory reporting throughout the Site.

Table 4 shows the historical concentrations of metals in the groundwater. Cadmium, chromium, lead, and nickel were all below the laboratory reporting limit in the samples collected from both supply wells. Zinc was detected at 1,300 ug/L in the off-site supply well and was below the laboratory reporting limit in the on-site supply well.

Appendix D includes the laboratory report and chain-of-custody (COC) form for this monitoring event.

#### 3.0 Conclusions and Recommendations

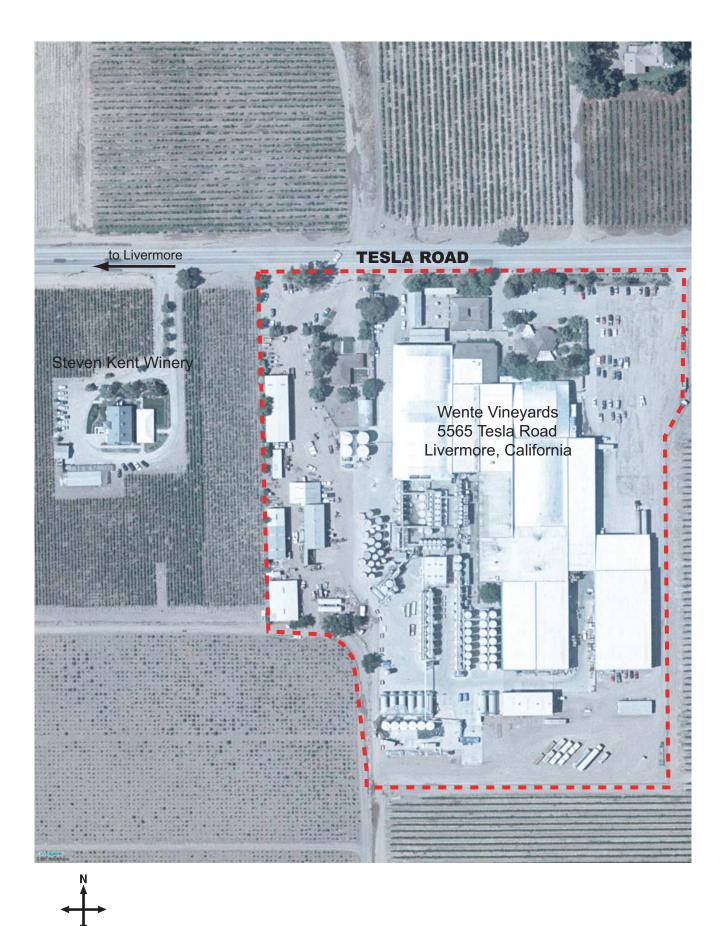
The results of the Fourth Quarter 2006 groundwater monitoring event can be summarized as follows:

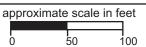
- The groundwater flow direction has remained north to northwesterly across the Site.
- Based on the results of the bio-attenuation study, indigenous bacteria have effectively removed organic mass from the impacted groundwater in the subsurface. This is evidenced by the high DO levels and positive redox potentials observed throughout the Site.

- All tested analytes were below the laboratory reporting limit throughout the Site, with the exception of zinc, which was detected in the off-site supply well.
- Based on the Cal DHS primary MCL level for drinking water screening levels for human toxicity, zinc has a rating of 5,000 ug/L. Based on this criteria, the zinc level detected in the off-site well was well below this level.
- During previous monitoring events, chlorinated solvents, which included chloromethane and chloroethane, were detected in the groundwater. However, during this monitoring event, no chlorinated solvents were detected.
- Based on the previous detection of tetrahydrofuran in the off-site supply well, on August 23, 2006 the ACEHS requested analysis of this compound. However, tetrahydrofuran was not detected in either of the supply wells during this monitoring.

Based on the results of this monitoring event, SOMA recommends that a No Further Action status be adopted in connection with the groundwater petroleum hydrocarbon and VOC contamination at this site. Upon concurrence from the ACEHS, all site wells will be properly decommissioned by SOMA.

# **FIGURES**





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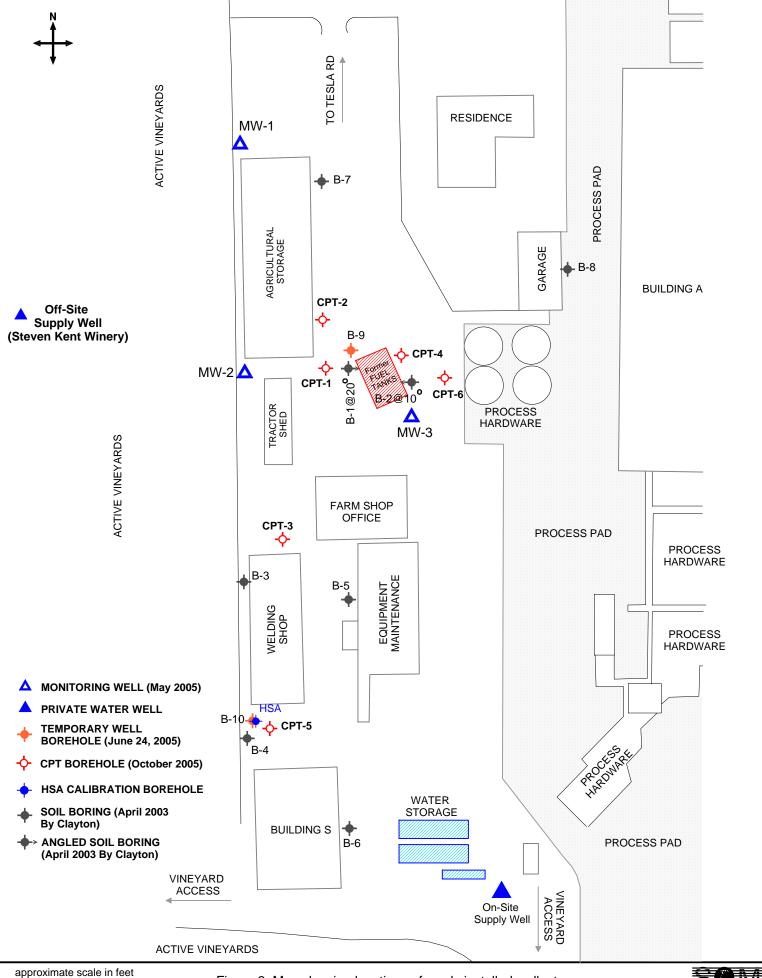


Figure 2: Map showing locations of newly installed wells, temporary well boreholes, and previous soil borings installed by Clayton group.

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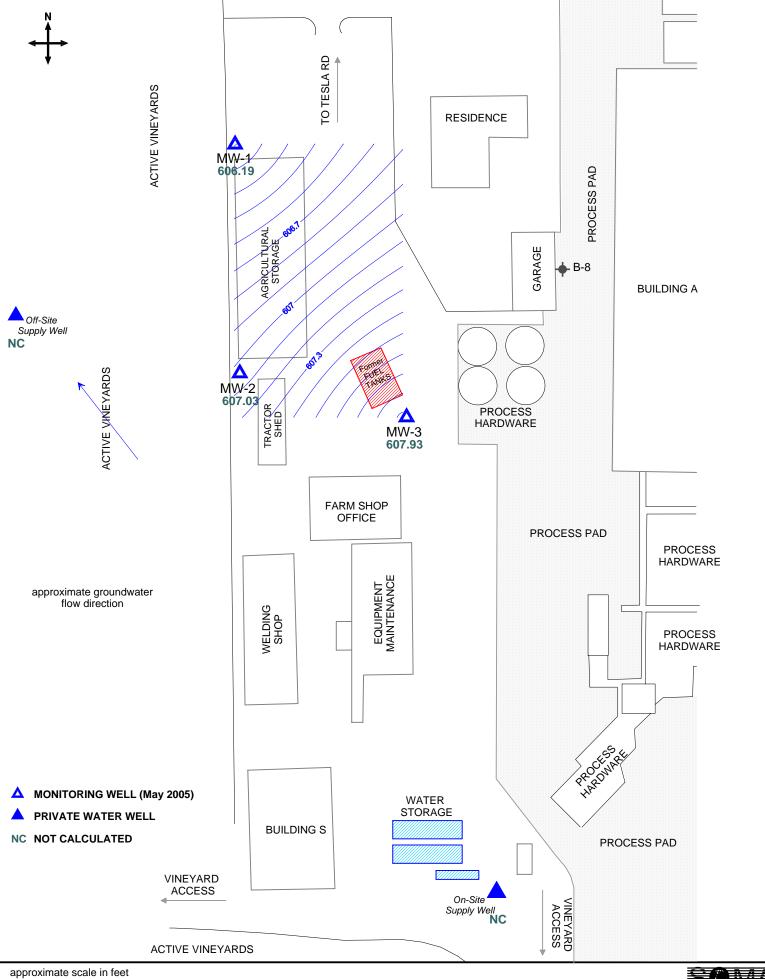


Figure 3: Groundwater elevation contour map in feet. November 2, 2006.



