SOMA
ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive, Suite A • Pleasanton, CA 94588
TEL (925)734-6400 • FAX (925)734-6401
www.somaenv.com

December 18, 2013

Ms. Karel Detterman
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Site Location: 6501 Shattuck Avenue, Oakland, CA
Fuel Leak Case No. RO0003066

Dear Ms. Detterman:

SOMA's "Fourth Quarter 2013 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 questions or comments.

Sincerely,

Mansour Sepehr, Ph.D.,PE
Principal Hydrogeologist

cc: Mr. Athan Magganas w/report enclosure

Fourth Quarter 2013
Groundwater Monitoring Report

6501 Shattuck Avenue
Oakland, California

December 18, 2013

Project 5031

Prepared for

Bruder LLC
2550 Appian Way,Suite 201
Pinole, California, 94564

SOMA ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 www.somaenv.com

PERJURY STATEMENT

Site Location: 6501 Shattuck Avenue, Oakland, California

"I declare under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge".

A. Magganas MNGR

Bruder LLC
Athan Magganas
2550 Appian Way, Suite 201
Pinole, California 94564

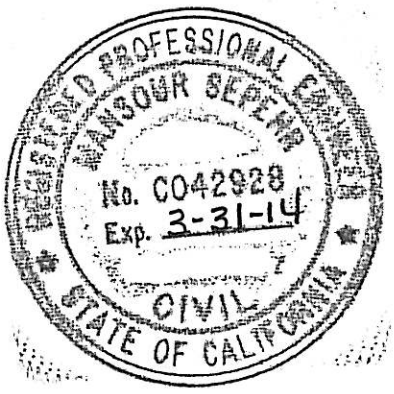
Q4 2013 Monitoring Report

Dec 18, 2013

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this document for Bruder LLC, at the request of Bruder LLC property owner Mr. Athan Magganas, for the property located at 6501 Shattuck Avenue in Oakland, California to comply with requirements of the Alameda County Environmental Health Department (ACEHD) for the Fourth Quarter 2013 groundwater monitoring event.

Mansour Sepehr, PhD, PE
Principal Hydrogeologist



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1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Bruder LLC property owner, Mr. Athan Magganas, for the site located at 6501 Shattuck Ave., Oakland, California. The site is located at the northwest quadrant of the intersection of Shattuck Avenue and 65th Street near the common municipal limits of Oakland and Berkeley, approximately 3.25 miles north-northeast of the downtown Oakland commercial district. Former underground storage tank (UST) locations and site features are shown in Figure 2.

This report summarizes results of the Fourth Quarter 2013 groundwater monitoring event conducted at the site on December 4, 2013. It includes physical and chemical properties and biodegradation parameters measured in the field for each groundwater sample and laboratory analytical results for groundwater samples.

1.1 Previous Activities

According to the Phase I Environmental Site Assessment Report dated January 26, 2007, prepared for the site by RGA Environmental, the site was redeveloped from a single-family residential property to a service station in 1933. The total period of operation of the service station could not be precisely determined from available historical sources, but based on the City Directory Abstract, the service station appears to have been converted to a repair shop and used car sales facility during the mid-1980s. The facility has operated as East Bay Smog Center and Auto Repair since 2000.

In September 2009, Controlled Environmental Services (CES) obtained permits for removal of six steel USTs located at the subject site. According to the report prepared by CES, dated October 23, 2009, two 1,000-gallon gasoline USTs, three 2,000-gallon gasoline USTs, and one 500-gallon waste oil UST were removed.

In June 2011, SOMA advanced six soil borings, B-4 through B-9, and collected soil and groundwater samples for analysis of TPHs and VOCs. Based on results of soil and groundwater investigation conducted in the vicinity of the former USTs, it was determined that petroleum-hydrocarbon contamination still exists in soil and groundwater beneath the site.

In October 2011, remedial excavation was conducted at the site. A total of 770 tons of PHC-impacted soils were excavated and disposed of off-site at Potrero Hills Landfill. The excavated area was backfilled and compacted with pre-tested clayey backfill material. Confirmation soil sampling indicated that all shallow

residual PHC soil contamination has been removed from the area in the vicinity of former USTs.

1.2 Summary of Field Activities and Laboratory Analysis

1.2.1 Field Activities

On December 4, 2013, three monitoring wells (MW-1, MW-2, and MW-3) were measured for depth to groundwater. Additional field measurements and groundwater samples were collected from all three wells. Properties measured in the field were Dissolved oxygen (DO), pH, temperature, electrical conductivity (EC), turbidity, and oxidation and reduction potential (ORP). This monitoring event was conducted in accordance with procedures and guidelines of Alameda County Environmental Health Department (ACEHD).

To evaluate the state of biodegradation processes in the subsurface, biodegradation parameters such as dissolved oxygen (DO), turbidity, and oxidation reduction potential (ORP) were measured.

Figure 2 shows well locations. Appendix A details groundwater monitoring procedures followed during this event.

Purged groundwater was temporarily stored on-site in a 55-gallon drum.