# **TABLES**

# Table 1 Historical Groundwater Elevation Data & Analytical Results Hydrocarbons, BTEX, & MtBE Wente Vineyards

5565 Tesla Road, Livermore, California

Monitoring Well	Date	Top of Casing (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (μg/L)	TPH-d (μg/L)	TPH-mo (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl- benzene (μg/L)	Total Xylenes (μg/L)	MtBE (μg/L)
MW-1	5/20/2005	615.16	6.10	609.06	<200	<50	320 YZ	<0.5	<0.5	<0.5	<1.0	<0.5
	9/13/2005	615.16	9.19	605.97	<50	<50	<300	<0.5	<2.0	<0.5	<1.0	< 0.5
	11/28/2005	615.16	8.90	606.26	<50	150 YZ	<300	<0.5	<2.0	<0.5	<1.0	< 0.5
	2/13/2006	615.16	6.29	608.87	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	<0.5
	5/5/2006	615.16	5.23	609.93	<50	70 HY	<300	<0.5	<0.5	<0.5	<0.5	< 0.5
	8/15/2006	615.16	7.54	607.62	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	< 0.5
	11/2/2006	615.16	8.97	606.19	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	5/20/2005	616.03	6.69	609.34	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5
	9/13/2005	616.03	9.30	606.73	<50	<50	<300	<0.5	<2.0	<0.5	<1.0	<0.5
<u>_</u>	11/28/2005	616.03	9.20	606.83	<50	<50	<300	<0.5	<2.0	<0.5	<1.0	<0.5
	2/13/2006	616.03	6.52	609.51	<50	76.5 D35	657 <sup>D06</sup>	< 0.5	<2.0	<0.5	<1.0	< 0.5
	5/5/2006	616.03	5.58	610.45	<50	50 HY	<300	<0.5	<0.5	<0.5	<0.5	< 0.5
	8/15/2006	616.03	8.09	607.94	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	616.03	9.00	607.03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	5/20/2005	617.32	7.04	610.28	<200	680	<300	<0.5	1.58	<0.5	<1.0	< 0.5
	9/13/2005	617.32	9.61	607.71	<50	300 Y	<300	<0.5	<2.0	<0.5	<1.0	<0.5
-	11/28/2005	617.32	9.60	607.72	<50	150 YZ	<300	<0.5	<2.0	<0.5	<1.0	<0.5
	2/13/2006	617.32	7.06	610.26	<50	<50	322 <sup>D06</sup>	<0.5	<2.0	<0.5	<1.0	<0.5
	5/5/2006	617.32	5.94	611.38	<50	61 HY	<300	<0.5	<0.5	<0.5	<0.5	< 0.5
	8/15/2006	617.32	8.53	608.79	<50	76 HY	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	617.32	9.39	607.93	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
B-9	6/24/2005	NA	NA	NA	1,850,000	540,000 LY	<24,000	3,820	114,000	40,400	177,700	<462
D-9	0/24/2003	INA	INA	INA	1,030,000	340,000 L1	<24,000	3,020	114,000	40,400	177,700	\40Z
B-10	6/24/2005	NA	NA	NA	<200	<50	<300	<0.5	4.23	1.10	4.03	<0.5
nsite Supply Well	5/20/2005	NS	NM	NC	<200	<50	<300	<0.5	0.85	<0.5	<1.0	<0.5
	11/28/2005	NS	NM	NC	<50	100 YZ	<300	<0.5	<2.0	<0.5	<1.0	<0.5
ļ	2/13/2006	NS	NM	NC	<50	91.8	<250	<0.5	<2.0	<0.5	<1.0	<0.5
	5/5/2006	NS	NM	NC	<50	52 Y	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	NS	NM	NC	<50	95 YZ	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	NS	NM	NC	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5

#### Table 1

# Historical Groundwater Elevation Data & Analytical Results Hydrocarbons, BTEX, & MtBE

## Wente Vineyards

#### 5565 Tesla Road, Livermore, California

Monitoring Well	Date	Top of Casing (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (μg/L)	TPH-d (μg/L)	TPH-mo (μg/L)	Benzene (μg/L)	Toluene (μg/L)	Ethyl- benzene (μg/L)	Total Xylenes (μg/L)	MtBE (μg/L)
Offsite Supply Well	5/20/2005	NS	NM	NC	<200	<50	<300	0.77	1.08	<0.5	<1.0	<0.5
	11/28/2005	NS	NM	NC	<5,380	120 YZ	<300	<53.8	<215	<53.8	<108	<53.8
	1/16/2006	NS	9.65	NC	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	NS	NM	NC	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	< 0.5
	5/5/2006	NS	NM	NC	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	< 0.5
	8/15/2006	NS	NM	NC	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	NS	NM	NC	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5

#### Notes:

- 1) The wells were installed on May 5, 2005 and developed by Woodward Drilling on May 20, 2005.
- 2) A grab sample was collected after the well development on May 20, 2005.
- 3) A grab sample was also collected from the water well, southeast of the water stoarge units on May 20, 2005.
- 4) The wells were surveyed by Harrington Surveys of Walnut Creek, CA on June 5, 2005.
- 5) A grab sample was collected from the borings on June 24, 2005.
- 6) The groundwater elevation for the May 2005 sampling was based on the survey data of Harrington Surveys.
- 7) The supply wells were first added to the quarterly events in the Fourth Quarter 2005.

The off-site water supply well was re-sampled on January 16, 2006, based on the directive of Alameda County Environmental Health Dpt.

Tetrahydrofuran was detected at 19,700 ug/L and chloroethane was detected at 380 ug/L during the 4Q05 Monitoring Event.

NA: Not Applicable. B-9 and B-10 are boring locations and are not surveyed.

NC: Not calculated.
NM: Not Measured

NS: Not surveyed. The onsite well is a private well.

TPH-d: Total hydrocarbons as diesel TPH-g: Total hydrocarbons as gasoline TPH-mo:Total hydrocarbons as motor oil

H: Heavier hydrocarbons contributed to the quanitation

L: Lighter weight hydrocarbons contributed to the quanitation

Y: Sample exhibits chromatographic pattern which does not resemble standard

Z: Sample exhibits unknown single peaks or peaks.

<: Not Detected above the laboratory reporting limit.

D35: Sample does not display fuel pattern. Sample contains several discrete peaks. (1Q06 diesel)

D06: Sample chromatographic pattern does not resemble fuel standard used for quantitation. (1Q06, motor oil)