1.2.2 Laboratory Analysis

Curtis and Tompkins Laboratories, a California state-certified laboratory, analyzed groundwater samples for the following: TPH-g, TPH as diesel (TPH-d), and TPH as motor Oil (TPH-mo); Full list of VOCs by EPA Method 8260 (including BTEX (benzene, toluene, ethylbenzene, and total xylenes), and MtBE). TPH-g, TPH-d, and TPH-mo were analyzed using EPA Method 8015B.

2. RESULTS

Results of field measurements and laboratory analyses for the groundwater monitoring event conducted on December 4, 2013 follow below.

2.1 Field Measurements

Monitoring wells MW-1 through MW-3 were measured for depth to groundwater (Table 1). Depths ranged from 5.79 feet in MW-1 to 6.95 feet in MW-2. Groundwater elevations ranged from 122.91 feet in MW-1 to 125.11 feet in MW-3.

Figure 3 displays the groundwater elevation contour map. The groundwater flow direction is southwesterly at a gradient of approximately 0.025 feet/feet. Since the previous monitoring event (Third Quarter 2013), groundwater flow direction has remained southwesterly and the gradient has increased slightly. Appendix B shows field measurements, biodegradation parameter measurements and gradient calculations.

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 DO. Negative redox potentials indicate that contaminants in the groundwater are conducive to anaerobic biodegradation. 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. Evaluating the distribution of electron acceptors can provide evidence of where, and to what extent, hydrocarbon biodegradation is occurring.

Once stabilization of the existing aquifer was achieved, upon terminating the purge cycle at each well, DO and ORP readings were as follows: DO ranged from 1.36 mg/L in MW-1 to 1.86 mg/L in MW-3. ORP showed positive redox potentials in MW-1, MW-2 and MW-3.

2.2 Laboratory Analysis

Groundwater analytical data for this monitoring event is shown in Table 1. Appendix C includes the laboratory report and chain of custody form.

TPH-g, TPH-d, TPH-mo, and all VOCs were below laboratory reporting-limit in MW-1, MW-2, and MW-3, except for 1,2-DCA which was detected in MW-1 at a low level of 0.8 µg/L. Figure 4 shows a map of 1,2-DCA concentrations in groundwater. Since the previous monitoring event (Third Quarter 2013), 1,2-DCA has remained the same in MW-1 and all other contaminants have remained below laboratory-reporting limits.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of Fourth Quarter 2013 groundwater monitoring are summarized below.

- In general, the groundwater flow direction is southwesterly at a gradient of 0.025 feet/feet.
- All contaminant concentrations were below laboratory reporting-limits in all monitoring wells except MW-1, where 1,2-DCA was detected at a low

level of 0.8 µg/L. Since the previous monitoring event (Third Quarter 2013), 1,2-DCA has remained the same in MW-1.

- SOMA has completed four quarterly groundwater monitoring events at the site as previously recommended in the Remedial excavation report dated January 9, 2012. Based on the low to no-detect contaminant concentrations SOMA recommends adoption of no further action status for the site.

Based on the ACEHD directive, SOMA is currently preparing to install one soil boring at the site, adjacent to the former waste oil UST location. A report of findings will be submitted upon completion of field activities.

4. REPORT LIMITATIONS

This report is the summary of work done by SOMA, including observations and descriptions of site conditions. It includes analytical results produced by Curtis and Tompkins, Laboratories for the current groundwater monitoring event. Quantities and locations of wells were selected to provide the required information, but may not be completely representative of entire site conditions. All conclusions and recommendations are based on results of laboratory analysis. Conclusions beyond those specifically stated in this document should not be inferred from this report.

SOMA warrants that services were provided in accordance with generally accepted environmental engineering and consulting practices at the time of this sampling.

Figures

N

approximate scale in feet

0 50 100

Figure 1: Site vicinity map.

SOMA ENVIRONMENTAL ENGINEERING, INC.

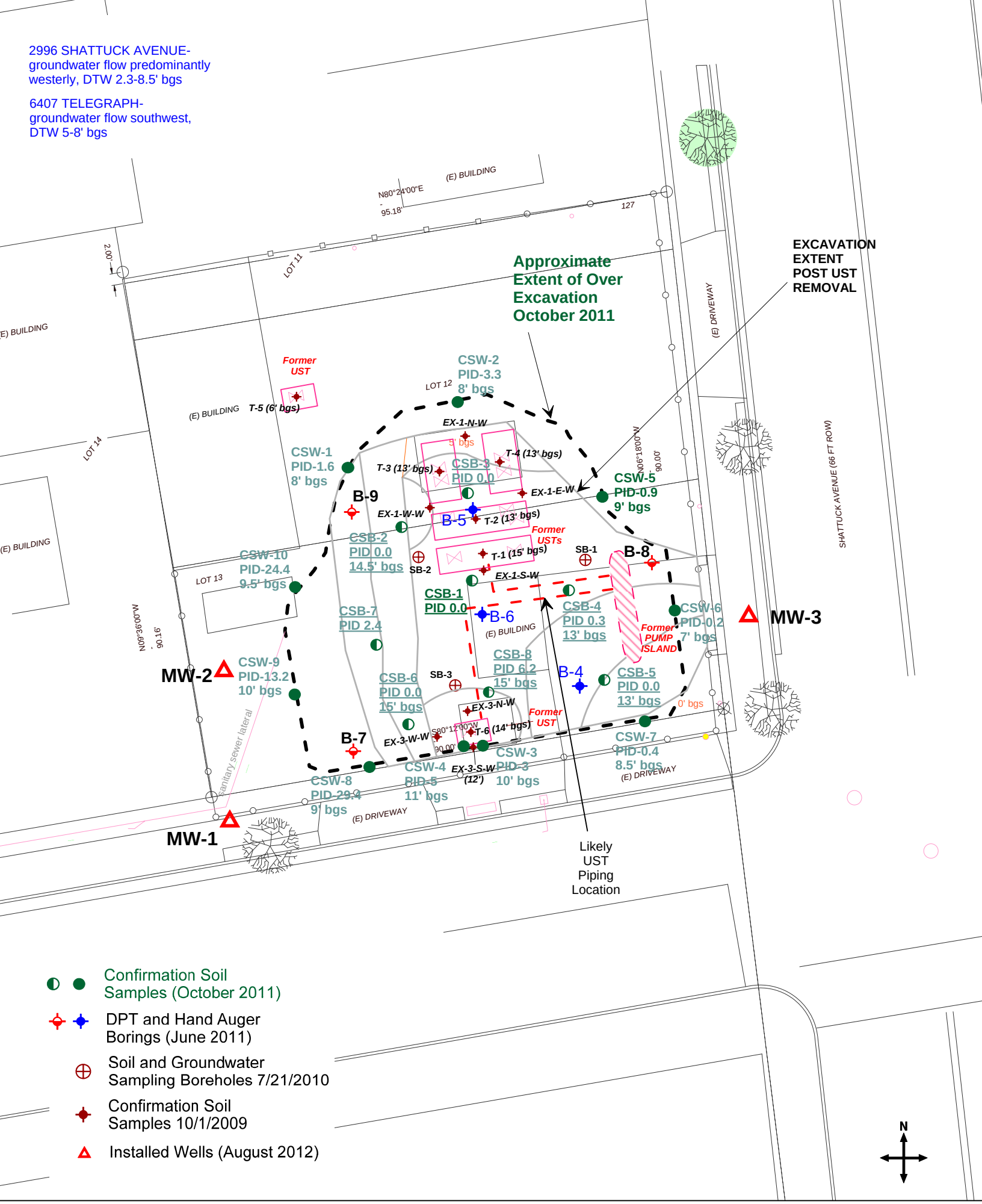


Figure 2: Site map showing excavation extent, locations of former USTs, soil borings and groundwater monitoring wells