# Table 2 Historical Groundwater Analytical Results Gasoline Oxygenates & Lead Scavengers Wente Vineyards

5565 Tesla Road, Livermore, California

MW-1         9/13/2005         <2.5	EDB (μg/L)	1,2-DCA (μg/L)	TAME (μg/L)	ETBE (μg/L)	DIPE (μg/L)	TBA (μg/L)	Date	Monitoring Well
5/5/2006       <10       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5       <0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	9/13/2005	MW-1
8/15/2006       <10       <0.5       <0.5       <0.5       <0.5       <0.5         11/2/2006       <10       <0.5       <0.5       <0.5       <0.5       <0.5         WW-2       9/13/2005       <2.5       <0.5       <0.5       <2.0       <0.5         2/13/2006       <2.5       <0.5       <0.5       <2.0       <0.5         5/5/2006       <10       <0.5       <0.5       <0.5       <0.5         8/15/2006       <10       <0.5       <0.5       <0.5       <0.5         11/2/2006       <10       <0.5       <0.5       <0.5       <0.5         MW-3       9/13/2005       <2.5       <0.5       <0.5       <2.0       <0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	2/13/2006	
MW-2         9/13/2005         <2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	5/5/2006	
MW-2         9/13/2005         <2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	8/15/2006	
2/13/2006     <2.5     <0.5     <0.5     <2.0     <0.5       5/5/2006     <10     <0.5     <0.5     <0.5     <0.5       8/15/2006     <10     <0.5     <0.5     <0.5     <0.5       11/2/2006     <10     <0.5     <0.5     <0.5     <0.5       MW-3     9/13/2005     <2.5     <0.5     <0.5     <2.0     <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	11/2/2006	
2/13/2006     <2.5     <0.5     <2.0     <0.5       5/5/2006     <10     <0.5     <0.5     <0.5     <0.5       8/15/2006     <10     <0.5     <0.5     <0.5     <0.5       11/2/2006     <10     <0.5     <0.5     <0.5     <0.5       MW-3     9/13/2005     <2.5     <0.5     <0.5     <2.0     <0.5								
5/5/2006     <10     <0.5     <0.5     <0.5     <0.5       8/15/2006     <10     <0.5     <0.5     <0.5     <0.5       11/2/2006     <10     <0.5     <0.5     <0.5     <0.5       MW-3     9/13/2005     <2.5     <0.5     <0.5     <2.0     <0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	9/13/2005	MW-2
8/15/2006     <10     <0.5     <0.5     <0.5     <0.5       11/2/2006     <10     <0.5     <0.5     <0.5     <0.5       MW-3     9/13/2005     <2.5     <0.5     <0.5     <2.0     <0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	2/13/2006	
MW-3 9/13/2005 <2.5 <0.5 <0.5 <0.5 <0.5 <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	5/5/2006	
<b>MW-3</b> 9/13/2005 <2.5 <0.5 <0.5 <2.0 <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	8/15/2006	
	<0.5	<0.5	<0.5	<0.5	<0.5	<10	11/2/2006	
2/13/2006 <2.5 <0.5 <0.5 <2.0 <0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	9/13/2005	MW-3
	<2.0	<0.5	<2.0	<0.5	<0.5	<2.5	2/13/2006	
5/5/2006 <10 <0.5 <0.5 <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	5/5/2006	
8/15/2006 <10 <0.5 <0.5 <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	8/15/2006	
11/2/2006 <10 <0.5 <0.5 <0.5 <0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	11/2/2006	

# Table 2 Historical Groundwater Analytical Results Gasoline Oxygenates & Lead Scavengers Wente Vineyards

5565 Tesla Road, Livermore, California

Monitoring Well	Date	TBA (μg/L)	DIPE (μg/L)	ETBE (μg/L)	TAME (μg/L)	1,2-DCA (μg/L)	EDB (μg/L)
Onsite Supply Well	11/28/2005	<2.5	<0.5	<0.5	<2.0	<0.5	<2.0
	2/13/2006	<2.5	<0.5	<0.5	<2.0	<0.5	<2.0
	5/5/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
Offsite Supply Well	11/28/2005	<269	<53.8	<53.8	<215	<53.8	<215
	1/16/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<2.5	<0.5	<0.5	<2.0	<0.5	<2.0
	5/5/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<10	<0.5	<0.5	<0.5	<0.5	<0.5

#### Notes:

- 1) A grab sample was collected after well development on May 20, 2005.
- 2) The supply wells were first added to the quarterly events in the Fourth Quarter 2005. The off-site water supply well was re-sampled on January 16, 2006, based on the directive of Alameda County Environmental Health Dpt. Tetrahydrofuran was detected at 19,700 ug/L and chloroethane was detected at 380 ug/L during the 4Q05 Monitoring Event.
- <: Not Detected above the laboratory reporting limit.

Gasoline Oxygenates:

TBA: tertiary Butyl Alcohol DIPE: Di-Isopropyl Ether ETBE: Ethyl tertiary Butyl Ether TAME: Methyl tertiary Amyl Ether Lead Scavengers: EDB: 1,2-Dibromoethane 1,2-DCA: 1,2-Dichloroethane

# Table 3 Historical Analytical Results For Volatile Organic Compound Analyses in Groundwater Samples Wente Vineyards

5565 Tesla Road, Livermore, California

Monitoring Well	Date	PCE (μg/L)	TCE (μg/L)	cis-1,2-DCE (μg/L)	trans-1,2-DCE (μg/L)	Vinyl Chloride (μg/L)	1,2-DCP (μg/L)	1,1-DCE (μg/L)
MW-1	9/13/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5/5/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	9/13/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5/5/2006	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
	8/15/2006	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
	11/2/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	9/13/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5/5/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

## Table 3

#### **Historical Analytical Results For Volatile Organic Compound Analyses in Groundwater Samples**

#### **Wente Vineyards**

5565 Tesla Road, Livermore, California

Monitoring Well	Date	PCE (μg/L)	TCE (μg/L)	cis-1,2-DCE (μg/L)	trans-1,2-DCE (μg/L)	Vinyl Chloride (μg/L)	1,2-DCP (μg/L)	1,1-DCE (μg/L)
Onsite Supply Well	11/28/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5/5/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Offsite								
Supply Well	11/28/2005	<53.8	<53.8	<53.8	<53.8	<53.8	<53.8	<53.8
	1/16/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2/13/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	5/5/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	8/15/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	11/2/2006	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

#### Notes:

- 1) A grab sample was collected after well development on May 20, 2005. However, the first time volatile organic compounds (VOCs) were analyzed was during the Third Quarter 2005 monitoring event.
- 2) The supply wells were first added to the quarterly events in the Fourth Quarter 2005. The off-site water supply well was re-sampled on January 16, 2006, based on the directive of Alameda County Environmental Health Dpt. Tetrahydrofuran was detected at 19,700 ug/L and chloroethane was detected at 380 ug/L during the 4Q05 Monitoring Event.
- <: Not detected above the laboratory reporting limit.

Volatile organic compounds (VOCs)

PCE: tetrachloroethene TCE: 1,1,1-trichloroethane cis-1,2-DCE: cis-1,2-dichloroethene trans-1,2-DCE: trans-1,2-dichloroethene 1,2-DCP: 1,2-dichloropropane

vinyl chloride

1,1-DCE: 1,1-dichloroethene

# Table 4 Historical Groundwater Analytical Results Metals

### Wente Vineyards 5565 Tesla Road, Livermore, California

Monitoring Well	Date	Cadmium (μg/L)	Chromium (μg/L)	Lead (μg/L)	Nickel (μg/L)	Zinc (μg/L)
MW-1	9/13/2005	<5.0	<10	<3.0	<20	27
MW-2	9/13/2005	<5.0	<10	<3.0	<20	23
MW-3	9/13/2005	<5.0	<10	<3.0	<20	<20
B-10	6/24/2005	12	930	82	3,600	800
Onsite Supply Well	11/28/2005	<5.0	<10	<3.0	<20	62
	2/13/2006	<5.0	<10	<3.0	<20	<20
	5/5/2006	<5.0	<10	26	<20	<20
	8/15/2006	<5.0	<10	<3.0	34	60
	11/2/2006	<5.0	<10	<3.0	<20	<20
Offsite Supply Well	11/28/2005	<5.0	<10	<3.0	<20	830
	1/16/2006	<5.0	<10	8.30	<20	650
	2/13/2006	<5.0	15	<3.0	<20	1700
	5/5/2006	<5.0	<10	26	<20	750
	8/15/2006	<5.0	<10	<3.0	<20	1,200
	11/2/2006	<5.0	<10	<3.0	<20	1,300

- 1) Metals were tested at boring B-10 on June 24, 2005.
- 2) Due to the results from B-10, the Alameda County Environmental Health Services requested that SOMA further analyze the wells for metals in a letter dated Sept. 19, 2005. SOMA collected grab samples from the wells on September 29, 2005.
- 3) The only time metals were tested in wells MW-1 to MW-3 was in the Third Quarter 2005.
- 4) The supply wells were first added to the quarterly events in the Fourth Quarter 2005. The off-site water supply well was re-sampled on January 16, 2006, based on the directive of Alameda County Environmental Health Dpt.Tetrahydrofuran was detected at 19,700 ug/L and chloroethane was detected at 380 ug/L during the 4Q05 Monitoring Event.
- <: Not Detected above the laboratory reporting limit.