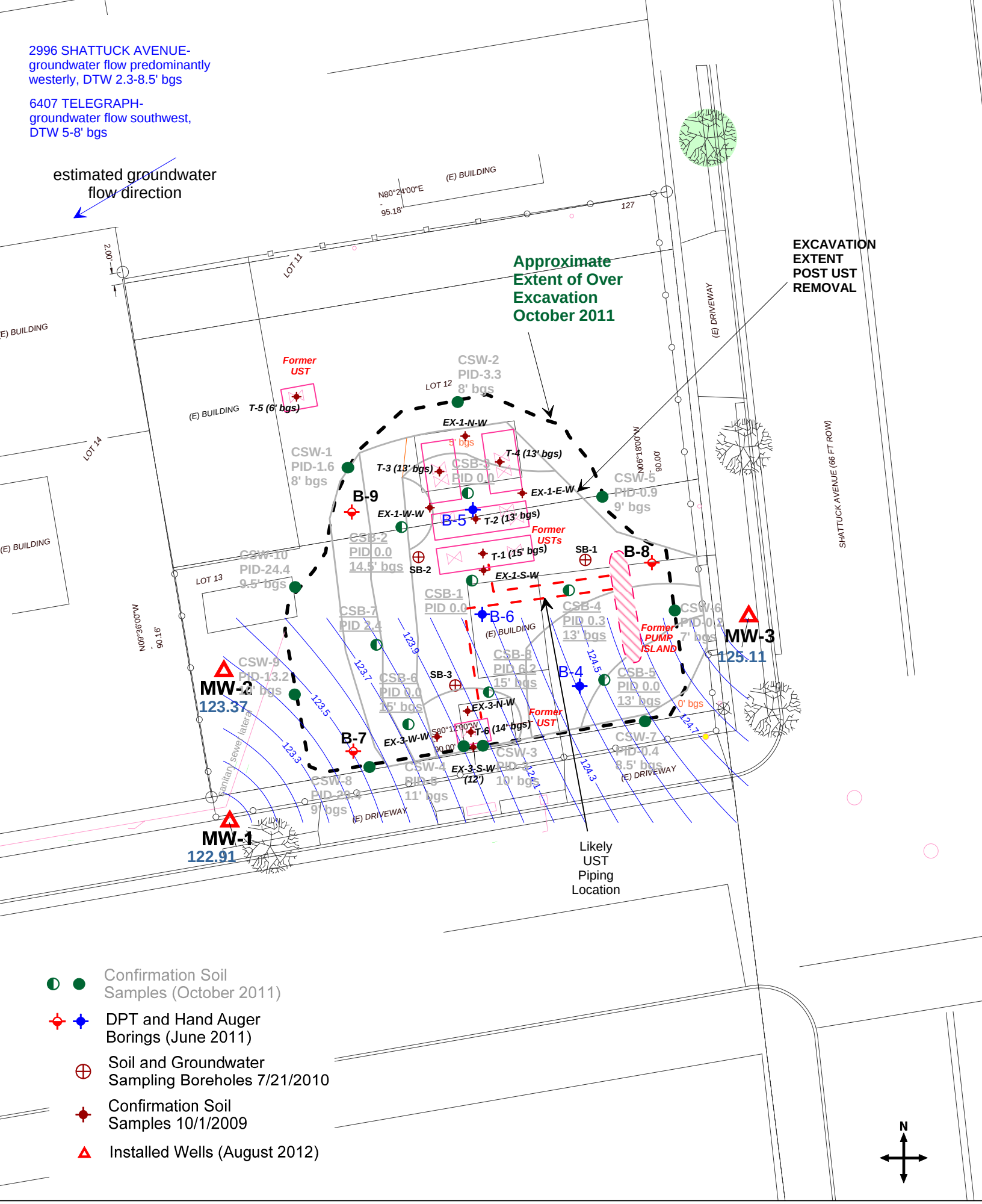


Figure 3: Groundwater elevation contour map in feet, December 4, 2013

SOMA ENVIRONMENTAL ENGINEERING, INC.

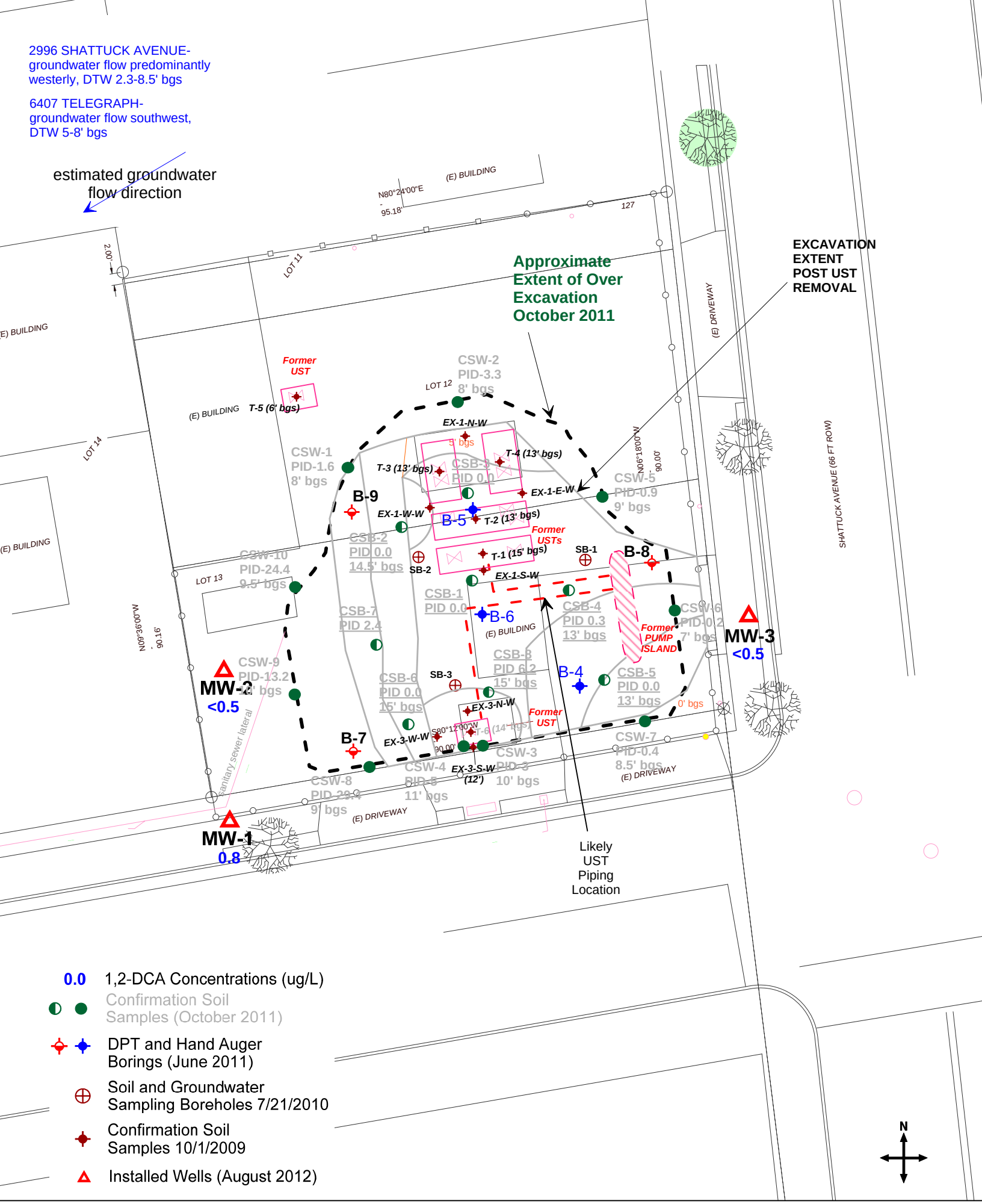


Figure 4: Map showing 1,2-DCA concentrations in groundwater, December 4, 2013

ENVIRONMENTAL ENGINEERING, INC.

Tables

Table 1
Groundwater Analytical Results
6501 Shattuck Ave, Oakland, CA

Monitoring Well	Date	Top of Casing Elevation (Ft.)	Depth to Groundwater (Ft.)	Groundwater Elevation	TPH-g µg/L	TPH-d µg/L	TPH-mo µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MtBE µg/L	1,2-DCA µg/L	EDB µg/L
MW-1	9/11/2012	128.70	6.14	122.56	<50	<52	<310	<0.5	<0.5	<0.5	<0.5	<0.5	1.30	<0.5
	12/20/2012	128.70	2.94	125.76	<50	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	0.90	<0.5
	3/25/2013	128.70	4.48	124.22	<50	<56	<330	<0.5	<0.5	<0.5	<0.5	<0.5	1.00	<0.5
	6/12/2013	128.70	5.35	123.35	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	1.00	<0.5
	9/5/2013	128.70	6.31	122.39	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	0.80	<0.5
	12/4/2013	**128.70**	**5.79**	**122.91**	**<50**	**<52**	**<310**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.80**	**<0.5**
MW-2	9/11/2012	130.32	7.81	122.51	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12/20/2012	130.32	6.61	123.71	76 [Y]	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3/25/2013	130.32	7.65	122.67	<50	<57	<340	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/12/2013	130.32	8.60	121.72	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	9/5/2013	130.32	7.62	122.70	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12/4/2013	**130.32**	**6.95**	**123.37**	**<50**	**<52**	**<310**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-3	9/11/2012	131.34	7.89	123.45	<50	<53	<320	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12/20/2012	131.34	4.55	126.79	<50	<51	<310	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3/25/2013	131.34	4.99	126.35	<50	<58	<350	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/12/2013	131.34	5.95	125.39	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	9/5/2013	131.34	6.70	124.64	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	12/4/2013	**131.34**	**6.23**	**125.11**	**<50**	**<50**	**<300**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Note:

< : Below Laboratory Reporting Limit (Method Detection Limit)

All other VOCs were below laboratory-reporting limits in groundwater samples

Appendix A

Standard Operating Procedures for Conducting Groundwater Monitoring Activities

Standard Operating Procedures for Conducting Groundwater Monitoring Activities

Water Level Measurements

Prior to measurement of groundwater depth at each well, equalization with the surrounding aquifer must be achieved. Initially, the well cap is removed and the pressure is allowed to dissipate, creating a more stable water table level within the well. After about 10-15 minutes, once the water level in the well stabilizes, the depth to groundwater is measured from the top of the casing to the nearest 0.01 foot using an electric sounder.

Purging and Field Measurements

Prior to sample collection, each well is purged using a battery-operated, 2-inch-diameter pump (Model ES-60 DC). During purging, groundwater is measured for parameters such as dissolved oxygen (DO), pH, temperature, electrical conductivity (EC), and oxygen-reduction potential (ORP) using a Hanna HI-9828 multi-parameter instrument. Turbidity is measured using a Hanna HI-98703 portable turbidimeter. The equipment is calibrated at the Site using standard solutions and procedures provided by the manufacturer.

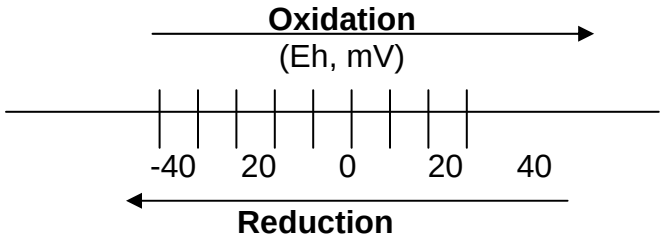
The pH of groundwater has an effect on the activity of microbial populations in the groundwater. The groundwater temperature affects the metabolic activity of bacteria. The groundwater EC is directly related to the concentration of total dissolved solids (TDS) in solution.

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 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 millivolt. 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_2 in water is low (9 mg/L at 25 ^{o}C and 11 mg/L at 5 ^{o}C), and because the rate of O_2 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 advances far enough, the environment may become so strongly reduced that the petroleum hydrocarbons 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.



Purging of wells continues until the parameters for DO, pH, temperature, EC, turbidity, and redox stabilize, or three casing volumes are purged.

Once stabilization occurs, the groundwater samples are also tested on-site for ferrous iron (Fe^{+2}), nitrate (NO_3^-), and sulfate (SO_4^{-2}) concentrations.