# **Appendix A**

SOMA's Groundwater Monitoring Procedures

### **Field Activities**

On November 2, 2006, SOMA's field crew conducted a groundwater monitoring event in accordance with the procedures and guidelines of the Alameda County Environmental Health Services and the California Regional Water Quality Control Board. Figure 2 shows the locations of the wells.

#### **Water Level Measurements**

On November 2, 2006, a total of three monitoring wells (MW-1 to MW-3) were measured for depth to groundwater. On November 2, 2006, additional field measurements and grab groundwater samples were collected from all of the monitoring wells, as well as, an onsite supply well and off-site supply well.

Prior to measuring the groundwater depth at each monitoring well, equalization with the surrounding aquifer was achieved. The well cap was removed from each well, and the pressure in each well was then allowed to dissipate. This allowed for a more stable water table level within the well. After a few minutes, and once the water level in the well stabilized, the depth to groundwater in each monitoring well was measured from the top of the casing to the nearest 0.01 foot using an electric sounder.

The depth to groundwater in each monitoring well was measured from the top of the casing to the nearest 0.01 foot using an electric sounder. Harrington Surveys Inc., of Walnut Creek, surveyed the Site on June 3, 2005. The survey datum was based on an elevation of 566.57 NAVD 88. Top of casing elevation data and the depth to groundwater in each monitoring well was used to calculate the groundwater elevation.

The survey data is included in Appendix B for the monitoring wells. The survey was conducted to comply with EDF requests for electronic reporting of data to the State Water Resources Control Board (SWRCB) Database.

#### **Purging and Field Measurements**

Prior to collecting samples, each well, with the exception of the supply wells, was purged using a battery operated 2-inch diameter pump (Model ES-60 DC). During the purging activities, the groundwater was measured for parameters such as DO, pH, temperature, EC, and the ORP using a Hanna HI-9828 multi-parameter instrument. Turbidity was measured using a Hanna HI-98703 portable turbidimeter. The equipment was calibrated at the Site using standard solutions and procedures provided by the manufacturer. At the supply wells, groundwater was extracted using an active pump within the well.

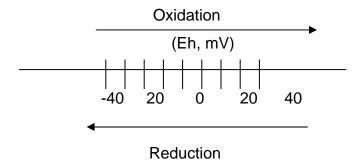
The pH of groundwater has an effect on the activity of microbial populations in the groundwater. The groundwater temperature affects the metabolic activity of

bacteria. The groundwater conductivity (EC) is directly related to the concentration of ions in solution.

There is a strong correlation between the turbidity level and the biological oxygen demand of natural water bodies. The main purpose for checking the turbidity level is to provide a general overview of the extent of the suspended solids in the groundwater.

ORP (oxidation reduction potential) is the measure of the potential for an oxidation or reduction process to occur. In the oxidation process a molecule or ion loses one or several electrons. In the reduction process a molecule or ion gains one or several electrons. The unit of the redox potential is the Volt or m-Volt. The most important redox reaction in petroleum contaminated groundwater is the oxidation of petroleum hydrocarbons in the presence of bacteria and free molecular oxygen. Because the solubility of O<sub>2</sub> in water is low (9 mg/L at 25 °C and 11 mg/L at 5 °C), and because the rate of O<sub>2</sub> replenishment in subsurface environments is limited, DO can be entirely consumed, when the oxidation of only a small amount of petroleum hydrocarbons occurs.

Oxidation of petroleum hydrocarbons can still occur, when all the dissolved  $O_2$  in the groundwater is consumed, however, the oxidizing agents (i.e., the constituents that undergo reduction) now become  $NO_3$ ,  $MnO_2$ , Fe  $(OH)_3$ ,  $SO_4^{2^-}$  and others (Freeze and Cherry, 1979). As these oxidizing agents are consumed, the groundwater environment becomes more and more reduced. If the process proceeds far enough, the environment may become so strongly reduced that the petroleum hydrocarbons may undergo anaerobic degradation, resulting in the production of methane and carbon dioxide. The concept of oxidation and reduction in terms of changes in oxidation states is illustrated below.



The purging of the wells continued until the parameters for DO, pH, temperature, EC, turbidity, and redox stabilized or three casing volumes were purged.

### Sampling

On November 2, 2006, for sampling purposes, after purging, a disposable polyethylene bailer was used to collect sufficient samples from each monitoring

well for laboratory analyses. Samples from the supply wells were collected using the active downhole pumps.

The groundwater sample was transferred to five 40-mL VOA vials and preserved with hydrochloric acid. The vials were then sealed to prevent the development of air bubbles within the headspace. The groundwater sample was also transferred into a one-liter non-preserved amber glass container. The groundwater samples from each supply well were further transferred into a 250-milliliter poly container. All groundwater samples were placed in an ice chest along with a chain of custody (COC) form. On November 2, 2006, upon completion of the monitoring event, SOMA's field crew delivered the groundwater samples to Curtis and Tompkins in Berkeley, California.

#### **Laboratory Analysis**

Curtis and Tompkins, a state certified laboratory, analyzed the groundwater samples at both the monitoring wells and supply wells for TPH-g, TPH-d, TPH-mo, BTEX, MtBE, gasoline oxygenates, lead scavengers, and volatile organic compounds (VOCs). The supply wells were further monitored for metals.

EPA Method 5030B was used to prepare the samples for TPH-g, BTEX, MtBE, gasoline oxygenates, lead scavengers, and VOCs; and analyzed using EPA Method 8260B. EPA Method 3520C was used to prepare the samples for TPH-d and TPH-mo; and analyzed using Method 8015B. To reduce matrix interference, during TPH-d and TPH-mo testing, the sample extract has undergone silica gel clean-up method 3630C.

Metals, which included cadmium, chromium, lead, nickel, and zinc were prepared using EPA Method 3010A and analyzed using EPA Method 6010B. The metals were also filtered at the laboratory to verify a more accurate reading.

# **Appendix B**

Table of Elevations & Coordinates on Monitoring Wells

Measured by Harrington Surveys, Inc.,

and

Field Measurements of Physical, Chemical, & Biodegradation
Parameters of the Groundwater Samples
at Time of Sampling

## Harrington Surveys Inc.

Land Surveying & Mapping

2278 Larkey Lane, Walnut Creek, Ca. 94597 Phone (925)935-7228 Fax (925)935-5118 Cell (925)788-7359 E-Mail (ben5132@pacbell.net)

SOMA ENVIRONMENTAL ENGINEERING 2680 BISHOP DR. # 203 SAN RAMON, CA. 94583 JUNE 05, 2005

ATTN: ELENA

5565 TESLA ROAD, LIVERMORE CA.

#### **SURVEY REPORT**

#### CONTROLING POINTS FOR SURVEY:

CALIFORNIA HPGN MONUMENT 04 FL, CALIFORNIA COORDINATE SYSTEM, ZONE 3. NAD 83. NORTH 2,085,087.52 - EAST 6,213,127.18, LAT. N37°42'56.31172" W121°42'18.00018". ELEVATION 566.57, NAVD 88,

CALIFORNIA HPGN MONUMENT 04 FK, CALIFORNIA COORDINATE SYSTEM, ZONE 3. NORTH 2,055,842.44 - EAST 6,189,298.07, LAT N37°38'02.07933", W121°47'09.51080" ELEVATION 637.80NAVD 88,

**INSTRUMENTATION:** 

TRIMBLE GPS, MODEL 5800 AND LEICA TCA 1800, 1" HORZ. & VERT. OBSERVATION: EPOCH = 180.

FIELD SURVEY: JUNE 03, 2005.

BEN HARRINGTON PLS 5132

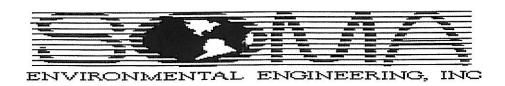


LIVERMORE, CA.