Fe^{+2}, NO_3^-, and SO_4^{-2} are measured colorimetrically using the Hach Colorimeter Model 890, a microprocessor-controlled photometer suitable for colorimetric testing in the laboratory or the field. The required reagents for each specific test are provided in AccuVac ampuls.

Sampling

For sampling purposes, after purging a disposable polyethylene bailer is used to collect sufficient samples from each monitoring well for laboratory analyses. Groundwater samples are transferred into 40-mL VOA vials and preserved with hydrochloric acid. The vials are sealed to prevent air bubbles from developing within the headspace. For TPH-d analysis, groundwater samples are collected using 1-L or 500-mL, amber, nonpreserved glass containers. Samples are placed in an ice-filled cooler and maintained at 4°C. A chain of custody form for all samples is prepared to accompany the samples, which are promptly delivered to a California state-certified analytical laboratory.

Appendix B

Tables of elevations and coordinates on wells, Field Measurements of Physical, Chemical and Biodegradation Parameters of the Groundwater Samples and Groundwater Gradient Calculations

DATE: 9/04/2012
JOB#

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL ENGINEERING
6501 SHATTUCK AVENUE
OAKLAND, CA 94609

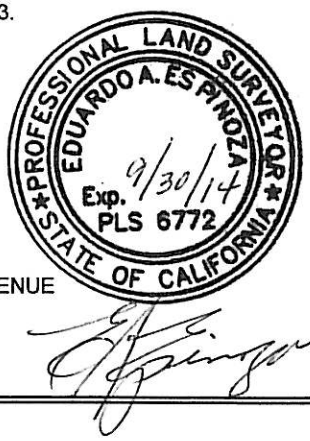
WELL ID #	NORTHING (FT.) / LATITUDE (D.DEG.)	EASTING (FT.) / LONGITUDE (D.DEG.)	ELEVATION (FT.)	DESCRIPTION
MW-1	2136901.934	6051727.243	128.70	2"PVC NOTCH NORTH SIDE
	N37.850339023	W122.266261635	129.19	SET PUNCH NORTH SIDE RIM
			129.22	CONC NORTH SIDE
MW-2	2136927.936	6051726.241	130.32	2" PVC NOTCH NORTH SIDE
	N37.850410368	W122.266266804	130.79	SET PUNCH NORTH SIDE RIM
			130.58	GRND NORTH SIDE
MW-3	2136937.443	6051817.078	131.34	2" PVC NOTCH NORTH SIDE
	N37.85044118	W122.26595287	131.72	SET PUNCH NORTH SIDE RIM
			131.73	CONC NORTH SIDE

HORIZONTAL AND VERTICAL CONTROL:
COORDINATE VALUES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE 3, NAD83.
ELEVATIONS ARE NAVD 88 DATUM.

BASE STATIONS USED:
HT2918 BERKELEY H J HEINZ CO TOWER
NORTHING 2,138,045.28, EASTING 6,045,147.46
GPS BASE200 MW-3 PUNCH NORTH SIDE
NORTHING 2,136,937.769, EASTING 6,051,817.025, ELEVATION=131.724

BENCH MARK USED: CITY OF OAKLAND BM
MONUMENT 32 FEET AT THE NORTHWEST CORNER OF THE INTERSECTION OF SHATTUCK AVENUE AND ALCATRAZ AVENUE. ELEVATION=125.685'

EQUIPMENT USED: TRIMBLE GPS-R8 & TS S6, TOPCON AT-G2 LEVEL



Edgis Land Surveying
Land Surveying and Mapping
1374 Garland Avenue, Clovis, CA 93612
Phone (559) 803-2679 Fax (559) 222-2580
email: edgis@aol.com

ENVIRONMENTAL ENGINEERING, INC

Well No.: MW-1
Casing Diameter: 2 inch
Depth of Well: 24.29 ft
Top of Casing Elevation: 128.70 ft
Depth to Groundwater: 5.79 ft
Groundwater Elevation: 122.91 ft
Water Column Height: 18.50 ft
Purged Volume: 6 gallons

Project No.: 5031
Address: 6501 Shattuck Avenue
Oakland, CA
Date: December 4 , 2013
Sampler: Lizzie Hightower

Purging Method: **Bailer** ☐ **Pump** ☑ Geotech

Sampling Method: **Bailer** ☐ **Pump** ☑ Geotech

Color: **No** ☑ **Yes** ☐ **Describe**

Sheen: **No** ☑ **Yes** ☐ **Describe**

Odor: **No** ☑ **Yes** ☐ **Describe**

Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
12:26	Started purging well						
12:32	1	3.78	7.47	18.4	527	16.3	+118.3
12:38	2	2.43	7.30	19.4	561	17.1	+117.5
12:44	3	2.13	7.30	19.6	584	10.8	+118.8
12:56	5	1.60	7.30	19.5	566	15.3	+121.6
13:02	6	1.36	7.29	19.3	554	15.8	+122.4
13:07	Sampled						

Notes:

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Well No.: MW-2
Casing Diameter: 2 inch
Depth of Well: 24.29 ft
Top of Casing Elevation: 130.32 ft
Depth to Groundwater: 6.95 ft
Groundwater Elevation: 123.37 ft
Water Column Height: 17.34 ft
Purged Volume: 6 gallons

Project No.: 5031
Address: 6501 Shattuck Avenue
Oakland, CA
Date: December 4, 2013
Sampler: Lizzie Hightower

Purging Method: **Bailer** ☐ **Pump** ☑ Geotech

Sampling Method: **Bailer** ☐ **Pump** ☑ Geotech

Color: **No** ☑ **Yes** ☐ **Describe**

Sheen: **No** ☑ **Yes** ☐ **Describe**

Odor: **No** ☑ **Yes** ☐ **Describe**

Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
13:30	Started purging well						
13:36	1	3.05	7.64	18.4	513	18.8	+125.6
13:42	2	2.20	7.53	18.7	531	10.9	+117.8
13:48	3	1.94	7.47	18.6	554	19.1	+115.4
14:00	5	1.45	7.49	18.6	545	11.7	+112.2
14:06	6	1.56	7.51	18.4	537	12.4	+113.3
14:11	Sampled						

Notes:

ENVIRONMENTAL ENGINEERING, INC

Well No.:	MW-3	**Project No.:**	5031
Casing Diameter:	2 inch	**Address:**	6501 Shattuck Avenue
Depth of Well:	24.80 ft		Oakland, CA
Top of Casing Elevation:	131.34 ft	**Date:**	December 4 , 2013
Depth to Groundwater:	6.23 ft	**Sampler:**	Lizzie Hightower
Groundwater Elevation:	125.11 ft		
Water Column Height:	18.57 ft		
Purged Volume:	6 gallons		

Purging Method: **Bailer** ☐ **Pump** ☑ Geotech

Sampling Method: **Bailer** ☐ **Pump** ☑ Geotech

Color: **No** ☐ **Yes** ☑ **Describe** Cloudy

Sheen: **No** ☑ **Yes** ☐ **Describe**

Odor: **No** ☑ **Yes** ☐ **Describe**

Field Measurements:

Time	Volume (gallons)	D.O. mg/L	pH	Temp °C	E.C. (µS/cm)	Turb. NTU	ORP
10:55	Started purging well						
11:01	1	2.47	7.41	19.2	400	40.7	+109.4
11:33	2	3.03	7.78	18.0	471	26.6	+120.2
11:39	3	2.38	7.64	18.6	479	25.6	+121.3
11:51	5	1.90	7.65	18.3	438	26.9	+119.6
11:57	6	1.86	7.67	18.2	454	31.0	+119.8
12:02	Sampled						

Notes: Flow cell was leaking, had to stop pumping & try to fix between 1 & 2 gallons

http://www.epa.gov/athens/learn2model/part-two/onsite/gradient3ns.html

EPA On-line Tools for Site Assessment Calculation

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Hydraulic Gradient

Gradient Calculation from fitting a plane to three points

$$a\,x_1 + b\,y_1 + c = h_1$$
$$a\,x_2 + b\,y_2 + c = h_2$$
$$a\,x_3 + b\,y_3 + c = h_3$$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

$i = 1,2,3$

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant

Example Data Set 1 | Calculate | Clear

Save Data | Recall Data | Go Back

Site Name 6501 Shattuck Ave., Oak

Date December 4, 2013 Current Date

Calculation basis Head

Coordinates ft

x-coordinate	y-coordinate	head ft
6775.300744	4740.653962	122.91
6774.282756	4766.867171	123.37
6865.138245	4776.029069	125.11

Gradient Magnitude (i) 0.02514

Degrees from North (+ y axis) 223.5

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Home | Glossary | Notation | Links | References | Calculators

WCMS
Last updated on Thursday, January 10, 2013

Appendix C

Laboratory Report and Chain of Custody Form

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 251363
ANALYTICAL REPORT

SOMA Environmental Engineering Inc.	Project : 5031
6620 Owens Dr.	Location : 6501 Shattuck Ave., Oakland
Pleasanton, CA 94588	Level : II

Sample ID	Lab ID
MW-1	251363-001
MW-2	251363-002
MW-3	251363-003

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 signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Tracy Babjar Date: 12/12/2013

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**251363**
Client:	**SOMA Environmental Engineering Inc.**
Project:	**5031**
Location:	**6501 Shattuck Ave., Oakland**
Request Date:	**12/05/13**
Samples Received:	**12/05/13**

This data package contains sample and QC results for three water samples, requested for the above referenced project on 12/05/13. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
High surrogate recovery was observed for o-terphenyl in MW-1 (lab # 251363-001); no target analytes were detected in the sample. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

C&T LOGIN # 251363

Sampler:

Project No: 5031

Project Name: 6501 Shattuck Ave., Oakland

Turnaround Time: Standard

Report To: Joyce Bobek

Company : SOMA Environmental

Telephone: 925-734-6400

Fax: 925-734-6401

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO_4	HNO_3	ICE	TPH-g, TPH-d, TPH-mo 8015	VOCs (Full List) 8260
1	MW-1	12/4/13 13:07		*		4 VOAS, 2-500 mL Amber	*			*	*	*
2	MW-2	14:11		*		4 VOAS, 2-500 mL Amber	*			*	*	*
3	MW-3	12:02		*		4 VOAS, 2-500 mL Amber	*			*	*	*

Notes: **EDF OUTPUT REQUIRED**
Silica-gel clean-up required

RELINQUISHED BY:	RECEIVED BY:
12/5/13 09:18 DATE/TIME	12/5/13 1115 DATE/TIME
12/5/13 1650 DATE/TIME	12/5/13 1650 DATE/TIME
DATE/TIME	DATE/TIME

COOLER RECEIPT CHECKLIST — Curtis & Tompkins, Ltd.