#### HARRINGTON SURVEYS INC. 2278 LARKEY LANE, WALNUT CREEK CA. 925-935-7228

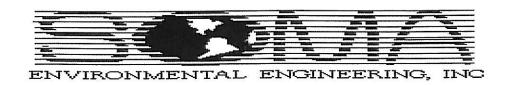
JOB#2528 6-**0**5-05

	IONE, CA.		1,000			
PT. #	NORTH	EAST	ELEV	LATITUDE	LONGITUDE	
1	2085287.52	6213127.18	566.57	37ø42'56.31176"N	121ø42'18.00017"W	FD. 04 FL HPGN
2	2085287.52	6213127.18	566.57	37ø42'56.31175"N	121ø42'18.00016"W	FD. 04 FL HPGN
10	2066759.37	6206469.09	615.16	37ø39'52.28484"N	121ø43'37.83506"W	MW-1 V N. PVC
11	2066759.71	6206469.01	615.52	37ø39'52.28825"N	121ø43'37.83609"W	MW-1 PUNCH N RIM
12	2066753.85	6206471.51	615.55	37ø39'52.23057"N	121ø43'37.80414"W	BLG COR
13	2066753.67	6206512.16	615.56	37ø39'52.23412"N	121ø43'37.29847"W	BLG COR
14	2066628.15	6206469.65	616.03	37ø39'50.98763"N	121ø43'37.80672"W	MW-2 V N. PVC
15	2066628.55	6206469.61	616.38	37ø39'50.99158"N	121ø43'37.80724"W	MW-2 PUNCH N. RIM
16	2066632.94	6206516.64	616.48	37ø39'51.04109"N	121ø43'37.22314"W	5.0 E BLG COR
17	2066600.85	6206566.19	617.32	37ø39'50.73030''N	121ø43'36.60162"W	MW-3 V N. PVC
18	2066601.16	6206566.10	617.54	37ø39'50.73332"N	121ø43'36.60286"W	MW-3 PUNCH N. RIM
19	2066610.25	6206564.10	617.64	37ø39'50.82300"N	121ø43'36.62917"W	FC COR
20	2066604.40	6206549.81	617.66	37ø39'50.76325"N	121ø43'36.80598"W	FC COR
21	2066629.00	6206539.65	617.75	37ø39'51.00516"N	121ø43'36.93629"W	FC COR
22	2066634.86	6206554.19	617.86	37ø39'51.06493"N	121ø43'36.75646"W	FC COR
3	2080138.47	6208815.78	552.46	37ø42'04.85555"N	121ø43'10.81967"W	FD. Z 927
4	2080138.48	6208815.77	552.45	37ø42'04.85566"N	121ø43'10.81976"W	FD. Z 927
5	2055842.44	6189298.07	637.79	37ø38'02.07930"N	121ø47'09.51084"W	FD. 4 FK HPGN
6	2055842.43	6189298.07	637.82	37ø38'02.07924"N	121ø47'09.51088"W	FD. 4 FK HPGN
7	2066813.66	6206542.08	615.00	37ø39'52.83104"N	121ø43'36.93627"W	SET RB\GATE
8	2066813.64	6206542.08	614.98	37ø39'52.83084"N	121ø43'36.93616"W	SET RB\GATE
9	2066806.93	6206470.38	615.04	37ø39'52.75518"N	121ø43'37.82678"W	SET 6.D NW YARD
23	2066806.93	6206470.38	615.07	37ø39'52.75523"N	121ø43'37.82680"W	SET 6.D NW YARD
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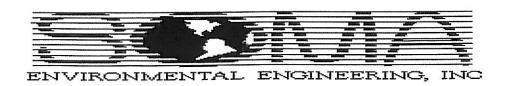
Well No.:	mu	<u>/</u>			P	roject No.:	2841
Casing Diameter:		يم	inch			Address:	Wente Vineyards
Depth of Well:		5	_ft				5565 Tesla Rd, Livermore
Top of Casing Elevation:	6/	5.16	_ft			Date:	11/2/06
Depth to Groundwater:	8.	97	_ft			Sampler:	Tony Perini
Groundwater Elevation:	60	6.19	_ft				24-4 72.5 · · · · · ·
Water Column Height:	6.	03	_ft				
Purged Volume:		8	gallons				
Purging Method:	Baile	r 🗆				Pump ☑	
Sampling Method:	Baile	r 🗹				Pump	
Color:	No			Yes		Describe	
Sheen:	No			Yes		Describe	
Odor:	No			Yes		Describe	

Time	Volume	D.O.	рН	Temp	E.C.	Turb.	ORP
	(gallons)	mg/L		°C	(μS/cm)	NTU	
12:11 PM	Stark	s pur	9779 u	ell			
17:13 pm	1	5.24	1.90	19.43	1501	999	34
12:18 PM	4	5.45	7.76	18.91	1603	138	38
12:22 PM	6	5.22	7.40	18.96	1605	54.3	32
12:27 PM	8	4.93	7.39	18.97	1606	32.7	31
12:30 PM	samp	PKV					
	,						



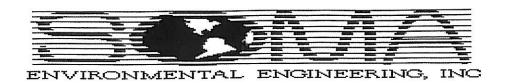
Well No.:	MW-Z	Project No.: 2841
Casing Diameter:	inch	Address: Wente Vineyards
Depth of Well:	15.00 ft	5565 Tesla Rd, Livermore
Top of Casing Elevation:	616.03 ft	Date: 11/2/06
Depth to Groundwater:	9.00 ft	Sampler: Tony Perini
Groundwater Elevation:	607.03 ft	1
Water Column Height:	<i>6.00</i> ft	
Purged Volume:	gallons	
		_
Purging Method:	Bailer □	Pump
Sampling Method:	Bailer ⊡	Pump □
camping motion.		- Lings
0.1	N	Yes Describe Muddy
Color:	No □	Yes Describe Muddy
Sheen:	No 🗹	Yes □ Describe
<b>A</b> 1		- B
Odor:	No 🖆	Yes   Describe

Time	Volume	D.O.	рН	Temp	E.C.	Turb.	ORP
	(gallons)	mg/L		°C	(μS/cm)	NTU	
12:53 PM	starte.	o fue	ging ve	//			
12:53 PM 12:5T PM	2,	4.19	25	19.61	1570	345	61
1 PM	4	5,26	7.55	19.72	1565	684	44
1:05 PM	Samp	les					



Well No.:	Mur 3	_	Project No.: 2841
Casing Diameter:	2	inch	Address: Wente Vineyards
Depth of Well:	13-40	ft	5565 Tesla Rd, Livermore
Top of Casing Elevation:	617.32	_ft	<b>Date:</b> 11/2/06
Depth to Groundwater:	9-39	_ft	Sampler: Tony Perini
Groundwater Elevation:	607.93	_ft	
Water Column Height:	4.01	_ft	
Purged Volume:		gallons	
Purging Method:	Bailer □		Pump 🗹
Sampling Method:	Bailer 🗆		Pump □
Color:	No □	Yes	Describe cloudy
Sheen:	No 🗹	Yes	□ Describe
Odor:	No 🗹	Yes	□ Describe

Time	Volume	D.O.	рН	Temp	E.C.	Turb.	ORP
	(gallons)	mg/L		°C	(μS/cm)	NTU	
1:27 pm	Startes	Rug	ray uc	//			
1:30 pm	2-	5.05	7.44	19.66	1654	999	93
1:33 Pm	4	4.80	7.26	20.24	1648	195	117
1:38 PM	7	4.76	7.29	21.03	1605	63.5	17
1:40 PM	San	efles					
		,					

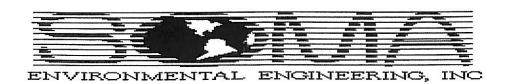


	1	11	!/		_	!4 NI	0044
Well No.:	He rug	119 0	ieu		P	roject No.:	
Casing Diameter:	<u> </u>	•	_inch			Address:	Wente Vineyards
Depth of Well:	NA	1	_ft				5565 Tesla Rd, Livermore
Top of Casing Elevation:	NS		_ft			Date:	11/2/06
Depth to Groundwater:	NI	N	_ft			Sampler:	Tony Perini
Groundwater Elevation:	NO		_ft				Marie and The Application of the
Water Column Height:	NI	n	_ft				
Purged Volume:	28	Y	_gallons				
Purging Method:	Bailer <sup>[</sup>	<b>J</b>				Pump □	_
Sampling Mathad	Bailer I	П				Pump II	-
Sampling Method:	Daller					rump =	
		_					
Color:	No 🗵	3		Yes		Describe	
Sheen:	No 🗷			Yes	П	Describe	
Oliceli.	140	-		163	ш	Describe	
Odor:	No 🖻	3		Yes		Describe	

Time	Volume	D.O.	рН	Temp	E.C.	Turb.	ORP
	(gallons)	mg/L		°C	(μS/cm)	NTU	
1052 AM	s-tartes	prog.	my we				
1052 AM 1056 AM	8	6.43	7.67	18.31	1512	16.6	154
11 Am	16	5.02	253	17.51	1524	6.10	140
1105 AM	24	5.56	7.60	17.29	1524	2.42	24
1110 Am	28	5.38	7.60	17.40	1528	1.99	74
1113 Am	Samp	les					

Notes:	
nc-not	calculates
	Measures

ns: not surveyes



Well No.:	site supply	well		Proj	<b>ect No.:</b> 28	41
Casing Diameter:		_inch		A	ddress: W	ente Vineyards
Depth of Well:	NM	_ft			55	65 Tesla Rd, Livermore
Top of Casing Elevation:	NS	_ft			Date: 11	/2/06
Depth to Groundwater:	NM	_ft		S	<b>ampler:</b> To	ny Perini
Groundwater Elevation:	NO	_ft			v )	1 4978-51
Water Column Height:	NM	_ft				
Purged Volume:	30	_gallons				
Purging Method:	Bailer □			P	ump 🗆	
Sampling Method:	Bailer □			D	ump 🗹	
Sampling Method.	Dallel 🗆			r	ишь —	
	_					
Color:	No 🗆		Yes		escribe	
Sheen:	No 🗹		Yes	□ <b>D</b> ∈	escribe	
			.00		0001100	
Odor:	No 🗹		Yes	□ <u>D</u>	escribe	

Time	Volume	D.O.	рН	Temp	E.C.	Turb.	ORP
- 18 - L.	(gallons)	mg/L		°C	(μS/cm)	NTU	
9:57 AM	1 tart	B pu	vaina	nell			
10:03 Am	8	5.75	7.01	19.06	1552	35.4	302
10:08 AM	16	5.62	7.28	18.34	1533	56.7	220
10:14 AM	24	5.98	7.45	18.32	1542	98.8	188
10:19 Am	30	5.68	2.48	18.21	1584	295	12
10:25 AM	Lann	Ples					

nc-not calculates us-not surveyes NM- not measures

# **Appendix C**



#### Mansour Sepehr

From: Aris Krimetz [aris@wentevineyards.com]

Sent: Thursday, February 16, 2006 5:06 PM

To: Mansour Sepehr (E-mail)

Subject: 5443 Tesla Road

#### Mansour-

According to documents provided by the previous owner, the total depth of the well is 125', and the pump is at 100'. It was installed about 1972 by the previous owner. We only re-piped on the well discharge side and connected it to the irrigation system, removing it from the potable system when we purchased the property in 1995/96. The potable water for the property is supplied from a municipal source.

#### Aris Krimetz

Director of Engineering Wente Vineyards 5565 Tesla Road Livermore, CA 94550 Office: 925 456 2313

Cell: 925 519 9010 arisk@wentevineyards.com www.wentevineyards.com

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# **Appendix D**

Chain of Custody Form and Laboratory Report



# Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

### ANALYTICAL REPORT

## Prepared for:

SOMA Environmental Engineering Inc. 6620 Owens Dr. Suite A Pleasanton, CA 94588

Date: 29-NOV-06 Lab Job Number: 190537

Project ID: 2841

Location: 5565 Tesla Rd, Livermore

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by:

Reviewed by:

Operations/Manager

This package may be reproduced only in its entirety.

NELAP # 01107CA

Page 1 of 25



### CASE NARRATIVE

Laboratory number:

190537

Client:

SOMA Environmental Engineering Inc.

Project:

2841

Location:

5565 Tesla Rd, Livermore

Request Date:

11/02/06

Samples Received:

11/02/06

This hardcopy data package contains sample and QC results for five water samples, requested for the above referenced project on 11/02/06. The samples were received cold and intact.

#### TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

#### Volatile Organics by GC/MS (EPA 8260B):

No analytical problems were encountered.

#### Metals (EPA 6010B):

No analytical problems were encountered.

# CHAIN OF CUSTODY

Page of

Curtis & Tompkins, Ltd.

**Analytical Laboratory Since 1878** 2323 Fifth Street Berkeley, CA 94710 (510)486-0900 Phone (510)486-0532 Fax

C&T LOGIN #\_190537

**Analyses** 

scavengers

ead

ॐ

Project No: 2841

Project Name: 5565 Tesla Rd, Livermore

Turnaround Time: Standard

Report To: Tony Perini

Company: SOMA Environmental

Sampler: TONY PERINT

Telephone: 925-734-6400

925-734-6401

Volatile Organics (full 8260B list) Oxygenates TPH-d / TPH-mo Fax: TPH-g 8260B Matrix **Preservative** Gasoline ( Soil Water Waste HCL H<sub>2</sub>SO<sub>4</sub> HNO3 Lab Sampling Date Metals # of ICE Sample ID. Time No. Containers 4-VOAs/1L 11/206 1025 AM Off-site Supply Well K Amber/ 250 ml Poly 5-VOAs/1L On-site Supply Well 1 Amber/ 250 1113 Am ml Poly **⋬**-VOAs/ 1-L MW-1 123000 Amber 4-VOAs/1-L 105 800 MW-2 Amber \_**4**-VOAs/ 1-L 140 PM MW-3 Amber

Notes: EDF OUTPUT REQUIRED

Metals for supply wells

Metals include cadmium, chromium, lead nickel, and zinc

GasOx to include ethanol

-THF Fiker using 0.45 mirro filk **RELINQUISHED BY:** 

11/2/06 Tony Peini ZISTMATEITIME MAG

RECEIVED BY:

11/2/06/15/ DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME



Total Extractable Hydrocarbons

190537 5565 Tesla Rd, Livermore EPA 3520C Lab #: Location:

Client: SOMA Environmental Engineering Inc. Prep: Project#: 2841 Analysis: EPA 8015B

11/02/06 11/02/06 Matrix: Water Sampled: ug/L Units: Received: Diln Fac: 1.000

Field ID: OFF-SITE SUPPLY WELL Prepared: 11/08/06 SAMPLE Analyzed: Type:

11/12/06 Lab ID: 190537-001 Cleanup Method: EPA 3630C

Batch#: 119220

Analyte Result RL Diesel Cl0-C24 ND 50 Motor Oil C24-C36 ND300

Surrogate %REC Limits Hexacosane 86 65-130

Field ID:

ON-SITE SUPPLY WELL Batch#:

119220 11/08/06 11/09/06 SAMPLE Type: Prepared: Lāb ID: 190537-002 Analyzed:

Analyte Result RL Diesel Cl0-C24 50

Motor Oil C24-C36 ND 300 Surrogate %REC Limits

Hexacosane 65-130 104

Field ID: Type:

MW-1

Lab ID: Batch#: 119178

Analyzed: SAMPLE 11/12/06 190537-003 Cleanup Method: EPA 3630C

Analyte Result RL Diesel C10-C24 ND 50 Motor Oil C24-C36 ND 300

Surrogate | Hexacosane %REC Limits 65-130 79

Field ID:

MW-2 SAMPLE

Туре: Lab ID: 190537-004 Batch#:

Prepared:

Prepared:

119178 11/07/06

11/07/06

Analyzed: 11/08/06

Analyte Result RL Diesel C10-C24 Motor Oil C24-C36 50 300 ND ND

Surrogate %REC Limits Hexacosane 65-130

ND= Not Detected RL= Reporting Limit Page 1 of 2



Total Extractable Hydrocarbons 5565 Tesla Rd, Livermore EPA 3520C 190537 Location: Lab #: Prep: Analysis: Client: SOMA Environmental Engineering Inc. Project#: 2841 EPA 8015B 11/02/06 11/02/06 Matrix: Water Sampled: ug/L 1.000 Units: Received: Diln Fac:

Field ID:

MW-3 SAMPLE

190537-005

Type: Lab ID:

Batch#: 119220 Prepared: Analyzed:

11/08/06 11/12/06 EPA 3630C Cleanup Method:

Analyte	Result	RL	
Diesel C10-C24	ND	50	
Motor Oil C24-C36	ND	300	

Surrogate	%REC	Limits	
Hexacosane	89	65-130	

Type: Lab ID: Batch#:

BLANK OC363438 Prepared: Analyzed:

11/07/06 11/08/06 EPA 3630C

Batch#:	119178		Cleanup	Method:	EPA
	Analyte	Result		RL	010010 K030
Diesel C10-	C24	ND		50	
Motor Oil C	24-C36	ND		300	

	· · · · · · · · · · · · · · · · · · ·
Q-Dur∕*	I Limits
01/11/	- minico
0.1	
94	65-130
	92

Type: Lab ID: Batch#:

BLANK QC363611 Ĩ19220

Prepared: Analyzed:

Cleanup Method:

11/08/06 11/09/06 EPA 3630C

Analyte	Result	
Diesel C10-C24	ND	50
Motor Oil C24-C26	MID	200

Surrogate	%REC	Limits	
Hexacosane	98	65-130	



	Total Extracta	able Hydrocarb	ons
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	2841	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	119178
Units:	ug/L	Prepared:	11/07/06
Diln Fac:	1.000	Analyzed:	11/08/06

Type:

BS

Cleanup Method: EPA 3630C

Lab ID:

QC363439

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,644	106	61-133

Surrogate	%REC	Limits
Hexacosane	106	65-130

Type:

BSD

Cleanup Method: EPA 3630C

Lab ID:

QC363440

Analyte	Spiked	Result	%REC	' Limits	RPD	Lim
Diesel C10-C24	2,500	2,419	97	61-133	9	31

Surrogate	%REC	Limits	
Hexacosane	97	65-130	



	То	tal Extracta	ble Hydroca	rbons
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Eng	gineering Inc.	Prep:	EPA 3520C
Project#:	2841	•	Analysis:	EPA 8015B
Type:	LCS		Diln Fac:	1.000
Lab ID:	QC363612		Batch#:	119220
Matrix:	Water		Prepared:	11/08/06
Units:	ug/L		Analyzed:	11/09/06

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,393	96	61-133

Surrogate	%rec	Limits	
Hexacosane	102	65-130	



	Total Extracta	able Hydrocar	rbons
Lab #: 190	537	Location:	5565 Tesla Rd, Livermore
Client: SOM	A Environmental Engineering Inc.	Prep:	EPA 3520C
Project#: 284	1	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	119220
MSS Lab ID:	190462-006	Sampled:	10/31/06
Matrix:	Water	Received:	10/31/06
Units:	ug/L	Prepared:	11/08/06
Diln Fac:	1.000	Analyzed:	11/09/06

Type:

MS

Cleanup Method: EPA 3630C

Type: MS Lab ID: QC363613

Analyte	MSS Result	Spiked	Result	%RE	C Limits
Diesel C10-C24	<26.24	2,500	2,503	100	55-134

Surrogate	%REC	Limits	
Hexacosane	105	65-130	

Type:

MSD

Cleanup Method: EPA 3630C

Lab ID:

QC363614

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,812	112	55-134	12	27

Hexacosane 116 65-130	Surrogate	%REC		
	Hexacosane	116	65-130	



	Gasoline	by GC/MS	
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2841	Analysis:	EPA 8260B
Field ID:	OFF-SITE SUPPLY WELL	Batch#:	119301
Lab ID:	190537-001	Sampled:	11/02/06
Matrix:	Water	Received:	11/02/06
Units:	${ m ug/L}$	Analyzed:	11/10/06
Diln Fac:	1.000	*	,

Analyte	Result	RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND ND	
1,1-Dichloroethene		0.5
Mathalana Ghlanida	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ИD	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	
Dibromomethane		0.5
	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	
	ND ND	0.5
1,2,3-Trichloropropane	N.U.	0.5

ND= Not Detected RL= Reporting Limit Page 1 of 2



	Gasoline	by GC/MS	
	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2841	Analysis:	EPA 8260B
Field ID:	OFF-SITE SUPPLY WELL	Batch#:	119301
Lab ID:	190537-001	Sampled:	11/02/06
Matrix:	Water	Received:	11/02/06
Units:	${ m ug/L}$	Analyzed:	11/10/06
Diln Fac:	1.000	*	, ,,,,,

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
l,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

1,2-Dichloroethane-d4 97 80-130	Surrogate	%REC	2 Limits
Toluene-d8 99 80-120	Dibromofluoromethane	99	80-120
	1,2-Dichloroethane-d4	97	80-130
Bromofluorobenzene 99 80-122	Toluene-d8	99	80-120
	Bromofluorobenzene	99	80-122



	Gasoline	by GC/MS	
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2841	Analysis:	EPA 8260B
Field ID:	ON-SITE SUPPLY WELL	Batch#:	119301
Lab ID:	190537-002	Sampled:	11/02/06
Matrix:	Water	Received:	11/02/06
Units:	ug/L	Analyzed:	11/10/06
Diln Fac:	1.000	<u> </u>	

Analyte	Result	RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	
Acetone	ND	1.0
Freon 113		10
ľ	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	
Dibromomethane		0.5
4-Methyl-2-Pentanone	ND ND	0.5
		10 _
cis-1,3-Dichloropropene	ИD	0.5
	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ИD	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
<u>, , , , , , , , , , , , , , , , , , , </u>	×	U. J

ND= Not Detected RL= Reporting Limit Page 1 of 2



		by GC/MS	
	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2841	Analysis:	EPA 8260B
Field ID:	ON-SITE SUPPLY WELL	Batch#:	119301
Lab ID:	190537-002	Sampled:	11/02/06
Matrix:	Water	Received:	11/02/06
Units:	ug/L	Analyzed:	11/10/06
Diln Fac:	1.000	<u> </u>	,,

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

Surrogate	%REC	Limits	1300,000
Dibromofluoromethane	102	80-120	******
1,2-Dichloroethane-d4	103	80-130	- 1
Toluene-d8	99	80-120	
Bromofluorobenzene	99	80-122	[



		Gasoline	by GC/MS	
Lab #:	190537		Location:	5565 Tesla Rd. Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
Project#:	2841		Analysis:	EPA 8260B
Field ID:	MW-1		Batch#:	119301
Lab ID:	190537-003		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analyzed:	11/10/06
Diln Fac:	1.000			

Analyte	Result	RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ИD	0.5
Methylene Chloride	ИD	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ИD	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5

ND= Not Detected RL= Reporting Limit Page 1 of 2



		Gasoline	by GC/MS	
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
Project#:		3	Analysis:	EPA 8260B
Field ID:	MW - 1		Batch#:	119301
Lab ID:	190537-003		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analyzed:	11/10/06
Diln Fac:	1.000			,

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

Surrogate	%REC	! Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	104	80-130
Toluene-d8	100	80-120
Bromofluorobenzene	98	80-122



		Gasoline	by GC/MS	
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
	2841	5	Analysis:	EPA 8260B
Field ID:	MW-2		Batch#:	119301
Lab ID:	190537-004		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analvzed:	11/10/06
Diln Fac:	1.000		4	,,

Analyte	Result	RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	
Bromomethane		0.5
	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND ND	
		0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND ND	
Styrene	ND ND	0.5
		0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5

ND= Not Detected RL= Reporting Limit

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		Gasoline	by GC/Ms	
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
Project#:	2841		Analysis:	EPA 8260B
Field ID:	MW-2		Batch#:	119301
Lab ID:	190537-004		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analyzed:	11/10/06
Diln Fac:	1.000		<b>3</b>	,,

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	106	80-130
Toluene-d8	98	80-120
Bromofluorobenzene	98	80-122



		Gasoline	by GC/MS	
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
	2841	2 3	Analysis:	EPA 8260B
Field ID:	MW - 3		Batch#:	119301
Lab ID:	190537-005		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analyzed:	11/10/06
Diln Fac:	1.000			

Analyte		sult RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	
1,1-Dichloroethene		0.5
Methylene Chloride	ND	0.5
Carbon Disulfide	ND	10
	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	
4-Methyl-2-Pentanone	ND	0.5
cis-1,3-Dichloropropene	ND	10
Toluene		0.5
	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
——————————————————————————————————————		

ND= Not Detected RL= Reporting Limit Page 1 of 2



		Gasoline	by GC/MS	
	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B
	2841		Analysis:	EPA 8260B
Field ID:	MW - 3		Batch#:	119301
Lab ID:	190537-005		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Analyzed:	11/10/06
Diln Fac:	1.000		4	,,

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

Surrogate	%REC	Limits	0000000
Dibromofluoromethane	102	80-120	<u>Segetioner</u>
1,2-Dichloroethane-d4	108	80-130	
Toluene-d8	100	80-120	
Bromofluorobenzene	99	80-122	



		Gasoline by GC/MS	
	0537 MA Environmental Engind 41	Location: eering Inc. Prep: Analysis:	5565 Tesla Rd, Livermore EPA 5030B EPA 8260B
Type: Lab ID: Matrix: Units:	BLANK QC363949 Water ug/L	Diln Fac: Batch#: Analyzed:	1.000 119301 11/10/06

Analyte	Result	RL
Gasoline C7-C12	ND	50
Freon 12	ND	1.0
tert-Butyl Alcohol (TBA)	ND	10
Chloromethane	ND	1.0
Isopropyl Ether (DIPE)	ND	0.5
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Ethyl tert-Butyl Ether (ETBE)	ND	0.5
Chloroethane	ND	1.0
Methyl tert-Amyl Ether (TAME)	ND	0.5
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	0.5
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	
MTBE		0.5
	ND	0.5
trans-1,2-Dichloroethene Vinyl Acetate	ND	0.5
	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	
Isopropylbenzene	ND	1.0
1,1,2,2-Tetrachloroethane		0.5
	ND	0.5
1,2,3-Trichloropropane	ND	0.5

ND= Not Detected RL= Reporting Limit Page 1 of 2



		Gasoline	by GC/MS	
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering inc.	Prep:	EPA 5030B
Project#:	2841		Analysis:	EPA 8260B
Type:	BLANK		Diln Fac:	1.000
Type: Lab ID:	QC363949		Batch#:	119301
Matrix:	Water		Analyzed:	11/10/06
Units:	ug/L			

Analyte	Result	RL
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5
Tetrahydrofuran	ND	100

Surrogate	%REC	Limits	
Dibromofluoromethane	96	80-120	
1,2-Dichloroethane-d4	95	80-130	
Toluene-d8	97	80-120	
Bromofluorobenzene	98	80-122	



Gasoline	by GC/MS	
Lab #: 190537 Client: SOMA Environmental Engineering Inc. Project#: 2841	Location: Prep: Analysis:	5565 Tesla Rd, Livermore EPA 5030B EPA 8260B
Matrix: Water Units: ug/L Diln Fac: 1.000	Batch#: Analyzed:	119301 11/10/06

Type:

BS

Lab ID: QC363945

Analyte	Spiked	Result	%REC	' Limits
tert-Butyl Alcohol (TBA)	125.0	108.6	87	64-141
Isopropyl Ether (DIPE)	25.00	18.02	72	68-123
Ethyl tert-Butyl Ether (ETBE)	25.00	23.84	95	77-129
Methyl tert-Amyl Ether (TAME)	25.00	22.24	89	77-120
1,1-Dichloroethene	25.00	28.33	113	77-128
Benzene	25.00	24.09	96	80-120
Trichloroethene	25.00	25.63	103	80-120
Toluene	25.00	24.92	100	80-120
Chlorobenzene	25.00	23.68	95	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-120
1,2-Dichloroethane-d4	98	80-130
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-122

Type:

BSD

Lab ID: QC363946

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
tert-Butyl Alcohol (TBA)	125.0	102.1	82	64-141	6	22
Isopropyl Ether (DIPE)	25.00	16.92	68	68-123	6	20
Ethyl tert-Butyl Ether (ETBE)	25.00	23.01	92	77-129	4	20
Methyl tert-Amyl Ether (TAME)	25.00	21.58	86	77-120	3	20
1,1-Dichloroethene	25.00	26.96	108	77-128	5	20
Benzene	25.00	22.70	91	80-120	6	20
Trichloroethene	25.00	23.39	94	80-120	9	20
Toluene	25.00	23.06	92	80-120	8	20
Chlorobenzene	25.00	22.50	90	80-120	5	20



	Gasoline	by GC/MS	
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2841	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	119301
Units:	ug/L	Analyzed:	11/10/06
Diln Fac:	1.000		

Type:

BS

Lab ID:

QC363947

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,056	106	70-130

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-120
1,2-Dichloroethane-d4	106	80-130
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-122

Type:

BSD

Lab ID:

QC363948

Analyt	e Spiked	Result	%REC	Limits	RPD	) Lim
Gasoline C7-C12	1,000	1,101	110	70-130	4	20

Surrogate	%REC	Limits	861030010360
Dibromofluoromethane	97	80-120	Maintagh and ja.
1,2-Dichloroethane-d4	101	80-130	
Toluene-d8	100	80-120	
Bromofluorobenzene	96	80-122	



	Dissolve	d Metals Analytical	Report
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Enginee:	ring Inc. Prep:	EPA 3010A
Project#:	2841	Analysis:	EPA 6010B
Units:	ug/L	Received:	11/02/06
Diln Fac:	1.000	Prepared:	11/06/06
Batch#:	119088	Analyzed:	11/07/06
Sampled:	11/02/06		

Field ID:

OFF-SITE SUPPLY WELL

Lab ID:

190537-001

Type:

SAMPLE

Matrix:

Filtrate

Analyte	Result	RL	
Cadmium	ND	5.0	
Chromium	ND	10	
Lead	ND	3.0	
Nickel	ND	20	
Lead Nickel Zinc	1,300	20	

Field ID:

ON-SITE SUPPLY WELL

Lab ID:

190537-002

Type: SAMPLE

Matrix:

Filtrate

Analyte	Result	RL	
Cadmium	ND	5.0	
Chromium	ND	10	
Lead Nickel Zinc	ND	3.0	
Nickel	ND	20	
Zinc	ND	20	

Type:

BLANK

Matrix:

Water

Lab ID:

QC363072

Analyte	Result	RL.	
	ND	5.0	
Cadmium   Chromium	ND	10	
Lead	ND	3.0	
Nickel	ND	20	
Lead Nickel Zinc	ND	20	

ND= Not Detected

RL= Reporting Limit

Page 1 of 1



	Dissolved Metals	Analytical Re	eport .
Lab #:	190537	Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3010A
Project#:	2841	Analysis:	EPA 6010B
Matrix:	Water	Batch#:	119088
Units:	ug/L	Prepared:	11/06/06
Diln Fac:	1.000	Analyzed:	11/07/06

Type:

BS

Lab ID: QC363073

Analyte	Spiked	Result	%REC	Limits
Cadmium	50.00	52.13	104	80-120
Chromium	200.0	204.3	102	80-120
Lead	100.0	98.29	98	80-120
Nickel	500.0	489.3	98	80-120
Zinc	500.0	518.4	104	80-120

Type:

BSD

Lab ID: QC363074

Analyte	Spiked	Result	%REC	Limits	RPI	) Lim
Cadmium	50.00	52.44	105	80-120	1.	20
Chromium	200.0	204.9	102	80-120	0	20
Lead	100.0	98.42	98	80-120	0	20
Nickel	500.0	491.6	98	80-120	0	20
Zinc	500.0	521.1	104	80-120	1	20



	מ	issolved Metals	Analytical R	eport
Lab #:	190537		Location:	5565 Tesla Rd, Livermore
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 3010A
Project#:	2841		Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZ		Batch#:	119088
MSS Lab II	): 190551-001		Sampled:	11/02/06
Matrix:	Water		Received:	11/02/06
Units:	ug/L		Prepared:	11/06/06
Diln Fac:	1.000		Analyzed:	11/07/06

Type:

MS

Lab ID: QC363075

Analyte	MSS Result	Spiked	Result	%REC	Limits
Cadmium	<0.5500	50.00	53.13	106	80-120
Chromium	1.505	200.0	209.2	104	80-120
Lead	1.674	100.0	100.5	99	70-120
Nickel	7.014	500.0	509.6	101	77-120
Zinc	360.6	500.0	864.5	101	74-123

Type:

MSD

Lab ID:

QC363076

Analyte	Spiked	Result	%REC	Limits	RPI	) Lim
Cadmium	50.00	53.43	107	80-120	1	20
Chromium	200.0	210.2	104	80-120	0	20
Lead Nickel	100.0	104.1	102	70-120	3	20
Nickel	500.0	513.4	101	77-120	1	20
Zinc	500.0	871.4	102	74-123	1	20