Login # 251363 Date Received 12/5/13 Number of coolers 1
Client SCMA Project 6501 SHATTUCK AVE., OAKLAND (5031)

Date Opened 12/5/13 By (print) NR (sign) Tina Rankin
Date Logged in ↓ By (print) NR (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☒ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 0.7

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

NR ☒ ~~Samples received on ice directly from the field. Cooling process had begun~~

8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? (YES) NO N/A
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/04/13
Units:	ug/L	Received:	12/05/13
Diln Fac:	1.000	Analyzed:	12/07/13
Batch#:	205869		

Field ID: MW-1 Lab ID: 251363-001
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	77-128

Field ID: MW-2 Lab ID: 251363-002
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	77-128

Field ID: MW-3 Lab ID: 251363-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	77-128

Type: BLANK Lab ID: QC719315

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	77-128

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC719314	Batch#:	205869
Matrix:	Water	Analyzed:	12/07/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,076	108	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	77-128

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	205869
MSS Lab ID:	251374-010	Sampled:	12/05/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/08/13
Diln Fac:	1.000		

Type: MS Lab ID: QC719316

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<10.56	2,000	1,750	88	74-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	77-128

Type: MSD Lab ID: QC719317

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,728	86	74-120	1	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	77-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5031	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/04/13
Units:	ug/L	Received:	12/05/13
Diln Fac:	1.000	Prepared:	12/08/13
Batch#:	205878		

Field ID: MW-1
Type: SAMPLE
Lab ID: 251363-001
Analyzed: 12/10/13
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	52
Motor Oil C24-C36	ND	310

Surrogate	%REC	Limits
o-Terphenyl	134 *	66-129

Field ID: MW-2
Type: SAMPLE
Lab ID: 251363-002
Analyzed: 12/10/13
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	52
Motor Oil C24-C36	ND	310

Surrogate	%REC	Limits
o-Terphenyl	94	66-129

Field ID: MW-3
Type: SAMPLE
Lab ID: 251363-003
Analyzed: 12/10/13
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	128	66-129

Type: BLANK
Lab ID: QC719347
Analyzed: 12/09/13
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	118	66-129

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5031	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	205878
Units:	ug/L	Prepared:	12/08/13
Diln Fac:	1.000	Analyzed:	12/09/13

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC719348

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,967	79	61-120

Surrogate	%REC	Limits
o-Terphenyl	110	66-129

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC719349

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,193	88	61-120	11	45

Surrogate	%REC	Limits
o-Terphenyl	124	66-129

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	205933
Lab ID:	251363-001	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
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	0.8	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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	205933
Lab ID:	251363-001	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
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
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	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-136
1,2-Dichloroethane-d4	114	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	205933
Lab ID:	251363-002	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
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	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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	205933
Lab ID:	251363-002	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
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
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	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	104	77-136
1,2-Dichloroethane-d4	116	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-3	Batch#:	205933
Lab ID:	251363-003	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
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	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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Field ID:	MW-3	Batch#:	205933
Lab ID:	251363-003	Sampled:	12/04/13
Matrix:	Water	Received:	12/05/13
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Analyte	Result	RL
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
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	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-136
1,2-Dichloroethane-d4	115	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	205933
Units:	ug/L	Analyzed:	12/10/13
Diln Fac:	1.000		

Type: BS Lab ID: QC719596

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	11.20	90	65-134
Benzene	12.50	13.11	105	80-124
Trichloroethene	12.50	12.98	104	80-120
Toluene	12.50	13.26	106	80-122
Chlorobenzene	12.50	13.18	105	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	105	77-136
1,2-Dichloroethane-d4	106	75-139
Toluene-d8	101	80-120
Bromofluorobenzene	102	80-120

Type: BSD Lab ID: QC719597

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	11.11	89	65-134	1	20
Benzene	12.50	13.22	106	80-124	1	20
Trichloroethene	12.50	13.13	105	80-120	1	20
Toluene	12.50	13.07	105	80-122	1	20
Chlorobenzene	12.50	13.34	107	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	104	77-136
1,2-Dichloroethane-d4	107	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	100	80-120

RPD= Relative Percent Difference

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Batch QC Report

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC719598	Batch#:	205933
Matrix:	Water	Analyzed:	12/10/13
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
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	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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	251363	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5031	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC719598	Batch#:	205933
Matrix:	Water	Analyzed:	12/10/13
Units:	ug/L		

Analyte	Result	RL
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
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	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	102	77-136
1,2-Dichloroethane-d4	108	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit