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Environmental Health



July 8, 2011

Mr. Paresh C. Khatri 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 Mr. Khatri:

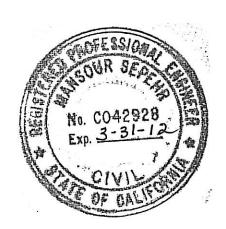
SOMA's "Soil and Groundwater Investigation Report" for the subject site has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

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



Soil and Groundwater Investigation Report

6501 Shattuck Avenue, Oakland, California

July 8, 2011

Project 5032

Prepared for:

Bruder LLC 2550 Appian Way, Suite 201 Pinole, California

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".

Athan Magganas

Manager Bruder LLC

2550 Appian Way, Suite 201

Pinole, California 94564

Responsible Party

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this document for Bruder LLC, at the request of Bruder LLC manager Mr. Athan Magganas, for the property located at 6501 Shattuck Avenue, Oakland, California. This report was prepared in response to Alameda County Health Care Services correspondence dated February 10, 2011 and May 12, 2011.

Mansour Sepehr, PhD, PE Principal Hydrogeologist



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1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) conducted an additional soil and groundwater assessment and prepared this report at the request of Bruder LLC manager Mr. Athan Magganas, for the property located 6501 Shattuck Avenue, Oakland, California. This report was prepared in response to Alameda County Health Care Services (ACHCS) approval correspondence dated February 10, 2011 and May 12, 2011. This correspondence pertains to SOMA's workplan addendum entitled "Addendum to Interim Remedial Excavation and Proposed Soil and Groundwater Investigation" dated December 13, 2010 and correspondence dated March 14, 2011, entitled "Revised Site Figure". The site map is shown in Figure 1.

1.1 Site History and Use

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.

The subject property 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. According to the Alameda County Assessor Office, the parcel is rectangular and covers an area of 0.19 acres (8,333 square feet). Prior to recent underground storage tank (UST) removal and soil excavation activities, the property was improved with an automotive tune-up and repair facility that included the former service station office and canopy structure and a detached two-bay service building. The two site structures were single-story buildings constructed on concrete slabs at grade. Portions of the parcel not occupied by the structures were asphalt or concrete paved. The site vicinity is a mix of service commercial properties along Shattuck Avenue, with older residential development farther to the east and west. Based on assessments of other properties in the area, there are no manufacturing or heavy industrial facilities in the vicinity.

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.

1.2 Geologic and Hydrogeologic Conditions

The property is situated near the east-center of the San Francisco Bay physiographic sub-region, characterized as a partially submerged structural basin situated between sub-parallel, northwest trending faults. Tectonic subsidence of the basin during the past two million years has resulted in a thick layer of Quaternary alluvium up to 2,000 feet in depth, underlain by interbedded marine sandstone and shale of the Franciscan Assemblage, which was deposited in an off-shore environment during the Late Jurassic/Early Cretaceous Period (125-150 million years before present). Surficial soils are medium- to coarsegrained alluvium deposited by periodic debris flow and sheet erosion processes at the lower slopes of the adjacent Oakland Hills in alluvial fan structures. The soils are characterized as weakly consolidated, slightly weathered, poorly sorted, irregular interbedded clay, silt, sand and gravel, with the coarser component typically situated at the heads of old alluvial fans (Helley, et al, 1979). Deposition of the upper soil zone has occurred during the Late Pleistocene Epoch (11,000 to 50,000 years before present), resulting in a typical soil profile ranging from 20 to 30 feet in depth. The surficial soils have moderate permeability and, based on the nearly flat topography, relatively low transmissivity values. Based on local surface topography, the near surface groundwater aquifer in the area of the site is inferred to be less than 25 feet in depth, and regional groundwater flow is generally westerly, toward San Francisco Bay.

The following is documented in this report:

- Detailed description of boring advancement
- Detailed descriptions of all field activities
- Tabulation of analytical data
- Evaluation of soil and groundwater analytical results

2. SCOPE OF WORK

During the preliminary soil and groundwater investigation conducted in July 2010, SOMA advanced three soil borings, SB-1 through SB-3, and duplicate boring SB-3D, and collected soil and groundwater samples for analysis of total petroleum hydrocarbons (TPHs), volatile organic compounds (VOCs), and metals. Based on results of shallow soil and groundwater investigation conducted in the vicinity of the former USTs, it was determined that petroleum-hydrocarbon contamination exists in groundwater beneath the site. TPH contaminants were detected at concentrations above Environmental Screening Levels (ESLs) for residential exposure scenario where groundwater is a current or potential source of drinking water.

Based on ACHCS directives dated February 10, 2011 and May 12, 2011, SOMA advanced six additional soil boreholes (B-4 through B-9) in order to determine the extent of soil and groundwater contamination at the site.

Details of the tasks listed below are discussed in the following sections of this report.

- Task 1: Permit acquisition, Health and Safety Plan preparation, and subsurface utility clearance
- Task 2: Advancement of six soil borings
- Task 3: Laboratory analysis of soil and groundwater samples
- Task 4: Evaluation of appropriateness of well screening intervals
- Task 5: Preparation of site investigation report and recommendations for future actions at the site

2.1 Permit Acquisition, Health and Safety Plan Preparation, and Subsurface Utility Clearance

Prior to initiating field activities, SOMA obtained a drilling permit from Alameda County Public Works Agency (ACPWA) (Appendix A). ACHCS was given the required minimum 72-hour notice in advance of drilling on June 8, 2011 and ACPWA was contacted on June 7, 2011 to schedule the grouting inspection with Steve Miller.

During field implementation activities, SOMA followed standard Health and Safety Plan (HASP) procedures. The HASP is a requirement of the Occupational Safety and Health Administration (OSHA), "Hazardous Waste Operation and Emergency Response" guidelines (29 CFR 1910.120) and the California Occupational Safety and Health Administration (Cal/OSHA) "Hazardous Waste Operation and Emergency Response" guidelines (CCR Title 8, section 5192). The HASP is designed to address safety provisions during field activities and protect the field crew from physical and chemical hazards resulting from drilling and sampling. It establishes personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans. Field staff and contractors reviewed and signed the HASP prior to beginning field operations.

On June 8, 2011, prior to boring advancement activities, SOMA's field crew visited the site and marked proposed well locations using chalk-based white paint. Underground Service Alert (USA) clearance verifying that drilling areas were clear of underground utilities was obtained June 8, 2011 (Ticket 179916). A private utility locator (OHJ Subsurface Utility) surveyed proposed drilling areas on the same day to locate any additional subsurface conduits.

2.2 Advancement of Soil Borings

On June 10, 2011, a C-57 licensed driller RSI Drilling (under SOMA's oversight) advanced six soil borings (B-4 through B-9) for collection of soil and groundwater samples. Four soil borings (B-4 through B-7) were located in the vicinity of previous excavation. Boring B-8 was located 10 feet east of previously installed boring SB-1. B-9 was located approximately 20 feet west of proposed boring B-5. Boring locations are shown in Figure 2. Borings were advanced approximately 20 to 25 feet below ground surface (bgs).

Due to access limitations, manual drilling utilizing a hand auger was employed for boring B-4. The hand auger consisted of extendable steel rods, rotated by a handle. During boring advancement, the auger was rotated to cut into the ground and then withdrawn to remove excavated material. The procedure was repeated until the required depth was reached. SOMA utilized a soil core sampler to allow recovery of an intact soil core from the soil surface. A sturdy push-tube was manually advanced into soil using a slide hammer. An internal stainless steel liner captured the recovered soil intact. End caps were used immediately to minimize loss of volatile compounds.

Direct Push Technology (DPT) was utilized for all other borings. DPT is an efficient method of collecting continuous soil cores while preventing cross-contamination. It involves hydraulically hammering a set of steel rods into the subsurface with the lead section consisting of a polyethylene-lined sampler. After drilling rods are pushed to the desired depth, the soil-filled liner is retrieved. SOMA's field geologist logged continuous soil cores from advanced borings, characterizing the content of each soil-filled tube using the Unified Soil Classification System (USCS) Visual-Manual method. Encountered subsurface lithologies were recorded on geologic borehole logs. Contents of each sediment-filled tube were screened with a photoionization detector (PID) at each screened depth and results noted on respective boring logs (Appendix B).

For vertical definition, soil samples were collected at depths where historical soil contamination was observed, or where PID readings or visual observations indicated presence of significant soil contamination, or at significant changes in lithology. At each interval of depth-discrete soil sampling, the DPT drilling rig obtained a 4-foot soil sample core. For soil sample collection, SOMA's field geologist cut sections of the soil-filled tubes into 6-inch-long sections and capped each end with a Teflon liner and polyethylene end cap. Samples were labeled with unique identifiers and immediately placed in a chilled ice chest pending transportation to Curtis & Tompkins, Ltd. (C&T), a California state-certified environmental laboratory.

A minimum of one soil sample was analyzed from each soil boring, samples submitted for analyses were selected based on their elevated PID readings with respect to the rest of PID reading observed during advancement of the given boring; the remainder of collected soil samples were put on-hold, pending review

of analytical results for the analyzed samples. Upon review of analytical data, two additional samples, collected from borings B-7 and B-9, were also selected for analysis to fully delineate the vertical extent of soil contamination. Field notes summarizing observed PID readings are attached in Appendix B.

2.3 Site Geology

Observed subsurface soils consisted of sandy silts, lean clays, and sandy clays and clayey sands. Encountered subsurface lithologies were recorded on geologic borehole logs (Appendix B). The contents of each sediment-filled tube were screened using a PID at each screened depth and results were noted on respective boring logs. PID responds to all molecules with ionization potential below 10.6eV, including aromatics and molecules with carbon double bonds. Detected PID readings, summarized on boring logs (Appendix B), ranged between 0 ppm and 522 ppm (detected in boring B-9 at 7 feet bgs).

2.4 Groundwater Sample Collection Procedures

To collect grab groundwater samples, a new bailer was utilized at each boring location to evacuate a sufficient amount of groundwater. Samples were decanted into 40-mL VOA vials, pre-preserved with hydrochloric acid, 500 mL unpreserved bottles, and 1-L ambers, then immediately stored in a cooler with ice, pending delivery to C&T under appropriate chain-of-custody protocol for analysis.

All borings were decommissioned on June 10, 2011 except for B-6, which was secured and left open to allow for groundwater accumulation. B-6 was decommissioned on June 16, 2011 after collection of respective groundwater sample. Each borehole was decommissioned according to Cal/EPA guidelines with a neat-cement grout mixture.

2.5 Laboratory Analysis

Soil and groundwater samples were submitted to C&T for analysis of the following:

- TPH as gasoline (TPH-g), TPH as diesel (TPH-d), and TPH as motor oil (TPH-mo)
- VOCs full list including benzene, toluene, ethylbenzene, total xylenes (collectively termed as BTEX) and methyl-tertiary butyl ether (MtBE)

TPH-g, TPH-d, and TPH-mo in soil and groundwater were analyzed using USEPA Method 8015B. VOCs in soil and groundwater were analyzed using USEPA Method 8260B.

2.6 Soil and Groundwater Sampling Results

2.6.1 Groundwater Analytical Results

TPH-g and TPH-d were below laboratory-reporting limits in all groundwater samples except B-7 (located downgradient from existing excavation), where they were detected at 160 μ g/L and 61 μ g/L, respectively. Contour maps showing current as well as historical (from borings SB-1 through SB-3) TPH-g and TPH-d concentrations are included in Figures 3 and 4. TPH-mo and MtBE were below laboratory-reporting limits in all groundwater samples. BTEX analytes were detected only in B-7 at 1.1 μ g/L, 0.9 μ g/L, 1.2 μ g/L, and 0.9 μ g/L, respectively. Figure 5 displays the contour map of benzene concentrations in groundwater, including SB-1 through SB-3 historical analytical results. The only other VOC detected was 1,2-dichloroethane (1,2-DCA), detected at 1.2 μ g/L in boring B-5. The maximum TPH-g concentration was detected in one of the earlier soil borings SB-3, advanced beneath the existing excavation, at 4,000 μ g/L, and the maximum TPH-d and benzene were detected at 11,000 μ g/L and 59 μ g/L, in borings SB-3 and SB-2, respectively. These results indicate that existing PHC plume is still largely situated below the area of existing excavation.

Current and historical groundwater analytical results for VOCs and TPHs with respective ESLs are summarized in Table 3. The laboratory analytical report is contained in Appendix C.

2.6.2 Soil Analytical Results

During this investigation, all analytes were detected below laboratory-reporting limits or ESLs in analyzed soil samples except for TPH-g, which was detected in borings B-7 and B-9 above ESLs. In B-7, TPH-g was detected at 10 feet bgs at 180 mg/kg. In B-9, TPH-g was detected at 8 feet bgs at 140 mg/kg. The laboratory noted that the some of the samples exhibited a chromatographic pattern which did not resemble standard. A contour map showing TPH-g concentrations in soil between 7 and 12 feet bgs during the current and previous soil sampling is shown in Figure 6. Maximum TPH-g concentration was detected during previous site investigation in boring SB-2 at 510 mg/kg at 9 feet below ground surface. Table 4 summarizes current and historical soil analytical results; the current analytical report is contained in Appendix C.

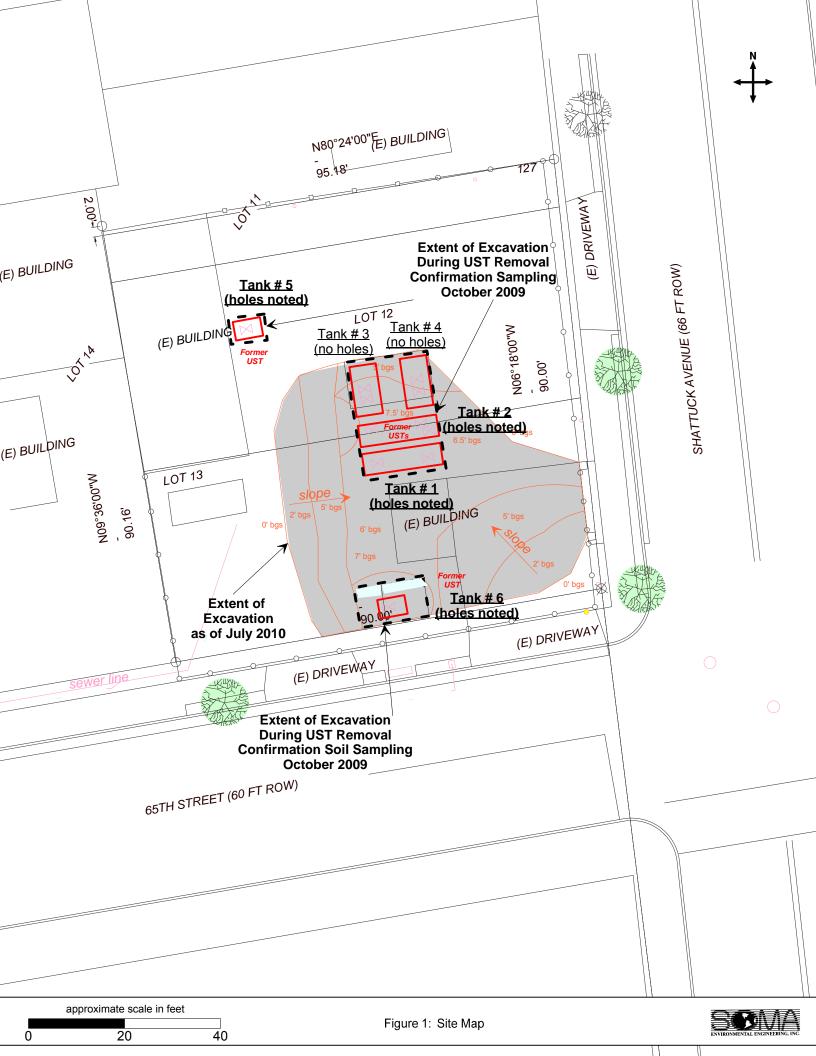
3. CONCLUSIONS AND RECOMMENDATIONS

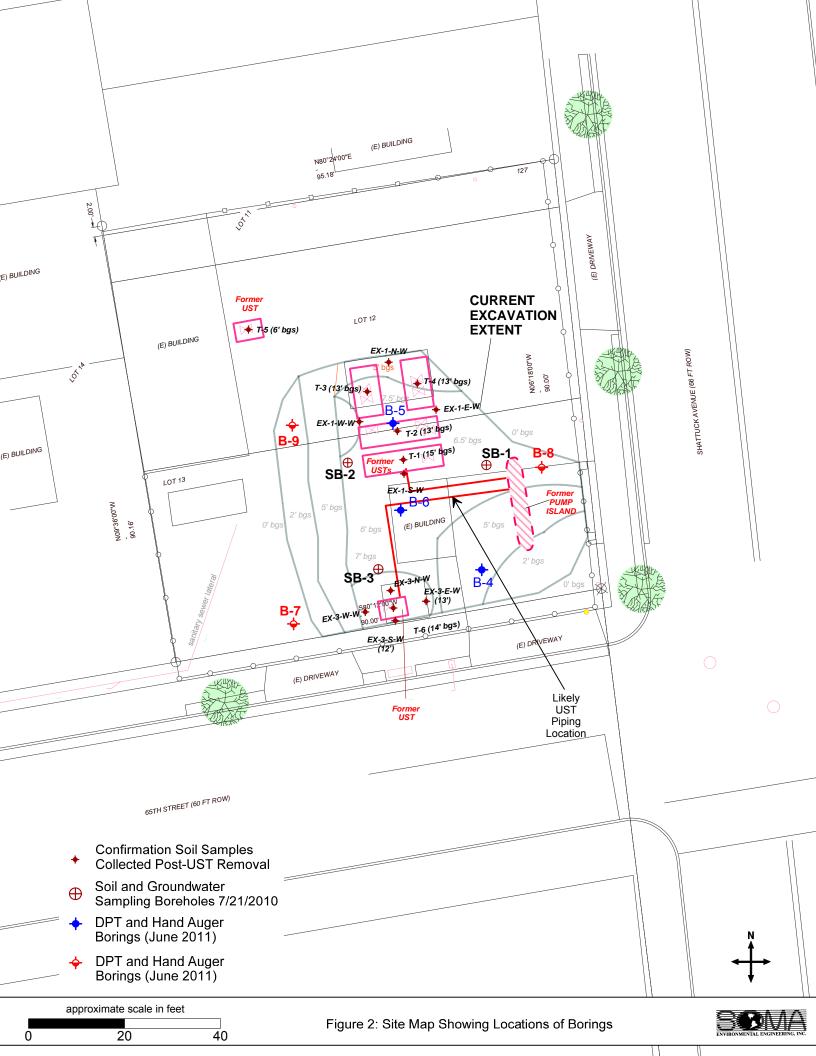
 SOMA advanced six soil borings, B-4 through B-9, and collected soil and groundwater samples for analysis of TPHs and VOCs. Based on results of soil and groundwater investigation conducted in the vicinity of the former USTs, it was determined that petroleum-hydrocarbon contamination still exists in soil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

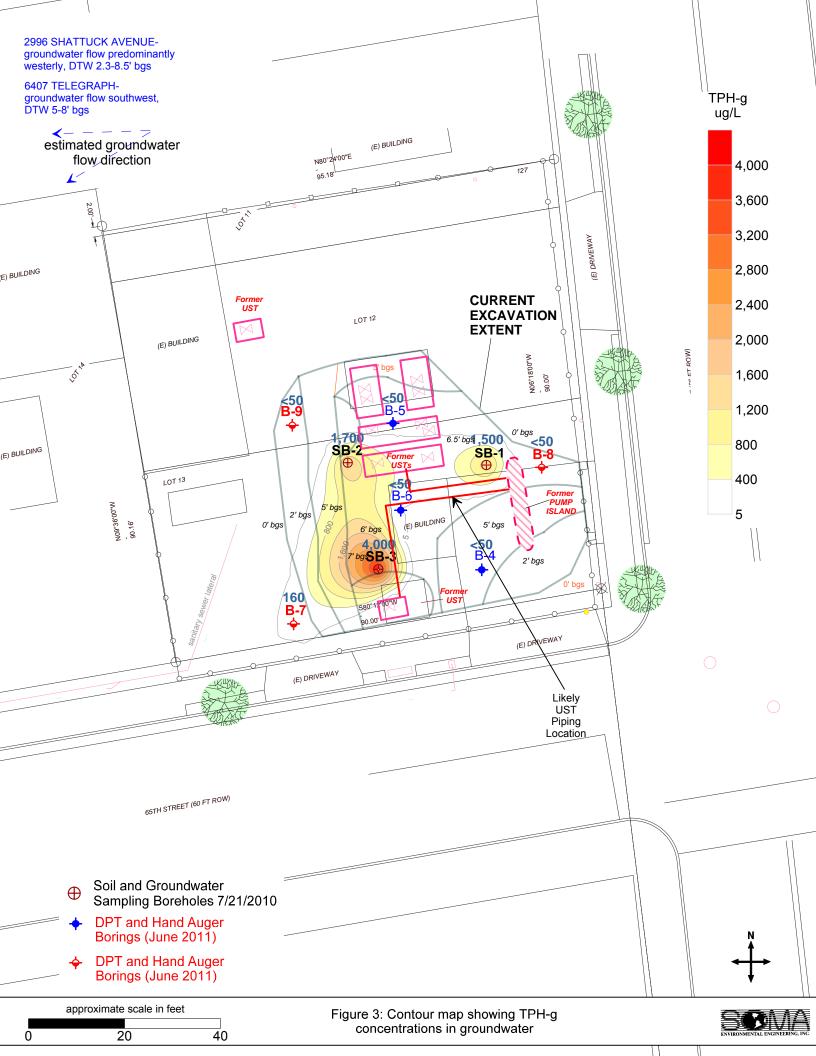
- Based on current soil sampling, and as proposed in earlier SOMA correspondence, further soil over-excavation is necessary to remove residual soil contamination. During the proposed over-excavation, areas around confirmation soil samples (EX-3-W-W through WX-3-E-W) as well as soil borings SB-2, B-7 and B-9 should be over-excavated. Tables 2 and 4 illustrate the recommended depth of over-excavation at each sampling location (Figure 8). Since it is SOMA's understanding that some earthmoving activities have taken place since the majority of these samples were collected, SOMA proposes conducting a land survey which at minimum will aid in determining which locations have already been over-excavated and which have not. Historical contour figures, illustrating contaminant levels in confirmation samples collected after removal of USTs, are included in Appendix D.
- As proposed in SOMA's earlier correspondence (October 20, 2010 and December 13, 2010), once the final excavation extent has been reached, SOMA proposes conducting a systematic confirmation soil sampling at the site. Confirmation soil samples at minimum should be collected from the bottom of over-excavation area at a density of one sample per 20-foot by 20-foot area; more frequent sampling may be recommended in areas of former soil contamination with sufficient samples collected at intervals of approximately 20 linear feet in all directions around the border of the excavation area, to document that the vertical and horizontal extent of contaminated soil has been removed. To minimize volatilization during proposed confirmation soil sampling, at each sidewall sampling location, approximately one-half foot of top soil should be removed and a slide hammer sampler should be used to advance the sampling tube into the native soil. Sidewall samples should be collected from areas of historical or apparent current contamination. During confirmation sampling, an internal liner should capture and hold the recovered soil intact. To eliminate cross-contamination between the soil boring locations, all soilsampling equipment should be decontaminated before the start of sample collection at each location. Soil samples should be, at minimum, analyzed for compounds previously detected on-site above the ESL.
- Based on results of this investigation, SOMA proposes proceeding with the originally proposed well installation once all over-excavation activities are complete. Proposed well installation details were outlined in SOMA's "Addendum to Interim Remedial Excavation and Proposed Soil and Groundwater Investigation," dated December 13, 2010. Since the groundwater flow is westerly to southwesterly toward San Francisco Bay, based on data from sites in the general site vicinity (e.g., groundwater monitoring at 6407 Telegraph Avenue, Oakland), at this time installation of three groundwater monitoring wells, located up- and downgradient of former USTs, is recommended to determine the extent of groundwater

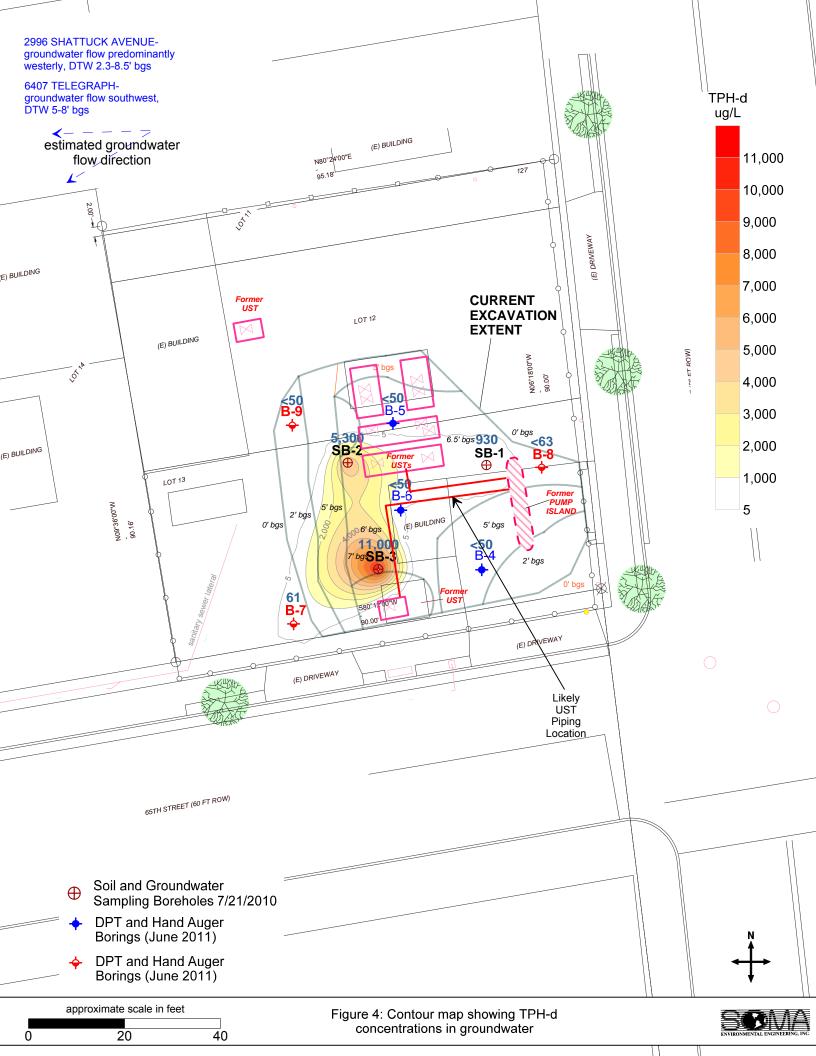
impact at the site. monitoring wells.	Figure	7	shows	proposed	locations	of	groundwater

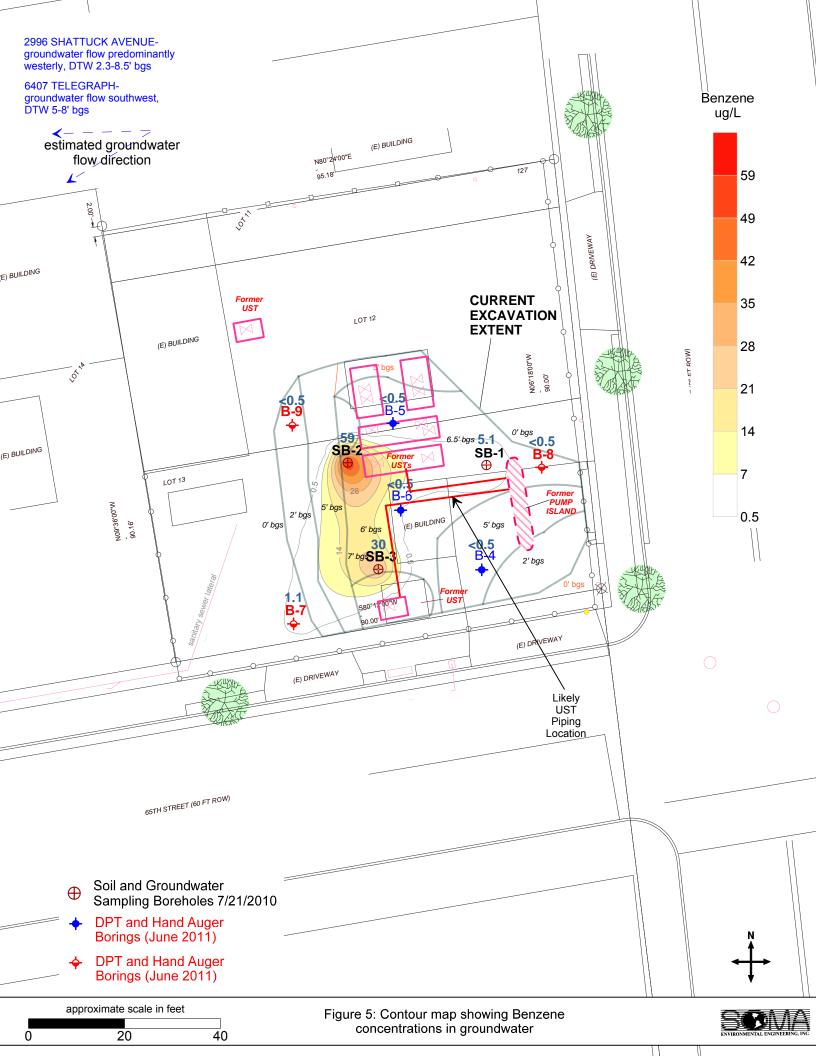
FIGURES

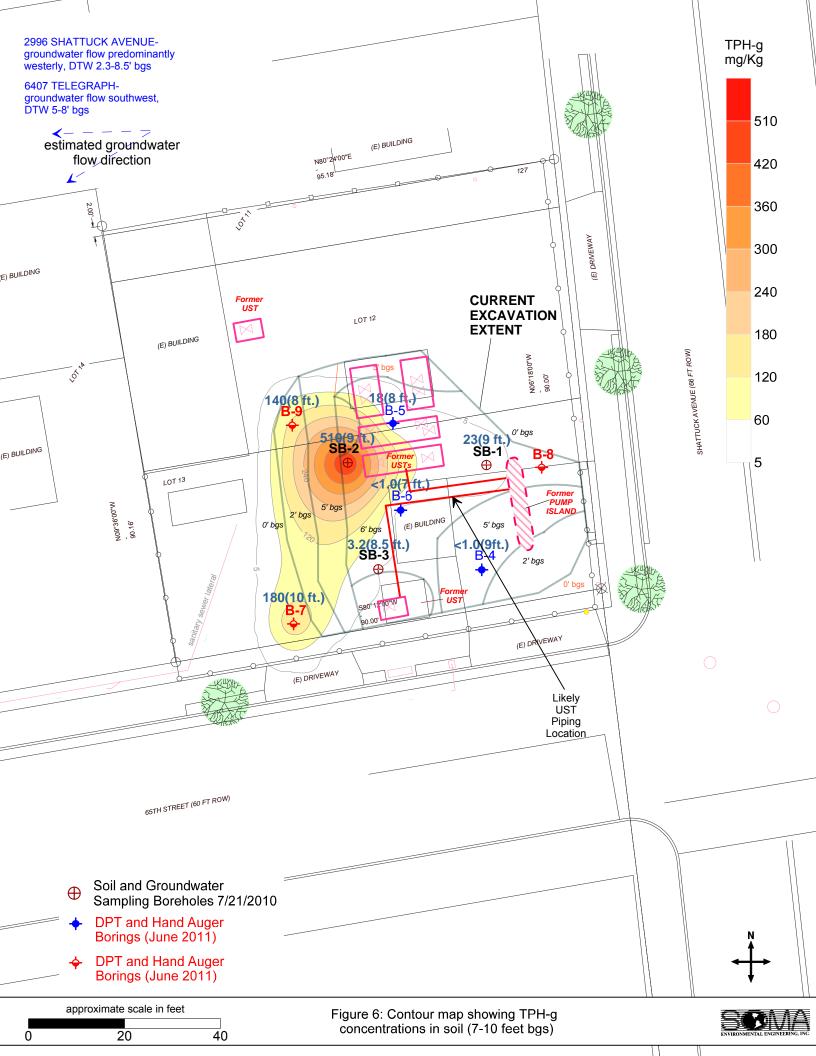


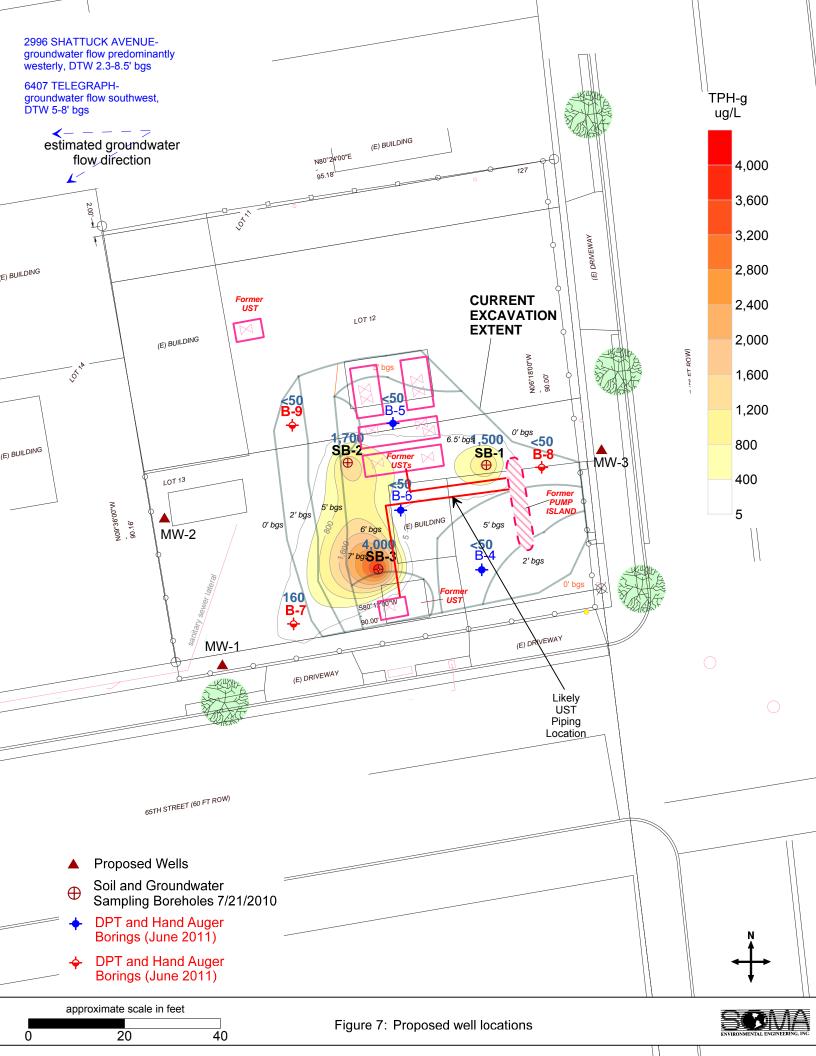


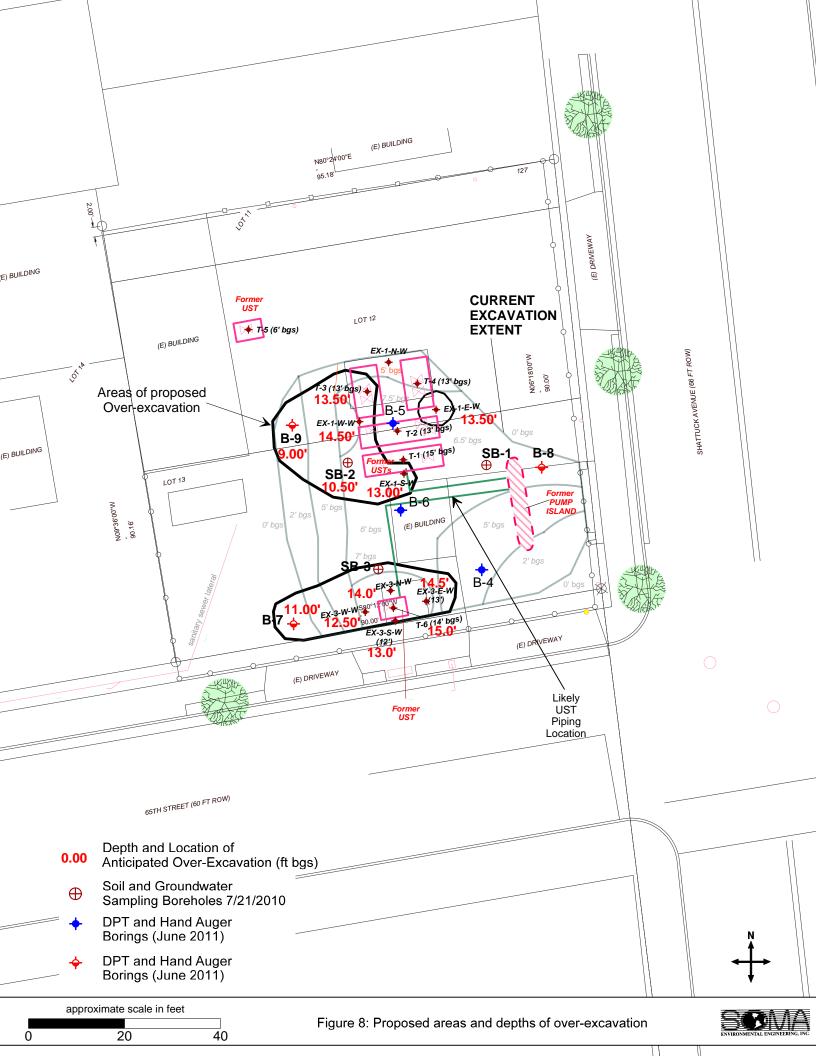












TABLES

Table 1 UST Confirmation Soil Sampling Approach 6501 Shattuck Ave, Oakland, CA

Sample ID	Tank ID	Date	Sample Location	Sample Depth	Sample Direction	Sampling Method
T-1	Tank #1	10/1/2009	Beneath Tank #1	15 feet bgs	Vertical	backhoe bucket
T-2	Tank #2	10/1/2009	Beneath Tank #2	13 feet bgs	Vertical	backhoe bucket
T-3	Tank #3	10/1/2009	Beneath Tank #3	13 feet bgs	Vertical	backhoe bucket
T-4	Tank #4	10/1/2009	Beneath Tank #4	13 feet bgs	Vertical	backhoe bucket
T-5	Tank #5	10/1/2009	Beneath Tank #5	6 feet bgs	Vertical	backhoe bucket
T-6	Tank #6	10/1/2009	Beneath Tank #6	14 feet bgs	Vertical	backhoe bucket
EX-1-E-W	Tank #2	10/1/2009	East sidewall	13 feet bgs	Horizontal	NA
EX-1-N-W	Tank #4	10/1/2009	West sidewall	10 feet bgs	Horizontal	NA
EX-1-S-W	Tank #1	10/1/2009	South sidewall	12 feet bgs	Horizontal	NA
EX-1-W-W	Tank #2	10/1/2009	West sidewall	13 feet bgs	Horizontal	NA
EX-3-E-W	Tank #6	10/1/2009	East sidewall	13 feet bgs	Horizontal	NA
EX-3-N-W	Tank #6	10/1/2009	North sidewall	13 feet bgs	Horizontal	NA
EX-3-S-W	Tank #6	10/1/2009	South sidewall	12 feet bgs	Horizontal	NA
EX-3-W-W	Tank #6	10/1/2009	West sidewall	12 feet bgs	Horizontal	NA

Table 2
UST Confirmation Soil Analytical Data (10/1/2009)
6501 Shattuck Ave, Oakland, CA

Sample ID	Soil Sample Depth (feet bgs)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-mo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- Benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE 8260B (mg/kg)	Lead 6010 (mg/kg)	Zinc 6010 (mg/kg)	Minimum anticipated over- excavation depth (ft bgs)
T-1	15	8.2	2.6	NA	<0.5	<0.5	<0.5	0.013	<5	6.5	66	-
T-2	13	420	270	NA	0.16	<0.1	<0.1	0.72	<1	14	220	- per conf B-5 results
T-3	13	100	58	NA	<0.1	<0.1	0.24	1.4	<1	14	99	13.5
T-4	13	1.8	2.5	NA	<0.5	<0.5	0.02	0.09	<5	7	63	-
T-5	6	8	11	44	<0.5	<0.5	<0.5	0.02	<5	12	45	-
T-6	14	280	230	NA	0.45	1.9	2.7	15	<2.5	95	290	15
EX-1-E-W	13	93	76	NA	<0.1	0.18	<0.1	0.15	<1	8.7	21	13.5
EX-1-N-W	10	8.2	3.5	NA	<0.5	0.0099	<0.5	0.035	<5	9.9	31	-
EX-1-S-W	12	490	170	NA	0.54	0.12	3.6	1.6	<1	8.9	58	13
EX-1-W-W	13	1700	1800	NA	< 0.25	<0.25	1.9	5.9	<2.5	92	580	14.5
EX-3-E-W	13	2100	680	NA	2.7	3	15	60	<5	4200	3900	14.5
EX-3-N-W	13	180	48	NA	0.71	5.9	2.7	17	<1	320	480	14
EX-3-S-W	12	2900	780	NA	5	27	36	200	<5	240	560	13
EX-3-W-W	12	95	41	NA	0.42	<0.1	0.11	0.28	<1	10	25	12.5
ESL Drinkii	ng Water	83	83	370	0.044	2.9	2.3	2.3	0.023	200	600	NA
ESL Non-Drir	nking Water	180	180	2500	0.27	9.3	4.7	11	8.4	750	600	NA

Notes:

ESL: California Regional Water Quality Control Board, Environmental Screening Levels, Interim Final November 2007, Revised May 2008

Y: Sample exhibits chromatographic pattern which does not resemble standard

NA: Not Analyzed

< : below Laboratory Detection Limits

Table 3
Grab Groundwater Analytical Results
6501 Shattuck Ave, Oakland, CA

Sample ID	Date	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 8260B (μg/L)
SB-1	7/21/2010	1,500	930	<300	5.1	1.8	32	25	1.9
SB-2	7/21/2010	1,700	5,300	1,400	59	4.8	18	13.7	0.66
SB-3	7/21/2010	4,000	11,000	800	30	4.1	15	10.9	<0.5
B-4	6/10/2011	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
B-5	6/10/2011	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
B-6	6/16/2011	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
B-7	6/10/2011	160 Y	61 Y	<300	1.1	0.9	1.2	0.9	<0.5
B-8	6/10/2011	<50	<63	<380	<0.5	< 0.5	<0.5	<0.5	<0.5
B-9	6/10/2011	<50	<50	<300	<0.5	< 0.5	<0.5	<0.5	<0.5
ESL Drinking Water (Residential)		100	100	100	1	40	30	20	5
ESL Non-Drinking Water (Commercial)		210	210	210	46	130	43	100	1800

Sample ID	Date	Cadmium (μg/L)	Chromium (μg/L)	Lead (μg/L)	Nickel (μg/L)	Zinc (μg/L)
SB-1	7/21/2010	<5.0	<5.0	<5.0	<5.0	<20
SB-2	7/21/2010	<5.0	<5.0	<5.0	12	41
SB-3	7/21/2010	<5.0	<5.0	<5.0	19	350
	Drinking Water Residential)	0.25	50	2.5	8.2	81
	on-Drinking Water Commercial)	0.25	180	2.5	8.2	81

Notes:

ESL: California Regional Water Quality Control Board, Environmental Screening Levels, Interim Final November 2007, Revised May 2008

- < : below Laboratory Detection Limits
- Y: Sample exhibits chromatographic pattern which does not resemble standard

Table 4
Soil Analytical Results
6501 Shattuck Ave, Oakland, CA

Sample ID	Soil Sample Depth (feet bgs)	Depth to Water (feet bgs)	Date	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-mo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- Benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE 8260B (mg/kg)	Lead 6010 (mg/kg)	Minimum anticipate d over- excavatio n depth (ft bgs)
SB-1@2.5ft	9	10	7/21/2010	23Y	20	<5.0	<0.25	<0.25	<0.25	<0.25	<0.25	7.9	-
SB-2@3ft	9	10	7/21/2010	510Y	50	<5.0	<0.5	<0.5	0.65	<0.5	<0.5	5.7	10.5
SB-3@1.5ft	8.5	8.5	7/21/2010	3.2Y	24	48	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	58	-
B-4	9	13.22	6/10/2011	<1.0	<1.0	<5.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	NA	-
B-5	8	NA	6/10/2011	18 Y	59 Y	<5.0	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	-
B-6	7	NA	6/10/2011	<1.0	<1.0	<5.0	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	-
B-7	10	12.45	6/10/2011	180	35 Y	<5.0	< 0.25	<0.25	<0.25	<0.25	<0.25	< 0.25	11
B-7	12	12.45	6/10/2011	<0.98	NA	NA	NA	NA	NA	NA	NA	NA	-
B-8	4.5	NA	6/10/2011	<1.1	3.2 Y	23	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	< 0.0049	-
B-9	8	11.5	6/10/2011	140	58 Y	6.1	< 0.25	< 0.25	<0.25	<0.25	< 0.25	< 0.25	9
B-9	10	11.5	6/10/2011	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	-
E	ESL Drinking Water (Residential)				83	370	0.044	2.9	2.3	2.3	0.023	200	NA
ESI	ESL Non-Drinking Water (Commercial)				180	2500	0.27	9.3	4.7	11	8.4	750	NA

Notes:

ESL: California Regional Water Quality Control Board, Environmental Screening Levels, Interim Final November 2007, Revised May 2008

Note: Depth to groundwater is tentative, since some locations had slower water recovery rates, and does not represent the actual stabilized groundwater elevation across the site

< : below Laboratory Detection Limits

Y: Sample exhibits chromatographic pattern which does not resemble standard

APPENDIX A

DRILLING PERMIT

Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street Hayward, CA 94544-1395 Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 06/07/2011 By jamesy

Permit Numbers: W2011-0381

Permits Valid from 06/10/2011 to 06/10/2011

Application Id:

1307465372569

City of Project Site: Oakland

Site Location: Project Start Date: 6501 Shattuck Ave, Oakland, CA 06/10/2011

Completion Date: 06/10/2011

Assigned Inspector:

Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org

Dhana, 025 724 6400

Applicant:

SOMA Environmental Engineering - Elena

Phone: 925-734-6400

Manzo

CCOO

6620 Owens Drive, Suite A, Pleasanton, CA 94588

Phone: --

Property Owner:

Athan Magganas

2550 Appian Way, Suite 201, Pinole, CA 94564

Client:

** same as Property Owner **

Total Due:

\$265.00

Receipt Number: WR2011-0166 Total Amount Paid:

\$265.00

Payer Name: SOMA EnvironmentalPaid By: VISA

PAID IN FULL

Engineering, Inc

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 6 Boreholes

Driller: RSI Drilling - Lic #: 802334 - Method: other

Work Total: \$265.00

Specifications

Permit Issued Dt

Expire Dt

Hole Diam Max Depth

Number

Boreholes

es

2.00 in.

22.00 ft

W2011-0381

Specific Work Permit Conditions

06/07/2011 09/08/2011

- 1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
- 2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
- 3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
- 4. Applicant shall contact Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
- 5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

Alameda County Public Works Agency - Water Resources Well Permit

- 6. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
- 7. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

PROGRAMS AND SERVICES

Well Standards Program

The Alameda County Public Works Agency, Water Resources is located at: 399 Elmhurst Street Hayward, CA 94544

For Driving Directions or General Info, Please Contact 510-670-5480 or wells@acpwa.org

For Drilling Permit information and process contact James Yoo at

Phone: 510-670-6633 FAX: 510-782-1939

Email: Jamesy@acpwa.org

Alameda County Public Works is the administering agency of General Ordinance Code, Chapter 6.88. The purpose of this chapter is to provide for the regulation of groundwater wells and exploratory holes as required by California Water Code. The provisions of these laws are administered and enforced by Alameda County Public Works Agency through its Well Standards Program.

Drilling Permit Jurisdictions in Alameda County: There are four jurisdictions in Alameda County.

Location: Agency with Jurisdiction Contact Number

Berkeley City of Berkeley Ph: 510-981-7460

Fax: 510-540-5672

Fremont, Newark, Union City Alameda County Water District Ph: 510-668-4460

Fax: 510-651-1760

Pleasanton, Dublin, Livermore, Sunol Zone 7 Water Agency Ph: 925-454-5000

Fax: 510-454-5728

The Alameda County Public Works Agency, Water Resources has the responsibility and authority to issue drilling permits and to enforce the County Water Well Ordinance 73-68. This jurisdiction covers the western Alameda County area of Oakland, Alameda, Piedmont, Emeryville, Albany, San Leandro, San Lorenzo, Castro Valley, and Hayward. The purpose of the drilling permits are to ensure that any new well or the destruction of wells, including geotechnical investigations and environmental sampling within the above jurisdiction and within Alameda County will not cause pollution or contamination of ground water or otherwise jeopardize the health, safety or welfare of the people of Alameda County.

Permits are required for all work pertaining to wells and exploratory holes at any depth within the jurisdiction of the Well Standards Program. A completed permit application (30 Kb)*, along with a site map, should be submitted at least ten (10) working days prior to the planned start of work. Submittals should be sent to the address or fax number provided on the application form. When submitting an application via fax, please use a high resolution scan to retain legibility.

Fees

Beginning April 11, 2005, the following fees shall apply:

A permit to construct, rehabilitate, or destroy wells, including cathodic protection wells, but excluding dewatering wells (*Horizontal hillside dewatering and dewatering for construction period only), shall cost \$300.00 per well.

A permit to bore exploratory holes, including temporary test wells, shall cost \$200 per site. A site includes the project parcel as well as any adjoining parcels.

Please make checks payable to: Treasurer, County of Alameda

Permit Fees are exempt to State & Federal Projects

Applicants shall submit a letter from the agency requesting the fee exemption.

Scheduling Work/Inspections:

Alameda County Public Works Agency (ACPWA), Water Resources Section requires scheduling and inspection of permitted work. All drilling activities must be scheduled in advance. Availability of inspections will vary from week to week and will come on a first come, first served bases. To ensure inspection availability on your desired or driller scheduled date, the following procedures are required:

Please contact James Yoo at 510-670-6633 to schedule the inspection date and time (You must have drilling permit approved prior to scheduling).

Schedule the work as far in advance as possible (at least 5 days in advance); and confirm the scheduled drilling date(s) at least 24 hours prior to drilling.

Once the work has been scheduled, an ACPWA Inspector will coordinate the inspection requirements as well as how the Inspector can be reached if they are not at the site when Inspection is required. Expect for special circumstances given, all work will require the inspection to be conducted during the working hours of 8:30am to 2:30pm., Monday to Friday, excluding holidays.

Request for Permit Extension:

Permits are only valid from the start date to the completion date as stated on the drilling permit application and Conditions of Approval. To request an extension of a drilling permit application, applicants must request in writing prior to the completion date as set forth in the Conditions of Approval of the drilling permit application. Please send fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. There are no additional fees for permit extensions or for re-scheduling inspection dates. You may not extend your drilling permit dates beyond 90 days from the approval date of the permit application. NO refunds shall be given back after 90 days and the permit shall be deemed voided.

Cancel a Drilling Permit:

Applicants may cancel a drilling permit only in writing by mail, fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. If you do not cancel your drilling permit application before the drilling completion date or notify in writing within 90 days, Alameda County Public Works Agency, Water Resources Section may void the permit and No refunds may be given back.

Refunds/Service Charge:

A service charge of \$25.00 dollars for the first check returned and \$35.00 dollars for each subsequent check returned.

Applicants who cancel a drilling permit application before we issue the approved permit(s), will receive a FULL refund (at any amount) and will be mailed back within two weeks.

Applicants who cancel a drilling permit application after a permit has been issued will then be charged a service fee of \$50.00 (fifty Dollars).

To collect the remaining funds will be determined by the amount of the refund to be refunded (see process below).

Board of Supervisors Minute Order, File No. 9763, dated January 9, 1996, gives blanket authority to the Auditor-Controller to process claims, from all County departments for the refund of fees which do not exceed \$500 (Five Hundred Dollars) (with the exception of the County Clerk whose limit is \$1,500).

Refunds over the amounts must be authorized by the Board of Supervisors Minute Order, File No. 9763 require specific approval by the Board of Supervisors. The forms to request for refunds under \$500.00 (Five Hundred Dollars) are available at this office or any County Offices. If the amount is exceeded, a Board letter and Minute Order must accompany the claim. Applicant shall fill out the request form and the County Fiscal department will process the request.

Enforcement

Penalty. Any person who does any work for which a permit is required by this chapter and who fails to obtain a permit shall be guilty of a misdemeanor punishable by fine not exceeding Five Hundred Dollars (\$500.00) or by imprisonment not exceeding six months, or by both such fine and imprisonment, and such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any such

violation is committed, continued, or permitted, and shall be subject to the same punishment as for the original offense. (Prior gen. code §3-160.6)

Enforcement actions will be determined by this office on a case-by-case basis
Drilling without a permit shall be the cost of the permit(s) and a fine of \$500.00 (Five Hundred Dollars).

Well Completion Reports (State DWR-188 forms) must be filed with the Well Standards Program within 60 days of completing work. Staff will review the report, assign a state well number, and then forward it to the California Department of Water Resources (DWR). Drillers should not send completed reports to DWR directly. Failure to file a Well Completion Report or deliberate falsification of the information is a misdemeanor; it is also grounds for disciplinary action by the Contractors' State License Board. Also note that filed Well Completion Reports are considered private record protected by state law and can only be released to the well owner or those specifically authorized by government agencies.

See our website (www.acgov.org/pwa/wells/index.shtml) for links to additional forms.

APPENDIX B

BORING LOGS



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Hand Auger

BORING DIAMETER: 3-inch

LOGGED BY: E. Fisker

DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

First Encountered GW: 11.5 ft.

Stablized GW: 13.22 ft.

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr

PID ppm DEPTH	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	SPLIT SPOON	CORE	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM NA
5- 5- 10- 10- 15- 20- 20-		ML CL CL SC	Bottom of Excavation (Excavation depth) SANDY SILT: dark brown, moist, soft, fine-grained sand, some medium to coarse grained sand, low dry strength, low toughness, slow dilancy. No PHC odor. LEAN CLAY with sand: Black, soft, moist, medium tough, high plastic, high plasticity, rapid dilatancy, medium dry strength, no PHC odor. Organic odor starts @6.5 ft becomes gray @ 7.5-8 ft. No PHC odor. 5-10% fine- to medium-grained sand. Wet at 7.5 ft Some rust mottling, PHC staining, fine gravel <5% at 9.5 ft SANDY LEAN CLAY: Reddish-brown w/ gray mottling at 10 to 10.3 ft, 2" sand stringer at 10.3 ft, CaCO3 nodules, high plasticity, saturated, fine- to coarse-grained sand (40%), rapid dilatancy, medium toughness, medium dry strength, dries out to moist at 11.5 ft. Some brick fragments at 11 ft. SANDY LEAN CLAY: Light gray with rust mottling, soft, moist, black nodules, fine- to medium-grained sand, high plasticity, medium toughness, medium dry strength, rapid dilatancy, increase in sand content at 13 ft. No PHC odor. CLAYEY SAND: Reddish-brown w/ black nodules, fine- to medium-grained sand (60%), rapid dilatancy, medium dry strength, medium toughness, moist, some coars sand, firm (70% sand). Gray clay mottling at 16 ft. Sand decrease to 50% at 17.5 ft, gray mottling, soft, highly plastic. Reddish-brown fine to very fine sand (70%) at 19 ft		×			

COMMENTS: Total depth 20 ft bgs. GW stabilized at 13.22 ft bgs.



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Direct Push

BORING DIAMETER: 3-inch

LOGGED BY: E. Fisker

DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

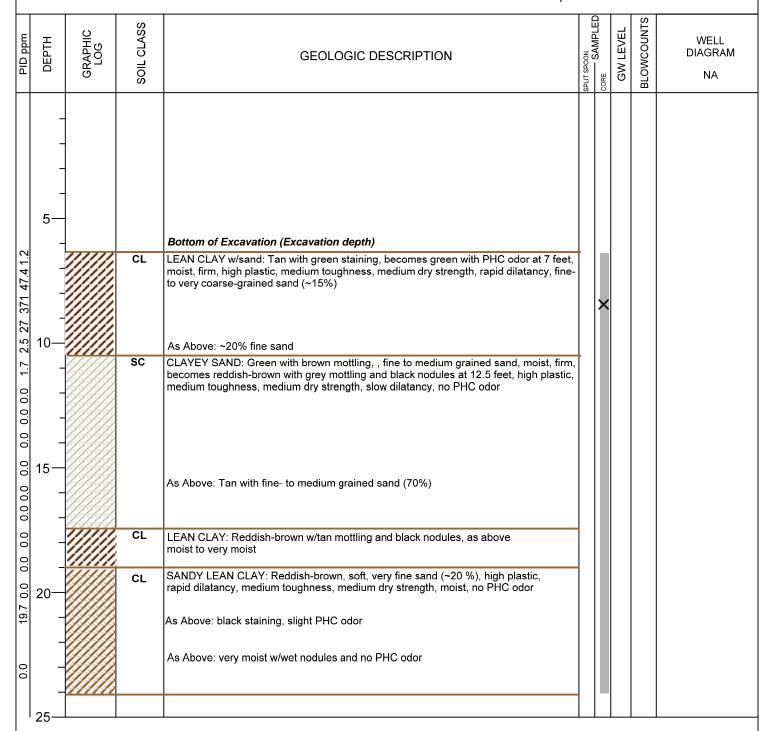
First Encountered GW: NA

Stablized GW: NA

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr



COMMENTS: Total depth 24 ft bgs. Stabilized GW not encountered, GW sample collected as soon as water in casing.



DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

T.O.C. TO SCREEN: N/A

Stablized GW:

First Encountered GW: 22 ft.

PAGE 1 OF 1

PROJECT: 5032

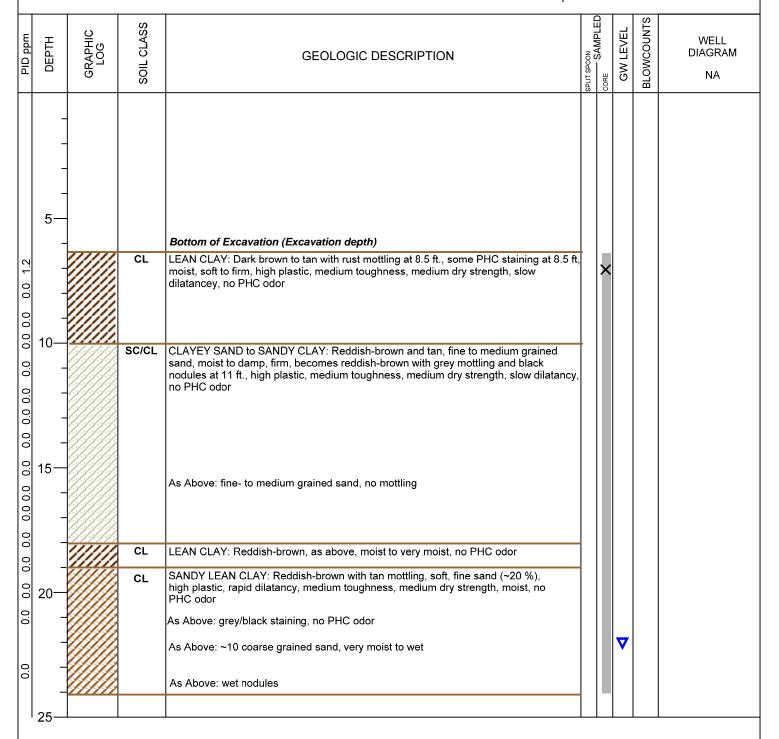
SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Direct Push

BORING DIAMETER: 3-inch SCREEN LENGTH: N/A

LOGGED BY: E. Fisker APPROVED BY: M. Sepehr



COMMENTS: Total depth 24 ft bgs. Stabilized GW not encountered, GW sample collected as soon as water in casing.



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Direct Push

BORING DIAMETER: 3-inch

LOGGED BY: E. Fisker

DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

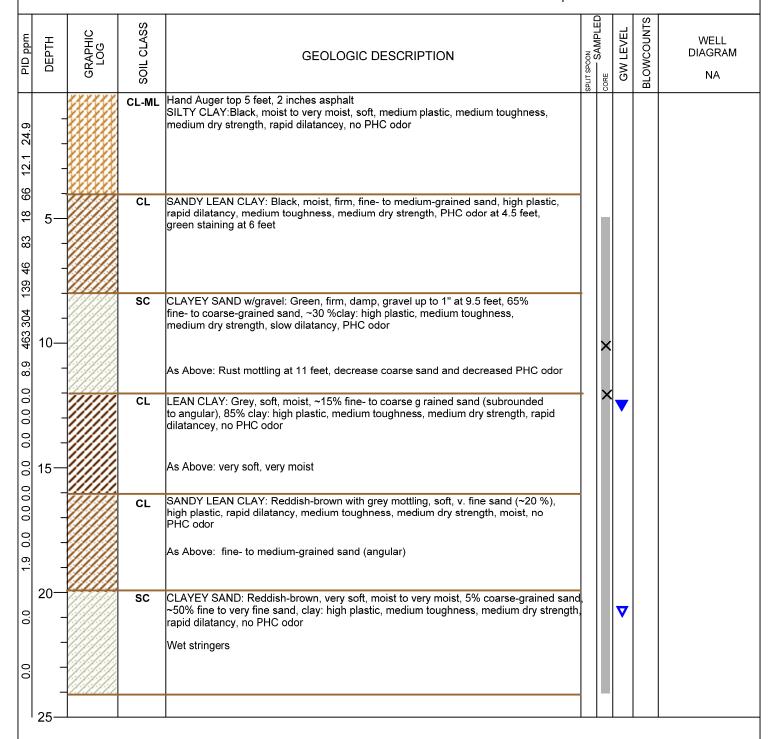
First Encountered GW: 21 ft.

Stablized GW: 12.45 ft

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr



COMMENTS: Total depth 24 ft bgs. Stabilized GW at 12.45 feet bgs



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Direct Push

BORING DIAMETER: 3-inch

LOGGED BY: E. Fisker

DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

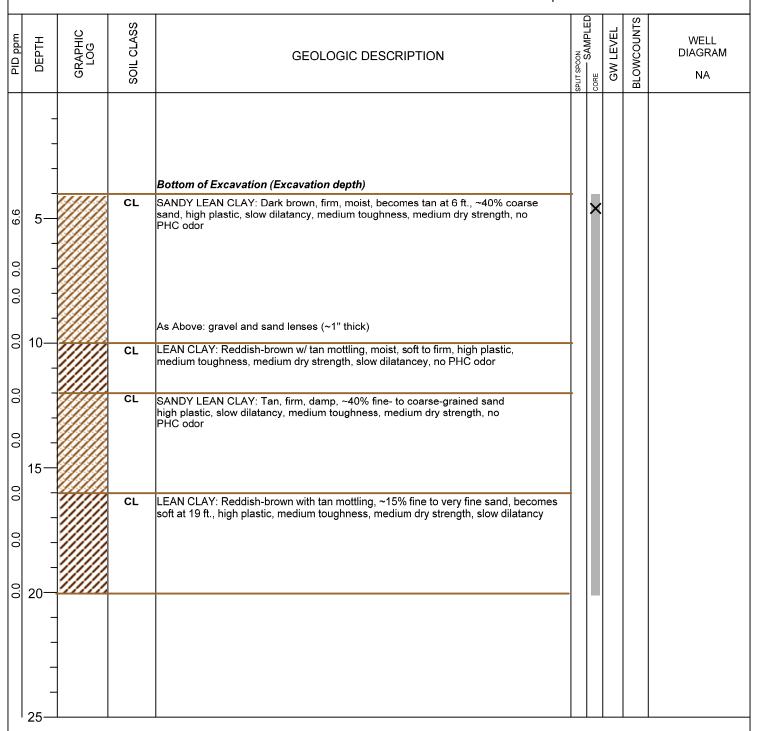
First Encountered GW: Not encountered

Stablized GW: Not encountered

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr



COMMENTS: Total depth 20 ft bgs. Stabilized GW not encountered, GW sample collected as soon as water in casing.



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: RSI Drilling

DRILLING METHOD: Direct Push

BORING DIAMETER: 3-inch

LOGGED BY: E. Fisker

DATE DRILLED: 6/10/2011

CASING ELEVATION: N/A

First Encountered GW: 22.5 ft.

Stablized GW: 15.5

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr

בווקק טור	DEPTH	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	SPLIT SPOON	CORE SAMPLED	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM NA
0.0	-		CL	Bottom of Excavation (Excavation depth) SANDY LEAN CLAY: Dark brown, soft, fine sand (~25 %), high plastic, rapid dilatancy, medium toughness, medium dry strength, dry to moist, no PHC odor					
522 112 5.20.0	5—			As Above: becomes green with strong PHC odor, fine- to coarse-grained sand					
0			SC	CLAYEY SAND: Brown with green mottling, fine- to coarse-grained sand (70%), dry, firm, high plastic, medium toughness, low dry strength, no dilatancy, strong PHC odor		×			
				As Above: Grey with PHC staining, strong PHC odor, becomes soft with rapid dilatancy					
•	10—			As Above: very coarse-grained sand at 10 ft., no PHC odor, dry		×			
0.0	-			As Above: Tan, moist, CaCO3 nodules (strong HCl reaction), no PHC odor					
	15—		CL	SANDY CLAY: Tan, firm, moist, fine- to medium-grained sand (20%), high plastic,			\		
9	-			medium toughness, medium dry strength, rapid dilatancy, no PHC odor, swelling clay					
	-		CL	As above: tan w/rust mottling LEAN CLAY: Grey, soft, moist, slow dilatancy, high plastic, medium toughness, medium dry strength, moist, no PHC odor					
2	20— - -			As Above: w/rust mottling and black nodules, moist to very moist					
	-		SP	POORLY GRADED SAND w/clay: Reddish-brown, wet, fine- to coarse-grained sand, no PHC odor,~5% clay: highly plastic, medium toughness, low dry strength, rapid dilatar	су		\rightarrow		
	-				1 1				

COMMENTS: Total depth 24 ft bgs. Stabilized GW at 15.5 feet bgs.



PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: SOMA Environmental

DRILLING METHOD: Hand Auger

BORING DIAMETER: 3-inch

LOGGED BY: E. Hightower

DATE DRILLED: 7/21/2010

CASING ELEVATION: N/A

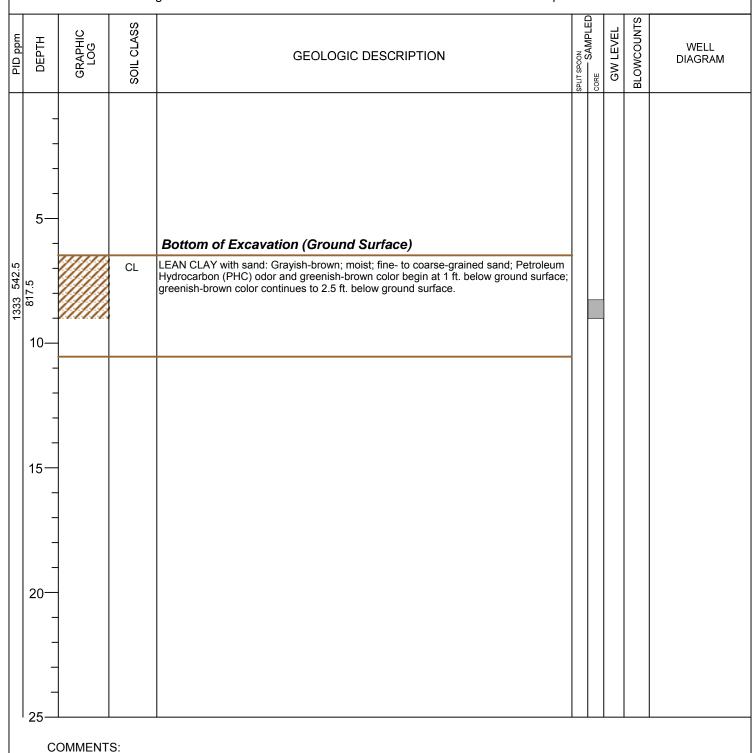
First Encountered GW: N/A

Stablized GW: 3.5 ft.

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr





PAGE 1 OF 1

PROJECT: 5032

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

DRILLER: SOMA Environmental

DRILLING METHOD: Hand Auger

BORING DIAMETER: 3-inch

LOGGED BY: E. Hightower

DATE DRILLED: 7/21/2010

CASING ELEVATION: N/A

First Encountered GW: N/A

Stablized GW: 4 ft. bgs

T.O.C. TO SCREEN: N/A

SCREEN LENGTH: N/A

APPROVED BY: M. Sepehr

	LOGGEDE	, ,	gntower ALT NOVED BT. W. Sepen	••				
PID ppm	GRAPHIC	SOIL CLASS	GEOLOGIC DESCRIPTION	SPLIT SPOON	CORE	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
5 10 10 15 20 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26		ML/GI	Bottom of Excavation (Ground Surface) SANDY SILT with gravel: Dark brown, moist; ~ 40% fine- to coarse-grained sand; gravel up to 1/2-inch; green staining and odor begin at 1.5 ft. CLAYEY SILT: Dark brown with some greenish staining; moist; PHC odor and staining ends at 3 ft.					
25	,							

COMMENTS:



PAGE 1 OF 1

PROJECT: 5032

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DATE DRILLED: 7/21/2010

SITE LOCATION: 6501 Shattuck Ave., Oakland, CA

CASING ELEVATION: N/A

DRILLER: SOMA Environmental

First Encountered GW: 2 ft. Stablized GW: 1.5 ft.

DRILLING METHOD: Hand Auger

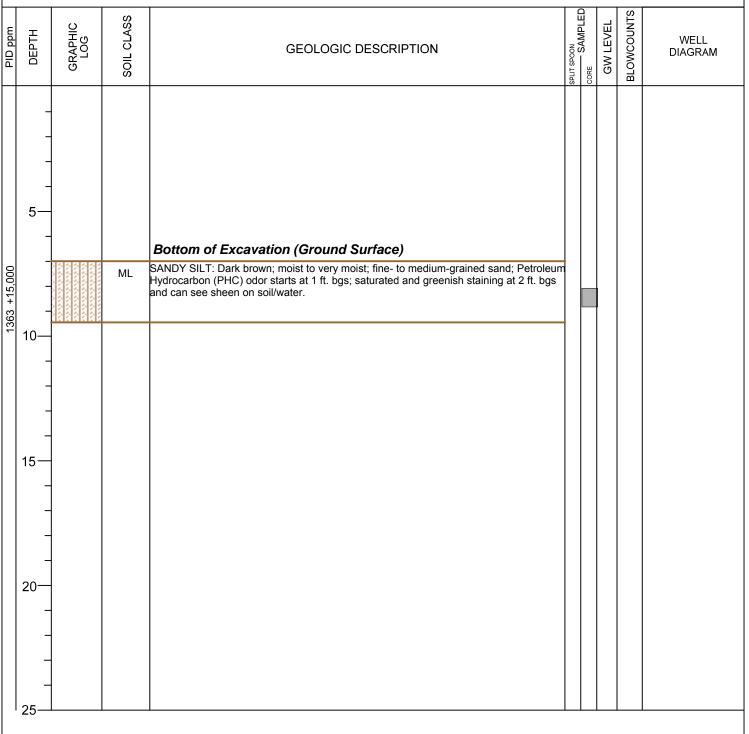
T.O.C. TO SCREEN: N/A

BORING DIAMETER: 3-inch

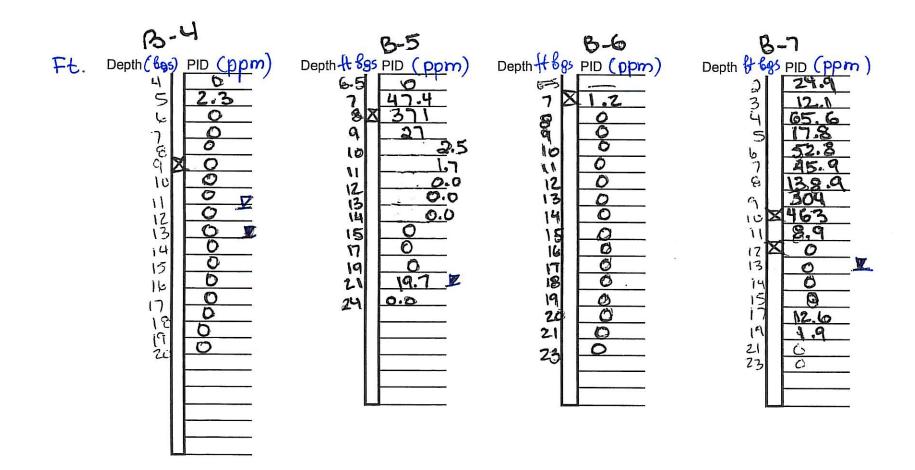
SCREEN LENGTH: N/A

LOGGED BY: E. Hightower

APPROVED BY: M. Sepehr



COMMENTS:

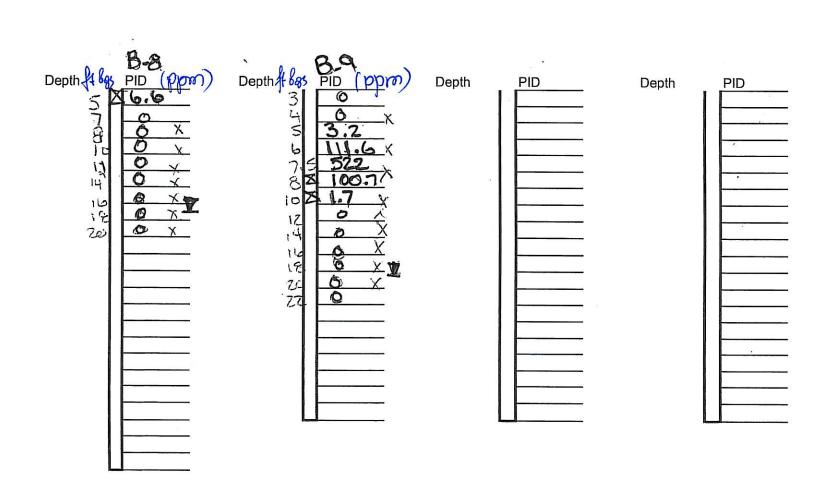


I - Cw Encountered

■ - Gw Stabilized.

M-sampled and analyzed

6501 Shaltuch Ave Ochlared, CA



I - GW Encountered
I - GW Stabilized
✓ Sampled and analyzed

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 228688 ANALYTICAL REPORT

SOMA Environmental Engineering Inc. Project : 5032

6620 Owens Dr. Location: 6501 Shattuck Ave., Oakland

Pleasanton, CA 94588 Level : II

Sample	<u>ID</u>	Lab ID	Sample	e ID	<u>Lab ID</u>
B-4	228	3688-001	B-7 @	6	228688-026
B-4 @ 8F	T 228	3688-002	B-7 @	8	228688-027
B-4 @ 9	FT 228	3688-003	B-7 @	10	228688-028
B-4 @ 12	.5FT 228	3688-004	B-7 @	12	228688-029
B-5	228	3688-005	B-7 @	14	228688-030
B-5 @ 8	228	3688-006	B-7 @	16	228688-031
B-5 @ 10	228	3688-007	B-7 @	18	228688-032
B-5 @ 12	228	3688-008	B-8		228688-033
B-5 @ 14	228	3688-009	B-8 @	4.5	228688-034
B-5 @ 16	228	3688-010	B-8 @	6	228688-035
B-5 @ 18	228	3688-011	B-8 @	8	228688-036
B-5 @ 20	228	3688-012	B-8 @	10	228688-037
B-5 @ 21	228	3688-013	B-8 @	12	228688-038
B-6 @ 7	228	3688-014	B-8 @	14	228688-039
B-6 @ 8.	5 228	3688-015	B-8 @	16	228688-040
B-6 @ 10	228	3688-016	B-8 @	18	228688-041
B-6 @ 12	228	3688-017	B-9		228688-042
B-6 @ 14	228	3688-018	B-9 @	3	228688-043
B-6 @ 16	228	3688-019	B-9 @	4	228688-044
B-6 @ 18	228	3688-020	B-9 @	6	228688-045
B-6 @ 20	228	3688-021	B-9 @	8	228688-046
B-6 @ 21	228	3688-022	B-9 @	10	228688-047
B-7	228	3688-023	B-9 @	12	228688-048
B-7 @ 2	228	3688-024	B-9 @	14	228688-049
B-7 @ 4	228	3688-025			

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:

Project Manager

Date: <u>06/21/2011</u>

NELAP # 01107CA



CASE NARRATIVE

Laboratory number: 228688

Client: SOMA Environmental Engineering Inc.

Project: 5032

Location: 6501 Shattuck Ave., Oakland

Request Date: 06/13/11 Samples Received: 06/13/11

This data package contains sample and QC results for six soil samples and five water samples, requested for the above referenced project on 06/13/11. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B) Water:

No analytical problems were encountered.

TPH-Purgeables and/or BTXE by GC (EPA 8015B) Soil:

High surrogate recovery was observed for bromofluorobenzene (FID) in $B-5\ @ 8$ (lab # 228688-006). No other analytical problems were encountered.

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

No analytical problems were encountered.

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

High surrogate recovery was observed for o-terphenyl in B-4 @ 9 FT (lab # 228688-003); no target analytes were detected in the sample. No other analytical problems were encountered.

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

B-7 (lab # 228688-023) had multiple vials combined due to sediment. No other analytical problems were encountered.

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

No analytical problems were encountered.

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

C&T LOGIN # 22868

Sampler: Erica Fisker

Project No: 5032

Report To:

Joyce Bobek

Project Name: 6501 Shattuck Ave., Oakland

SOMA Environmental

Turnaround Time: Standard

Telephone:

Company:

925-734-6400

Fax:

925-734-6401

						Иa	trix	(P	res	erv	ativ	⁄e
Lab No.	Sample ID.	Sa	Sampling Date		Soil	Water	Waste		# of Containers	HCL	H ₂ SO ₄	HNO ₃	ICE	
į	B-4	6-10	۱۱ د	تحف	*3	X			6 XCA	χ̈́			*	
2	B-4@841			9:25	X				802 you				İ	
3	B-4@ 9 ft			4.29	X				1					
Ψ	B-4@ 12.5 FH		C	1 59	V								1	
5	B.5		iE	3.00		λ			6 VSAS 21 538 ML	χ^*			J.	
6	3-5 @ 8	$\Box I$		1.58	χ	1			lo insleed					
7	B-5 @ 10			?:هن										
ည	B5 @ 12		12	:10			1	1					1	
9	BS @ 14		Iz	:12				1					\prod	
Notes:	B-5 @ 16			:40,	\prod			Ī					1	

Notes: EDF OUTPUT REQUIRED

Silica-gel clean-up required (TPH-d, Thh-ma)

RELINQUISHED BY:

DATE/TIME

TPH-g, TPH-d, TPH-mo 8015

gun-

RECEIVED BY:

rudld

20:01 DATE/TIME

goe_

DATE/TIME

DATE/TIME

DATE/TIME

Special pricing per Fracy

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

C&T LOGIN # 228688

Sampler: Erica Fisker

Project No: 5032

Project Name: 6501 Shattuck Ave., Oakland

Turnaround Time: Standard

Report To: Joyce Bobek

Company: SOMA Environmental

Telephone: 925-734-6400

Fax: 925-734-6401

			_	<u>via</u>	tri	X		1	res	erv	ativ	e
Lab No.	Sample ID.	Sampling Date Time		Water	Waste		# of Containers	HCL	H ₂ SO ₄	HNO ₃	ICE	
U	B.5 @ 18	6-10-11 12:38	*	玄			8-02 jar				1	
12	B-5@ 20	12:35	X				1					
13	B-5@21	1638	V									
14	B-6@7	11.74										
15	B6 @ 85	11.78										
16	8-60 10	lu a a									T	
17	B6@ 12	11/33							_			
18	B60 14	11:35									1	
19	B-60 16	11:45									1	
20	B-6@ 13	11.50										

Notes: EDF OUTPUT REQUIRED

Silica-gel clean-up required TPH-0, MC

RELINQUISHED BY:

DATE/TIME

6.13-1/

11:30 DATE/TIME

RECEIVED BY:

TPH-g, TPH-d, TPH-mo 8015

6-10-11 20-01 DATE/TIME

TEATING V

DATE/TIME

DATE/TIME

DATE/TIME

Sporice Prices per trans

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

C&T LOGIN#2228688

Sampler: Erica Fisker

Project No: 5032 Report To: Joyce Bobek

Project Name: 6501 Shattuck Ave., Oakland Company: SOMA Environmental

Turnaround Time: Standard Telephone: 925-734-6400

> Fax: 925-734-6401

	r			Иa	trix		F	res	reservati		
Lab No.	Sample ID.	Sampling Date Time	Soil	Water	Waste	# of Containers	HCL.	H ₂ SO ₄	HNO ₃	SE	
2)	B6@ 20	6-10-11 1153	*			68102 jar				*	
22	B-60 21 B-7	110.59	X			1				X	
23	B-7 kgsp	17:45		×		6 SOUM	Х			Χ	
24	8-7 @ 2	15.17	χ			6-17 Sizeva				χ	
25	6.700 4	15:70				1				1	
26	6-700 6	15.23									
27	B-700 8	15:34									ľ
28	B-7 @ 10	15:38									
29	B-700 12	15:42								\prod	
30	B-70 14	15:50	1		T						
Notes:	EDE OUEDUE DECLUSE	_					•				

Notes: EDF OUTPUT REQUIRED Silica-gel clean-up required TRH-d ime

Spenial Pricing for Trans

RELINQUISHED BY:

601011 800 DATE/TIME 11:30 DATE/TIME

RECEIVED BY:

Hel

TPH-g, TPH-d, TPH-mo 8015

6-10-11 200 OT DATE/THME

DATE/TIME

DATE/TIME

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

C&T LOGIN #228688

Sampler: Erica Fisker

Project No: 5032

Project Name: 6501 Shattuck Ave., Oakland

Turnaround Time: Standard

Report To:

Joyce Bobek

Company:

SOMA Environmental

Telephone:

925-734-6400

Fax:

925-734-6401

					Vla	trix	P	Preservative				
Lab No.	Sample ID.	Saı	Sampling Date Time		Water	Waste	# of Containers	HCL	H ₂ SO ₄	HNO3	ICE	
31	B-7@ 16	6-10	2-11 16.02	*			8-ozjar Slekv		_		*	
32	B1@18			ጽ			1				X	
33	B.8		17:00		X		by Annag	χ'			メ	
3+	B-8(02 4.5		13:06	X			6.11 30eu-				X	
36	B.80 6		13.0	Ī			ĺ				Î	
34	368		13,12									
37	B-8@ 10		13:H	I								
38	B-8 @ 12		13.12	\prod								
39	B-8@ 14		13.20									
40	B-8@ 16		- j3:3S								1	

Notes:	EDF	OUT	PUT	REQU	IRE	D
			_		_	

Silica-gel clean-up required

RELINQUISHED BY:

6-10-11 2801 DATE/TIME DATE/TIME

DATE/TIME

* TPH-g, TPH-d, TPH-mo 8015	* VOCs (Full List) 8260							
	*	HO	ld					
X	X	12 7	oli	*				
1								
×	×						•	
X		110	ld					
Λ		ш	ld					
		tu	sla)				
		H	ملا					
\			old					
1	\Rightarrow	×	old					

RECEITED BY:

6-10-11 20:01 DATE/TIME

DATE/TIME

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

C&T LOGIN #228688

Sampler: Erica Fisker

Project No: 5032

Report To:

Joyce Bobek

Project Name: 6501 Shattuck Ave., Oakland

Company: SOMA Environmental

Turnaround Time: Standard

Telephone:

925-734-6400

Fax:

925-734-6401

			Matrix						Preservative					
Lab No.	Sample ID.	Sampling Date Time	Soil	Water	Waste		# of Containers	HZL	H ₂ SO ₄	HNO3	CE			
41	B8@18	6-10-11 1340 *					8-oz jar Sker				*			
3	B-9	6-10-11 17:30		x			1 Amber	Υ,			×			
43	B-9@ 3	14:25	l۸	1			6-19 56cm				1			
44	B-9 @ 4	14:30												
46	B.9 (2) 6	14734									1			
46	B-9 @ 8	14:40												
47	B.9 @ 10	14:40												
48	B-9 @ 12	14:55									1			
49	B9@14	14:57												
	B-470 Ho	·					X			_	1			

Notes: EDF OUTPUT REQUIRED

Silica-gel clean-up required #H-d, me

RELINQUISHED BY:

6-10 il zo ol DATE/TIME

6/13//0 1/: 3 o

DATE/TIME

TPH-g, TPH-d, TPH-mo 8015

VOCs (Full List)

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Hold

told

Hold

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RECEIVED BY:

HOTA

.

6/10/11 20

DATE/TIME

3 (130)

DATE/TIME

Special Ricing per Trace

COOLER RECEIPT CHECKLIST



Login #228683 Date Received 1/13/11 Number of coolers 1 Client SOMA Project 6561 Shattuck Ave, Oakland
Date Opened 13/11 By (print) Voice Oct hi (sign) Cor hi (sign) By (print) By (print) Cor hi (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
☐ 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) Samples Received on ice & cold without a temperature blank
☐ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. Was the client contacted concerning this sample delivery? 10. Date: VIVII)
sediment found at bottom of containers.



Total Volatile Hydrocarbons Lab #: 228688 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B EPA 8015B Project#: 5032 Analysis: Matrix: Water Batch#: 175876 Units: ug/L Sampled: 06/10/11 1.000 Diln Fac: Received: 06/13/11

Field ID: B-4 Lab ID: 228688-001 Type: SAMPLE Analyzed: 06/16/11

AnalyteResultRLGasoline C7-C12ND50

Surrogate %REC Limits
Bromofluorobenzene (FID) 107 78-123

Field ID: B-5 Lab ID: 228688-005 Type: SAMPLE Analyzed: 06/16/11

AnalyteResultRLGasoline C7-C12ND50

Surrogate %REC Limits
Bromofluorobenzene (FID) 107 78-123

Field ID: B-7 Lab ID: 228688-023 Type: SAMPLE Analyzed: 06/16/11

AnalyteResultRLGasoline C7-C12160 Y50

Surrogate %REC Limits
Bromofluorobenzene (FID) 106 78-123

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 1 of 2

15.0



Total Volatile Hydrocarbons Lab #: 228688 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B EPA 8015B Project#: 5032 Analysis: Matrix: Water Batch#: 175876 Units: ug/L Sampled: 06/10/11 1.000 Diln Fac: Received: 06/13/11

Field ID: B-8 Lab ID: 228688-033 Type: SAMPLE Analyzed: 06/16/11

AnalyteResultRLGasoline C7-C12ND50

Surrogate %REC Limits
Bromofluorobenzene (FID) 103 78-123

Field ID: B-9 Lab ID: 228688-042 Type: SAMPLE Analyzed: 06/16/11

AnalyteResultRLGasoline C7-C12ND50

Surrogate%RECLimitsBromofluorobenzene (FID)10178-123

Type: BLANK Analyzed: 06/15/11

Lab ID: QC596411

AnalyteResultRLGasoline C7-C12ND50

Surrogate %REC Limits
Bromofluorobenzene (FID) 103 78-123

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 2 of 2

15.0



	Total Volatil	e Hydrocarbons	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596408	Batch#:	175876
Matrix:	Water	Analyzed:	06/15/11
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	945.4	95	80-120

Limits	Surrogate %REC	REC Limits
78-123	robenzene (FID) 97	

Page 1 of 1



	Total Volatil	e Hydrocarbons	
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland
Client: SOMA En	vironmental Engineering Inc.	Prep:	EPA 5030B
Project#: 5032		Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZ	Batch#:	175876
MSS Lab ID:	228698-012	Sampled:	06/14/11
Matrix:	Water	Received:	06/14/11
Units:	ug/L	Analyzed:	06/15/11
Diln Fac:	1.000		

Type: MS

Lab ID: QC596412

Lab ID: QC596413

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	17.14	2,000	2,007	100	66-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FII)) 111	78-123	

Type: MSD

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,023	100	66-120	1	25

Surrogate %REC Limits
ofluorobenzene (FID) 109 78-



	Total Volatil	e Hydrocarbons	
Lab #: 228688	3	Location:	6501 Shattuck Ave., Oakland
Client: SOMA E	Environmental Engineering Inc.	Prep:	EPA 5030B
Project#: 5032		Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	175876
MSS Lab ID:	228724-001	Sampled:	06/14/11
Matrix:	Water	Received:	06/15/11
Units:	ug/L	Analyzed:	06/16/11
Diln Fac:	1.000		

Type: MS

Lab ID: QC596414

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	28.20	2,000	1,800	89	66-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	104	78-123	

Type: MSD Lab ID: QC596415

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,900	94	66-120	5	25



	Total Volatil	e Hydrocarbons	
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland
Client: SOMA E	nvironmental Engineering Inc.	Prep:	EPA 5030B
Project#: 5032		Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	175876
MSS Lab ID:	228700-002	Sampled:	06/13/11
Matrix:	Water	Received:	06/14/11
Units:	ug/L	Analyzed:	06/16/11
Diln Fac:	1.000		

Type: MS

Lab ID: QC596416

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	14.08	2,000	1,774	88	66-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	103	78-123	

Type: MSD Lab ID: QC596417

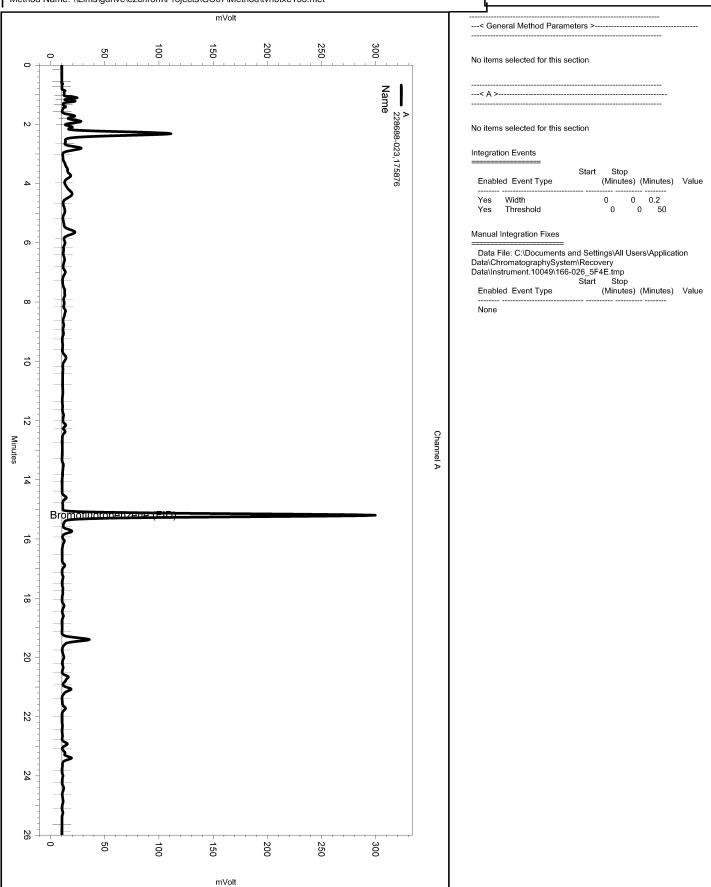
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,801	89	66-120	1	25

 $\label{lem:convergence} Sequence \ File: \verb|\Lims\gdrive\ezchrom\Projects\GC07\Sequence\166.seq| \\$ Sample Name: 228688-023,175876

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\166-026 Instrument: GC07 Vial: N/A Operator: lims2k3\tvh3

Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe153.met

Software Version 3.1.7 Run Date: 6/16/2011 7:02:25 AM Analysis Date: 6/16/2011 7:31:08 AM Sample Amount: 5 Multiplier: 5 Vial & pH or Core ID: a1.0



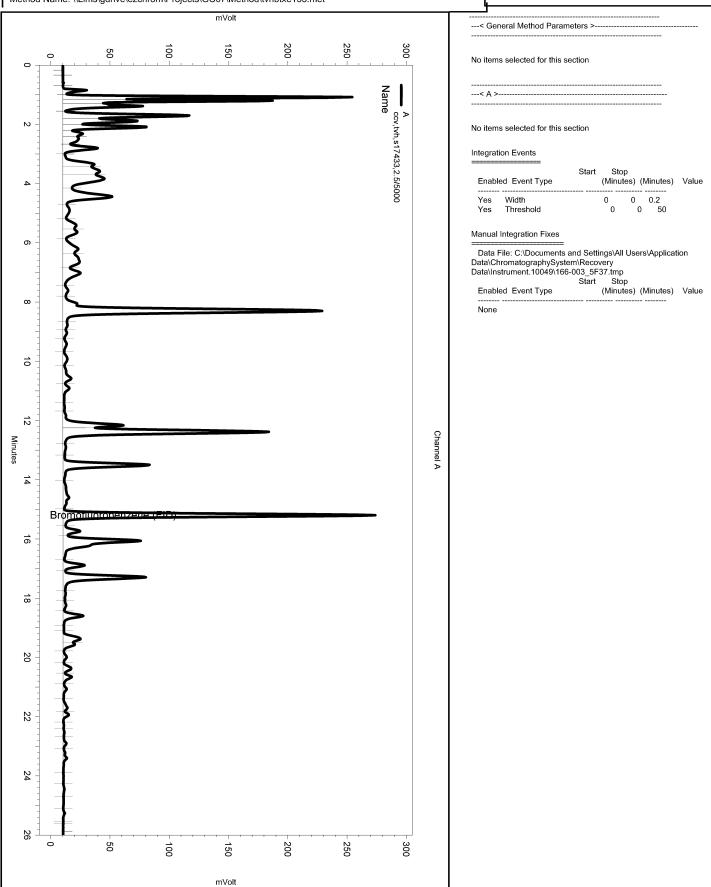
Sequence File: \\Lims\gdrive\ezchrom\Projects\GC07\Sequence\166.seq Sample Name: ccv,tvh,s17433,2.5/5000

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\166-003

Instrument: GC07 Vial: N/A Operator: lims2k3\tvh3

Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe153.met

Software Version 3.1.7 Run Date: 6/15/2011 11:51:39 AM Analysis Date: 6/15/2011 12:20:23 PM Sample Amount: 5 Multiplier: 5 Vial & pH or Core ID: {Data Description}





Total Volatile Hydrocarbons

Lab #: 228688 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B Project#: 5032 Analysis: EPA 8015B

Matrix: Soil Sampled: 06/10/11 Units: mg/Kg Received: 06/13/11

Basis: as received

Field ID: B-4 @ 9 FT Diln Fac: 1.000
Type: SAMPLE Batch#: 175865
Lab ID: 228688-003 Analyzed: 06/15/11

 Lâb ID:
 228688-003
 Analyzed:
 06/15/11

Analyte Result RL
Gasoline C7-C12 ND 1.0

Surrogate %REC Limits
Bromofluorobenzene (FID) 98 74-132

Field ID: B-5 @ 8 Diln Fac: 1.000 Type: SAMPLE Batch#: 175865 Lab ID: 228688-006 Analyzed: 06/15/11

Analyte Result RL
Gasoline C7-C12 18 Y 1.1

Surrogate%RECLimitsBromofluorobenzene (FID)146 * 74-132

Field ID: B-6 @ 7 Diln Fac: 1.000 Type: SAMPLE Batch#: 175865 Lab ID: 228688-014 Analyzed: 06/15/11

Analyte Result RL
Gasoline C7-C12 ND 1.0

Surrogate %REC Limits

Field ID: B-7 @ 10 Diln Fac: 20.00 Type: SAMPLE Batch#: 175919 Lab ID: 228688-028 Analyzed: 06/16/11

 Lab ID:
 228688-028
 Analyzed:
 06/16/11

 Analyte
 Result
 RL

Gasoline C7-C12 180 20

Surrogate %REC Limits
Bromofluorobenzene (FID) 125 74-132

*= Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Bromofluorobenzene (FID)

Page 1 of 2

21.0



Total Volatile Hydrocarbons

Lab #: 228688 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B Project#: 5032 Analysis: EPA 8015B

Matrix: Soil Sampled: 06/10/11
Units: mg/Kg Received: 06/13/11
Basis: as received

Field ID: B-8 @ 4.5 Diln Fac: 1.000 Type: SAMPLE Batch#: 175865 Lab ID: 228688-034 Analyzed: 06/15/11

Analyte Result RL
Gasoline C7-C12 ND 1.1

Surrogate %REC Limits
Bromofluorobenzene (FID) 99 74-132

Field ID: B-9 @ 8 Diln Fac: 40.00 Type: SAMPLE Batch#: 175919 Lab ID: 228688-046 Analyzed: 06/16/11

Analyte Result RL
Gasoline C7-C12 140 40

Surrogate %REC Limits
Bromofluorobenzene (FID) 110 74-132

Type: BLANK Batch#: 175865 Lab ID: QC596371 Batch#: 06/15/11

Diln Fac: 1.000

Analyte Result RL

Gasoline C7-C12 ND 1.0

Surrogate %REC Limits
Bromofluorobenzene (FID) 92 74-132

Type: BLANK Batch#: 175919
Lab ID: QC596592 Analyzed: 06/16/11
Diln Fac: 1.000

Analyte Result RL

Gasoline C7-C12 ND 1.0

Surrogate %REC Limits
Bromofluorobenzene (FID) 94 74-132

*= Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 2 of 2



	Total Volatil	e Hydrocarbons	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596370	Batch#:	175865
Matrix:	Soil	Analyzed:	06/15/11
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9847	98	80-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	98	74-132	

Page 1 of 1 22.0



	Total Volatil	e Hydrocarbons	
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland
Client: SOMA E	Invironmental Engineering Inc.	Prep:	EPA 5030B
Project#: 5032		Analysis:	EPA 8015B
Field ID:	B-4 @ 9 FT	Diln Fac:	1.000
MSS Lab ID:	228688-003	Batch#:	175865
Matrix:	Soil	Sampled:	06/10/11
Units:	mg/Kg	Received:	06/13/11
Basis:	as received	Analyzed:	06/15/11

Type: MS Lab ID: QC596404

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.1188	10.53	10.27	96	43-120

Surrogate	%REC	Surrogate	Lim	its
	107	Bromofluorobenzene (FID)	74-1	132

Type: MSD Lab ID: QC596405

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.804	9.129	92	43-120	5	34



	Total Volatil	e Hydrocarbons	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596589	Batch#:	175919
Matrix:	Soil	Analyzed:	06/16/11
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.8924	89	80-120

Limits	%REC	Surrogate	Limits
74-132	1 89	romofluorobenzene (FID)	

Page 1 of 1 24.0



Total Volatile Hydrocarbons					
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland		
Client: SOMA En	vironmental Engineering Inc.	Prep:	EPA 5030B		
Project#: 5032		Analysis:	EPA 8015B		
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000		
MSS Lab ID:	228737-001	Batch#:	175919		
Matrix:	Soil	Sampled:	06/15/11		
Units:	mg/Kg	Received:	06/15/11		
Basis:	as received	Analyzed:	06/17/11		

Type: MS Lab ID: QC596778

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.05406	10.75	7.388	68	43-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	86	74-132	

Type: MSD Lab ID: QC596779

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.259	7.959	85	43-120	22	34

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC05\Sequence\166.seq

Sample Name: 228688-006,175865

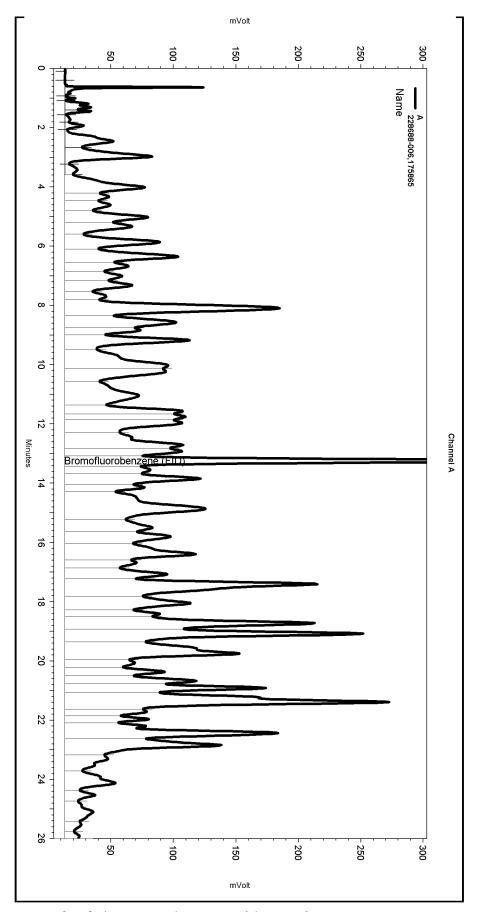
Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\166-014

Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)

Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe111.met

Software Version 3.1.7 Run Date: 6/15/2011 8:38:04 PM Analysis Date: 6/16/2011 11:56:04 AM Sample Amount: 0.93 Multiplier: 0.93

Vial & pH or Core ID: b



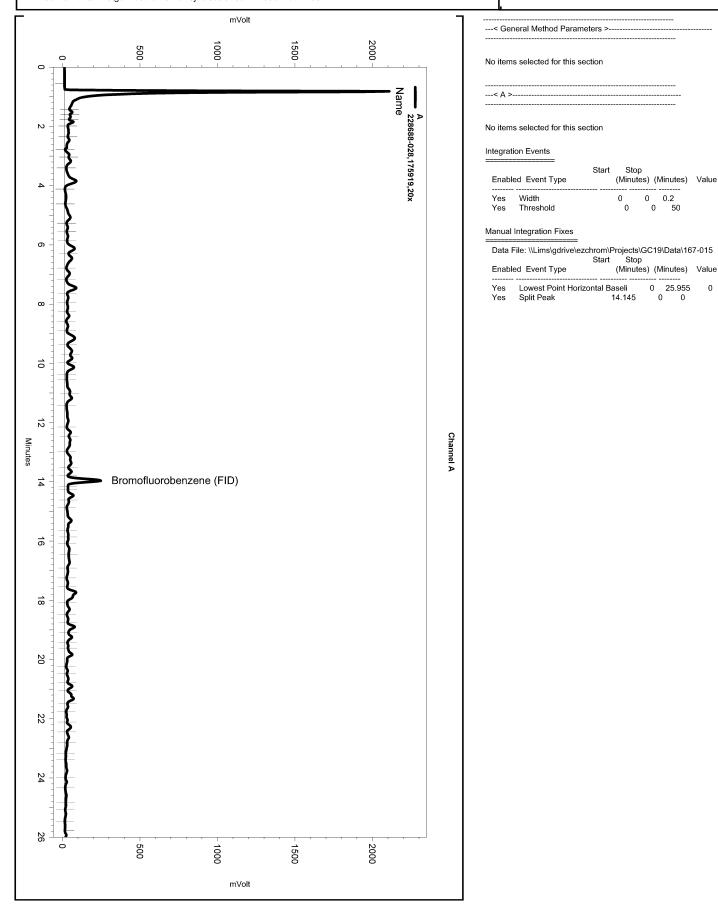
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Sample Name: 228688-028,175919,20x

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Software Version 3.1.7 Run Date: 6/16/2011 10:48:08 PM Analysis Date: 6/17/2011 11:22:15 AM Sample Amount: 1 Multiplier: 1 Vial & pH or Core ID: b

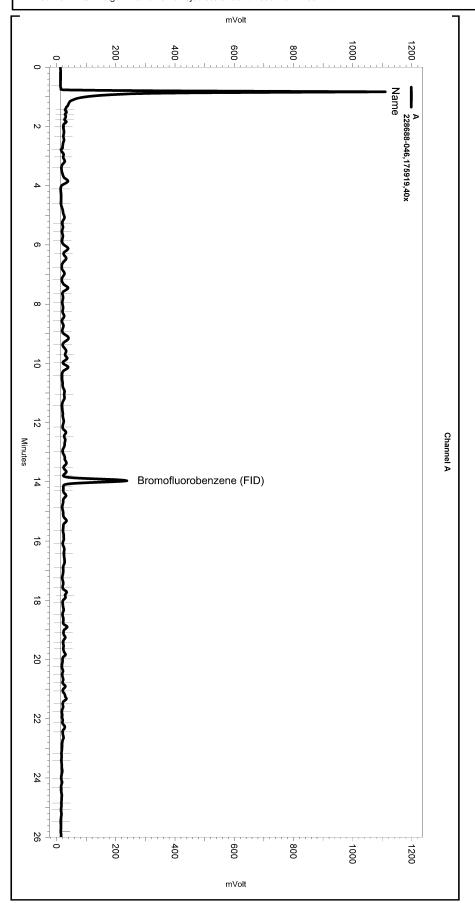


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Sample Name: 228688-046,175919,40x

Data File: \\Lims\gdrive\ezchrom\Projects\GC19\Data\167-016 Instrument: GC19 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1) Method Name: \\Lims\gdrive\ezchrom\Projects\GC19\Method\tvhbtxe159.met

Software Version 3.1.7 Run Date: 6/16/2011 11:25:41 PM Analysis Date: 6/17/2011 11:26:06 AM Sample Amount: 1 Multiplier: 1 Vial & pH or Core ID: b



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Manual Integration Fixes ———————————————————————————————————
Manual Integration Fixes

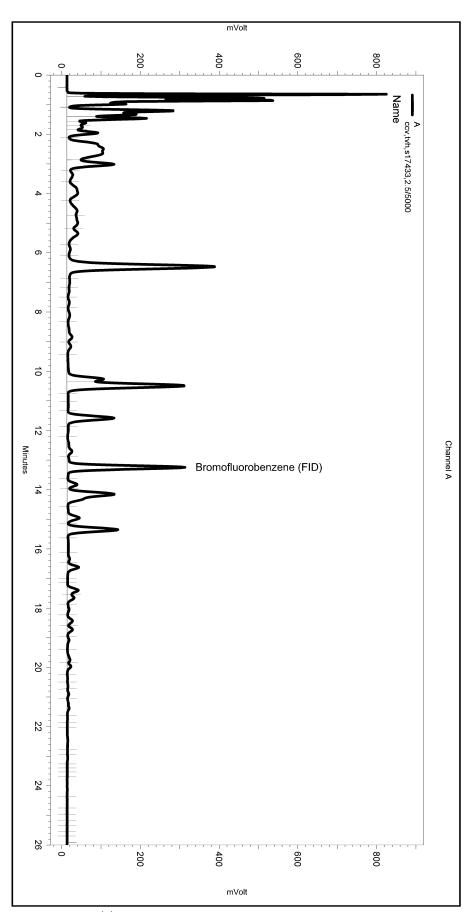
Sample Name: ccv,tvh,s17433,2.5/5000

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Instrument: GC05 Vial: N/A Operator: lims2k3\tvh3 Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe111.met

Software Version 3.1.7 Run Date: 6/15/2011 12:37:47 PM Analysis Date: 6/15/2011 1:06:30 PM Sample Amount: 5 Multiplier: 5

Vial & pH or Core ID: {Data Description}



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Manual Integration Fixes	
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Enabled Event Type	(Minutes) (Minutes) Value
None	



Total Extractable Hydrocarbons 6501 Shattuck Ave., Oakland EPA 3520C Lab #: 228688 Location: Client: SOMA Environmental Engineering Inc. Prep: EPA 8015B Project#: 5032 Analysis: 06/10/11 06/13/11 Matrix: Sampled: Water ug/L Units: Received: Diln Fac: 1.000

Field ID: B-4 Batch#: 175864
Type: SAMPLE Prepared: 06/15/11
Lab ID: 228688-001 Analyzed: 06/17/11

 Analyte
 Result
 RL

 Diesel C10-C24
 ND
 50

 Motor Oil C24-C36
 ND
 300

Surrogate %REC Limits
O-Terphenyl 76 68-120

 Field ID:
 B-5
 Prepared:
 06/15/11

 Type:
 SAMPLE
 Analyzed:
 06/16/11

 Lab ID:
 228688-005
 Cleanup Method:
 EPA 3630C

Batch#: 175864

 Analyte
 Result
 RL

 Diesel C10-C24
 ND
 50

 Motor Oil C24-C36
 ND
 300

Surrogate %REC Limits
o-Terphenyl 81 68-120

Field ID: B-7 Prepared: 06/15/11
Type: SAMPLE Analyzed: 06/16/11
Lab ID: 228688-023 Cleanup Method: EPA 3630C

Batch#: 175864

 Analyte
 Result
 RL

 Diesel C10-C24
 61 Y
 50

 Motor Oil C24-C36
 ND
 300

Surrogate %REC Limits
o-Terphenyl 70 68-120

Field ID: B-8 Prepared: 06/15/11 Type: SAMPLE Analyzed: 06/17/11 Lab ID: 228688-033 Cleanup Method: EPA 3630C

Batch#: 175864

 Analyte
 Result
 RL

 Diesel C10-C24
 ND
 63

 Motor Oil C24-C36
 ND
 380

 Surrogate
 %REC
 Limits

 o-Terphenyl
 95
 68-120

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

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Total Extractable Hydrocarbons 6501 Shattuck Ave., Oakland EPA 3520C Lab #: 228688 Location: SOMA Environmental Engineering Inc. Client: Prep: EPA 8015B 06/10/11 Project#: 5032 Analysis: Water Matrix: Sampled: 06/13/11 Units: ug/L Received: Diln Fac: 1.000

 Field ID:
 B-9
 Prepared:
 06/17/11

 Type:
 SAMPLE
 Analyzed:
 06/19/11

 Lab ID:
 228688-042
 Cleanup Method:
 EPA 3630C

Batch#: 175965

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

Surrogate	%REC	Limits	
2222920			
o-Terphenyl	102	68-120	

Type: BLANK Prepared: 06/15/11 Lab ID: QC596364 Analyzed: 06/16/11 Batch#: 175864 Cleanup Method: EPA 3630C

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

i			
Surrogate	%REC	Limits	
o-Terphenyl	78	68-120	

Type: BLANK Prepared: 06/17/11
Lab ID: QC596797 Analyzed: 06/19/11
Batch#: 175965 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	86	68-120

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

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Total Extractable Hydrocarbons					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C		
Project#:	5032	Analysis:	EPA 8015B		
Type:	LCS	Diln Fac:	1.000		
Lab ID:	QC596365	Batch#:	175864		
Matrix:	Water	Prepared:	06/15/11		
Units:	ug/L	Analyzed:	06/16/11		

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,720	69	61-120

Surrogate	%REC	Limits
o-Terphenyl	91	68-120

Page 1 of 1 40.0



Total Extractable Hydrocarbons					
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland		
Client: SOMA E	nvironmental Engineering Inc.	Prep:	EPA 3520C		
Project#: 5032		Analysis:	EPA 8015B		
Field ID:	ZZZZZZZZZZ	Batch#:	175864		
MSS Lab ID:	228724-001	Sampled:	06/14/11		
Matrix:	Water	Received:	06/15/11		
Units:	ug/L	Prepared:	06/15/11		
Diln Fac:	1.000	Analyzed:	06/16/11		

Type: MS Cleanup Method: EPA 3630C

Lab ID: QC596366

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<15.94	2,500	1 , 817	73	33-140

Surrogate	%REC	Limits
o-Terphenyl	88	68-120

Type: MSD Cleanup Method: EPA 3630C

Lab ID: QC596367

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,674	67	33-140	8	30

Surrogate	%REC	Limits
o-Terphenyl	82	68-120



	Total Extracta	ble Hydrocark	oons
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C
Project#:	5032	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596798	Batch#:	175965
Matrix:	Water	Prepared:	06/17/11
Units:	ug/L	Analyzed:	06/19/11

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,123	85	61-120

Surrogate	%REC	Limits
o-Terphenyl	94	68-120

Page 1 of 1 42.0



	Total Extracta	ble Hydrocarbo	ns
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland
Client: SOMA E	nvironmental Engineering Inc.	Prep:	EPA 3520C
Project#: 5032		Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	175965
MSS Lab ID:	228700-002	Sampled:	06/13/11
Matrix:	Water	Received:	06/14/11
Units:	ug/L	Prepared:	06/17/11
Diln Fac:	1.000	Analyzed:	06/19/11

Type: MS Cleanup Method: EPA 3630C

Lab ID: QC596799

Analyte	MSS Result	Spiked	Result	%REC Limits
Diesel C10-C24	<15.94	2,500	2,189	88 33-140

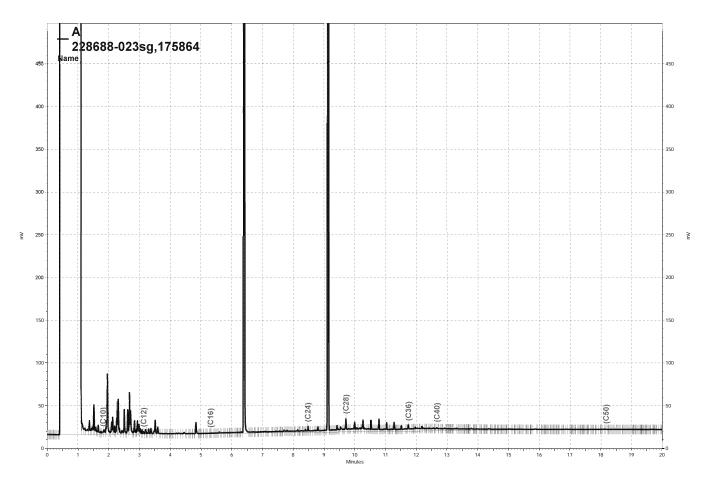
Surrogate	%REC	Limits
o-Terphenyl	98	68-120

Type: MSD Cleanup Method: EPA 3630C

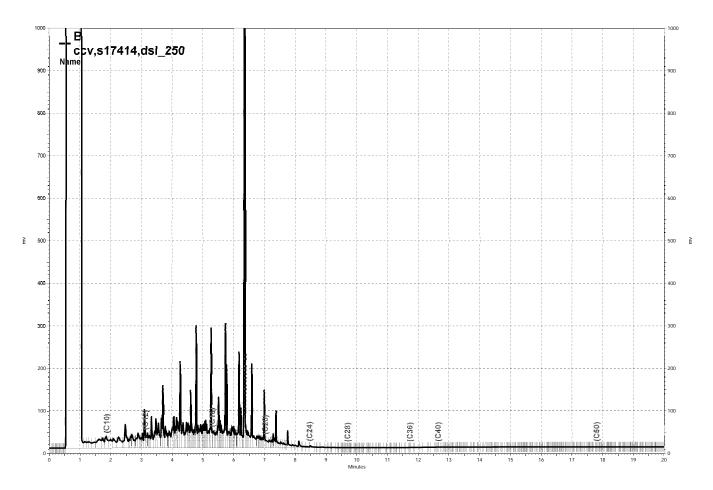
Lab ID: QC596800

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,180	87	33-140	0	30

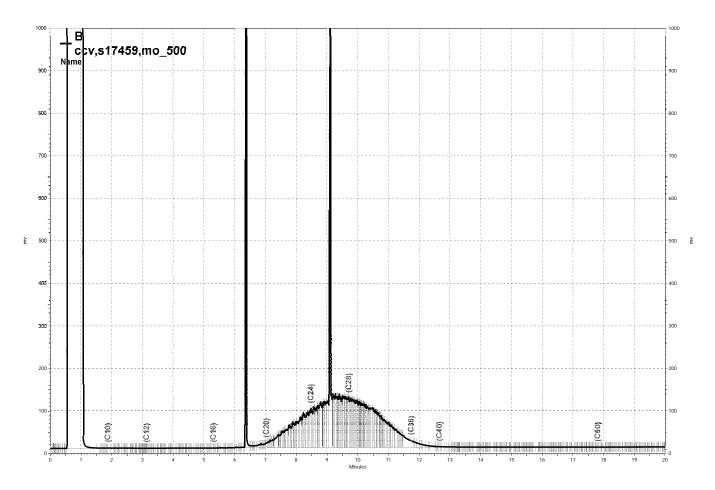
Surrogate	%REC	Limits
o-Terphenyl	101	68-120



\\Lims\gdrive\ezchrom\Projects\GC17A\Data\167a020, A



\Lims\gdrive\ezchrom\Projects\GC15B\Data\167b004, B



\Lims\gdrive\ezchrom\Projects\GC15B\Data\170b005, B



Total Extractable Hydrocarbons 6501 Shattuck Ave., Oakland EPA 3550B Lab #: 228688 Location: Client: SOMA Environmental Engineering Inc. Prep: EPA 8015B Project#: 5032 Analysis: Batch#: 175962 Matrix: Soil 06/10/11 Units: mg/Kg Sampled: 06/13/11 Basis: as received Received: 1.000 06/17/11 Diln Fac: Prepared:

Field ID: B-4 @ 9 FT Analyzed: 06/20/11 Type: SAMPLE Cleanup Method: EPA 3630C Lab ID: 228688-003

 Analyte
 Result
 RL

 Diesel C10-C24
 ND
 1.0

 Motor Oil C24-C36
 ND
 5.0

Surrogate %REC Limits
o-Terphenyl 126 * 62-120

Field ID: B-5 @ 8 Analyzed: 06/20/11 Type: SAMPLE Cleanup Method: EPA 3630C Lab ID: 228688-006

Analyte Result RL

Diesel C10-C24 59 Y 0.99
Motor Oil C24-C36 ND 5.0

Surrogate %REC Limits
o-Terphenyl 96 62-120

Field ID: B-6 @ 7 Analyzed: 06/20/11 Type: SAMPLE Cleanup Method: EPA 3630C Lab ID: 228688-014

 Analyte
 Result
 RL

 Diesel C10-C24
 ND
 1.0

 Motor Oil C24-C36
 ND
 5.0

Surrogate %REC Limits
o-Terphenyl 99 62-120

Field ID: B-7 @ 10 Analyzed: 06/20/11
Type: SAMPLE Cleanup Method: EPA 3630C

Lab ID: 228688-028

 Analyte
 Result
 RL

 Diesel C10-C24
 35 Y
 1.0

 Motor Oil C24-C36
 ND
 5.0

Surrogate %REC Limits
o-Terphenyl 96 62-120

*= Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

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Total Extractable Hydrocarbons 6501 Shattuck Ave., Oakland EPA 3550B Lab #: 228688 Location: SOMA Environmental Engineering Inc. Client: Prep: Project#: 5032 Analysis: EPA 8015B Matrix: 175962 Soil Batch#: 06/10/11 Units: mg/Kg Sampled: as received 1.000 06/13/11 06/17/11 Basis: Received: Diln Fac: Prepared:

Field ID: B-8 @ 4.5 Type: SAMPLE Lab ID: 228688-034 Analyzed: 06/20/11 Cleanup Method: EPA 3630C

Analyte	Result	RL	
Diesel C10-C24	3.2 Y	1.0	
Motor Oil C24-C36	23	5.0	

Field ID: B-9 @ 8 Analyzed: 06/20/11 Type: SAMPLE Cleanup Method: EPA 3630C Lab ID: 228688-046

 Analyte
 Result
 RL

 Diesel C10-C24
 58 Y
 1.0

 Motor Oil C24-C36
 6.1
 5.0

Surrogate	%REC	Limits
o-Terphenvl	107	62-120

Type: BLANK Analyzed: 06/19/11 Lab ID: QC596786 Cleanup Method: EPA 3630C

Analyte	Result	RL	
Diesel C10-C24	ND	1.0	
Motor Oil C24-C36	ND	5.0	

Surrogate	%REC	Limits	
o-Terphenyl	103	62-120	

Page 2 of 2

^{*=} Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit



Total Extractable Hydrocarbons						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3550B			
Project#:	5032	Analysis:	EPA 8015B			
Type:	LCS	Diln Fac:	1.000			
Lab ID:	QC596787	Batch#:	175962			
Matrix:	Soil	Prepared:	06/17/11			
Units:	mg/Kg	Analyzed:	06/19/11			

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.26	53.60	107	54-138

Surrogate	%REC	Limits
o-Terphenyl	112	62-120

Page 1 of 1 37.0



Total Extractable Hydrocarbons						
Lab #: 228688		Location:	6501 Shattuck Ave., Oakland			
Client: SOMA En	nvironmental Engineering Inc.	Prep:	EPA 3550B			
Project#: 5032		Analysis:	EPA 8015B			
Field ID:	ZZZZZZZZZZ	Batch#:	175962			
MSS Lab ID:	228667-001	Sampled:	06/09/11			
Matrix:	Soil	Received:	06/10/11			
Units:	mg/Kg	Prepared:	06/17/11			
Basis:	as received	Analyzed:	06/20/11			
Diln Fac:	1.000					

Type: MS Cleanup Method: EPA 3630C

Lab ID: QC596788

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	1.123	50.22	42.54	82	35-150

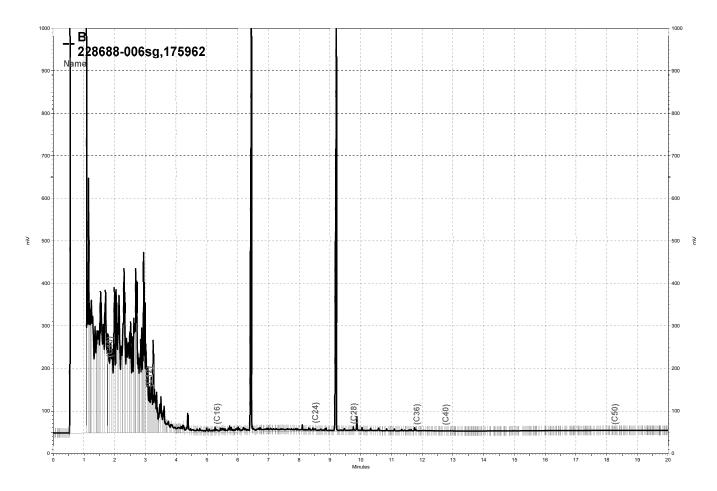
Surrogate	%REC	Limits
o-Terphenyl	86	62-120

Type: MSD Cleanup Method: EPA 3630C

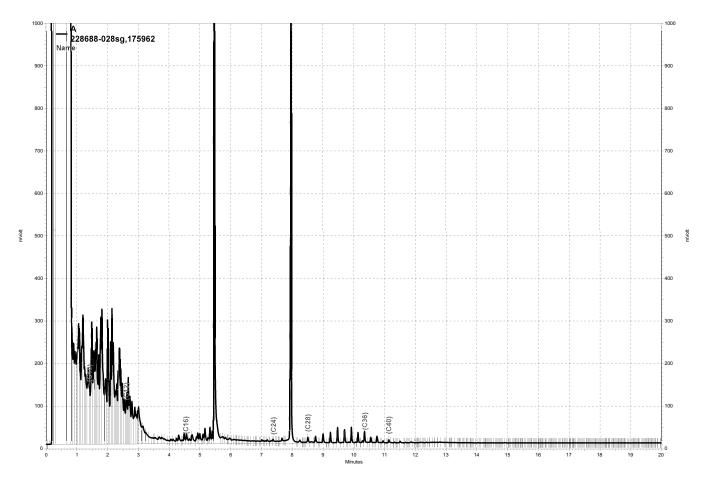
Lab ID: QC596789

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.29	56.35	110	35-150	28	71

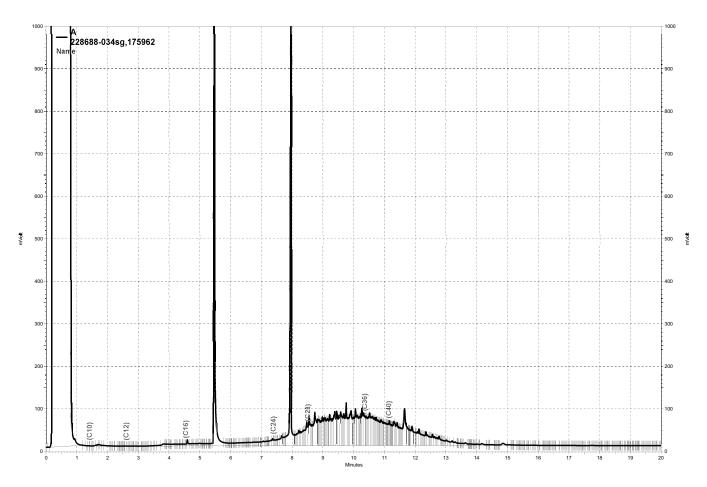
Surrogate	%REC	Limits	
o-Terphenyl	109	62-120	



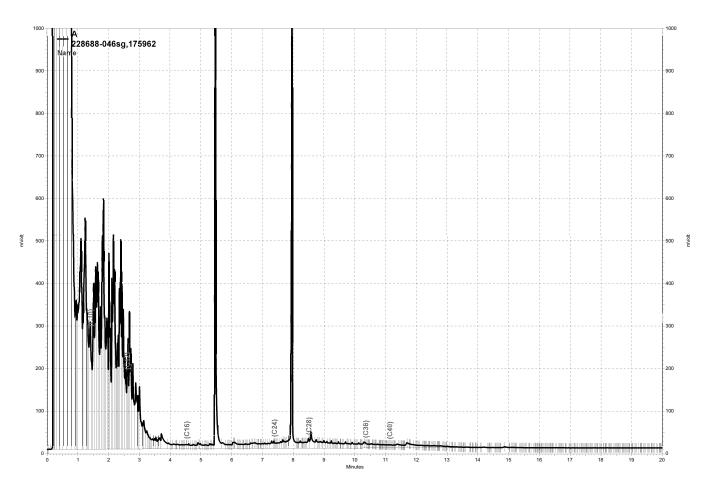
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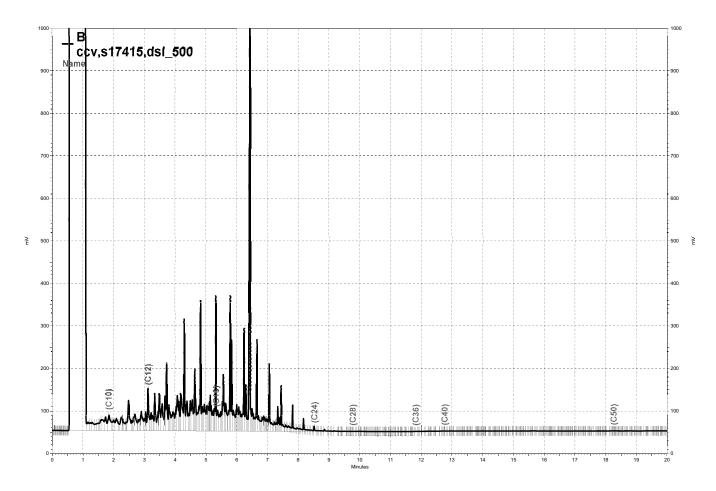
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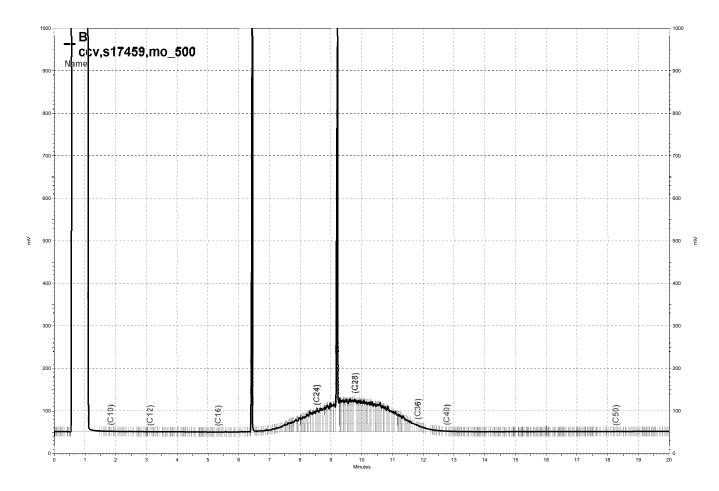
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Purgeable Organics by GC/MS						
Lab #:	228688		Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032		Analysis:	EPA 8260B		
Field ID:	B-4		Batch#:	175947		
Lab ID:	228688-001		Sampled:	06/10/11		
Matrix:	Water		Received:	06/13/11		
Units:	ug/L		Analyzed:	06/17/11		
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	

RL= Reporting Limit

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Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Field ID:	B-4	Batch#:	175947			
Lab ID:	228688-001	Sampled:	06/10/11			
Matrix:	Water	Received:	06/13/11			
Units:	ug/L	Analyzed:	06/17/11			
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	102	80-127	
1,2-Dichloroethane-d4	108	73-145	
Toluene-d8	99	80-120	
Bromofluorobenzene	98	80-120	

RL= Reporting Limit

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Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering	g Inc. Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Field ID:	B-5	Batch#:	175947			
Lab ID:	228688-005	Sampled:	06/10/11			
Matrix:	Water	Received:	06/13/11			
Units:	ug/L	Analyzed:	06/17/11			
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	1.2	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	

RL= Reporting Limit

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Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc.	. Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Field ID:	B-5	Batch#:	175947			
Lab ID:	228688-005	Sampled:	06/10/11			
Matrix:	Water	Received:	06/13/11			
Units:	ug/L	Analyzed:	06/17/11			
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	109	80-127	
1,2-Dichloroethane-d4	110	73-145	
Toluene-d8	96	80-120	
Bromofluorobenzene	101	80-120	

RL= Reporting Limit

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Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc	. Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Field ID:	B-7	Batch#:	175951			
Lab ID:	228688-023	Sampled:	06/10/11			
Matrix:	Water	Received:	06/13/11			
Units:	ug/L	Analyzed:	06/17/11			
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	1.0	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	1.1	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	0.9	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	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc	. Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-7	Batch#:	175951		
Lab ID:	228688-023	Sampled:	06/10/11		
Matrix:	Water	Received:	06/13/11		
Units:	ug/L	Analyzed:	06/17/11		
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	1.2	0.5
m,p-Xylenes	0.9	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	1.5	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	3.4	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	94	80-127	
1,2-Dichloroethane-d4	92	73-145	
Toluene-d8	99	80-120	
Bromofluorobenzene	99	80-120	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-8	Batch#:	175951		
Lab ID:	228688-033	Sampled:	06/10/11		
Matrix:	Water	Received:	06/13/11		
Units:	ug/L	Analyzed:	06/17/11		
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	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-8	Batch#:	175951		
Lab ID:	228688-033	Sampled:	06/10/11		
Matrix:	Water	Received:	06/13/11		
Units:	ug/L	Analyzed:	06/17/11		
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	97	80-127	
1,2-Dichloroethane-d4	91	73-145	
Toluene-d8	98	80-120	
Bromofluorobenzene	96	80-120	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc	c. Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-9	Batch#:	175951		
Lab ID:	228688-042	Sampled:	06/10/11		
Matrix:	Water	Received:	06/13/11		
Units:	ug/L	Analyzed:	06/17/11		
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	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc	. Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-9	Batch#:	175951		
Lab ID:	228688-042	Sampled:	06/10/11		
Matrix:	Water	Received:	06/13/11		
Units:	ug/L	Analyzed:	06/17/11		
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	97	80-127	
1,2-Dichloroethane-d4	92	73-145	
Toluene-d8	98	80-120	
Bromofluorobenzene	97	80-120	

RL= Reporting Limit

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	Purgeable Org	ganics by GC/MS	3
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	175947
Units:	ug/L	Analyzed:	06/17/11
Diln Fac:	1.000		

Type: BS Lab ID: QC596711

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	10.30	82	64-133
Benzene	12.50	12.69	102	80-122
Trichloroethene	12.50	11.80	94	78-120
Toluene	12.50	12.07	97	80-120
Chlorobenzene	12.50	12.19	98	80-120

Surrogate	%REC	Limits	
Dibromofluoromethane	102	80-127	
1,2-Dichloroethane-d4	104	73-145	
Toluene-d8	97	80-120	
Bromofluorobenzene	100	80-120	

Type: BSD Lab ID: QC596712

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	9.916	79	64-133	4	20
Benzene	12.50	12.08	97	80-122	5	20
Trichloroethene	12.50	11.10	89	78-120	6	20
Toluene	12.50	11.94	96	80-120	1	20
Chlorobenzene	12.50	11.96	96	80-120	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	97	80-127
1,2-Dichloroethane-d4	98	73-145
Toluene-d8	97	80-120
Bromofluorobenzene	100	80-120



	Purgeable Org	anics by GC/MS	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC596713	Batch#:	175947
Matrix:	Water	Analyzed:	06/17/11
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

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	Purgeable Org	anics by GC/MS	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC596713	Batch#:	175947
Matrix:	Water	Analyzed:	06/17/11
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	103	80-127	
1,2-Dichloroethane-d4	100	73-145	
Toluene-d8	102	80-120	
Bromofluorobenzene	99	80-120	

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Matrix:	Water	Batch#:	175951			
Units:	ug/L	Analyzed:	06/17/11			
Diln Fac:	1.000					

Type: BS Lab ID: QC596725

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	16.93	85	64-133
Benzene	20.00	18.95	95	80-122
Trichloroethene	20.00	18.20	91	78-120
Toluene	20.00	19.25	96	80-120
Chlorobenzene	20.00	19.21	96	80-120

Surrogate	%REC	Limits	
Dibromofluoromethane	94	80-127	
1,2-Dichloroethane-d4	93	73-145	
Toluene-d8	99	80-120	
Bromofluorobenzene	96	80-120	

Type: BSD Lab ID: QC596726

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	20.00	16.80	84	64-133	1	20
Benzene	20.00	18.82	94	80-122	1	20
Trichloroethene	20.00	18.08	90	78-120	1	20
Toluene	20.00	19.16	96	80-120	0	20
Chlorobenzene	20.00	19.10	96	80-120	1	20

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-127
1,2-Dichloroethane-d4	92	73-145
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-120



Purgeable Organics by GC/MS						
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Type:	BLANK	Diln Fac:	1.000			
Lab ID:	QC596727	Batch#:	175951			
Matrix:	Water	Analyzed:	06/17/11			
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

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Purgeable Organics by GC/MS			
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC596727	Batch#:	175951
Matrix:	Water	Analyzed:	06/17/11
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	98	80-127	
1,2-Dichloroethane-d4	92	73-145	
Toluene-d8	98	80-120	
Bromofluorobenzene	98	80-120	

ND= Not Detected

RL= Reporting Limit

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Purgeable Organics by GC/MS				
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental Engineering Inc.	. Prep:	EPA 5030B	
Project#:	5032	Analysis:	EPA 8260B	
Field ID:	B-4 @ 9 FT	Diln Fac:	0.9921	
Lab ID:	228688-003	Batch#:	175851	
Matrix:	Soil	Sampled:	06/10/11	
Units:	ug/Kg	Received:	06/13/11	
Basis:	as received	Analyzed:	06/15/11	

Analyte	Result	RL	
Freon 12	ND	9.9	
Chloromethane	ND	9.9	
Vinyl Chloride	ND	9.9	
Bromomethane	ND	9.9	
Chloroethane	ND	9.9	
Trichlorofluoromethane	ND	5.0	
Acetone	ND	20	
Freon 113	ND	5.0	
1,1-Dichloroethene	ND	5.0	
Methylene Chloride	ND	20	
Carbon Disulfide	ND	5.0	
MTBE	ND	5.0	
trans-1,2-Dichloroethene	ND	5.0	
Vinyl Acetate	ND	50	
1,1-Dichloroethane	ND	5.0	
2-Butanone	ND	9.9	
cis-1,2-Dichloroethene	ND	5.0	
2,2-Dichloropropane	ND	5.0	
Chloroform	ND	5.0	
Bromochloromethane	ND	5.0	
1,1,1-Trichloroethane	ND	5.0	
1,1-Dichloropropene	ND	5.0	
Carbon Tetrachloride	ND	5.0	
1,2-Dichloroethane	ND	5.0	
Benzene	ND	5.0	
Trichloroethene	ND	5.0	
1,2-Dichloropropane	ND	5.0	
Bromodichloromethane	ND	5.0	
Dibromomethane	ND	5.0	
4-Methyl-2-Pentanone	ND	9.9	
cis-1,3-Dichloropropene	ND	5.0	
Toluene	ND	5.0	
trans-1,3-Dichloropropene	ND	5.0	
1,1,2-Trichloroethane	ND	5.0	
2-Hexanone	ND	9.9	
1,3-Dichloropropane	ND	5.0	
Tetrachloroethene	ND	5.0	

RL= Reporting Limit



	Purgeable Or	ganics by GC/MS	3
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Field ID:	B-4 @ 9 FT	Diln Fac:	0.9921
Lab ID:	228688-003	Batch#:	175851
Matrix:	Soil	Sampled:	06/10/11
Units:	ug/Kg	Received:	06/13/11
Basis:	as received	Analyzed:	06/15/11

Analyte	Result	RL	
Dibromochloromethane	ND	5.0	
1,2-Dibromoethane	ND	5.0	
Chlorobenzene	ND	5.0	
1,1,1,2-Tetrachloroethane	ND	5.0	
Ethylbenzene	ND	5.0	
m,p-Xylenes	ND	5.0	
o-Xylene	ND	5.0	
Styrene	ND	5.0	
Bromoform	ND	5.0	
Isopropylbenzene	ND	5.0	
1,1,2,2-Tetrachloroethane	ND	5.0	
1,2,3-Trichloropropane	ND	5.0	
Propylbenzene	ND	5.0	
Bromobenzene	ND	5.0	
1,3,5-Trimethylbenzene	ND	5.0	
2-Chlorotoluene	ND	5.0	
4-Chlorotoluene	ND	5.0	
tert-Butylbenzene	ND	5.0	
1,2,4-Trimethylbenzene	ND	5.0	
sec-Butylbenzene	ND	5.0	
para-Isopropyl Toluene	ND	5.0	
1,3-Dichlorobenzene	ND	5.0	
1,4-Dichlorobenzene	ND	5.0	
n-Butylbenzene	ND	5.0	
1,2-Dichlorobenzene	ND	5.0	
1,2-Dibromo-3-Chloropropane	ND	5.0	
1,2,4-Trichlorobenzene	ND	5.0	
Hexachlorobutadiene	ND	5.0	
Naphthalene	ND	5.0	
1,2,3-Trichlorobenzene	ND	5.0	

Surrogate	%REC	Limits	
Dibromofluoromethane	102	71-126	
1,2-Dichloroethane-d4	108	74-130	
Toluene-d8	100	80-120	
Bromofluorobenzene	105	76-131	

RL= Reporting Limit

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	Purgeable Organics by GC/MS				
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-5 @ 8	Diln Fac:	50.00		
Lab ID:	228688-006	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Freon 12	ND	500	
Chloromethane	ND	500	
Vinyl Chloride	ND	500	
Bromomethane	ND	500	
Chloroethane	ND	500	
Trichlorofluoromethane	ND	250	
Acetone	ND	1,000	
Freon 113	ND	250	
1,1-Dichloroethene	ND	250	
Methylene Chloride	ND	1,000	
Carbon Disulfide	ND	250	
MTBE	ND	250	
trans-1,2-Dichloroethene	ND	250	
Vinyl Acetate	ND	2,500	
1,1-Dichloroethane	ND	250	
2-Butanone	ND	500	
cis-1,2-Dichloroethene	ND	250	
2,2-Dichloropropane	ND	250	
Chloroform	ND	250	
Bromochloromethane	ND	250	
1,1,1-Trichloroethane	ND	250	
1,1-Dichloropropene	ND	250	
Carbon Tetrachloride	ND	250	
1,2-Dichloroethane	ND	250	
Benzene	ND	250	
Trichloroethene	ND	250	
1,2-Dichloropropane	ND	250	
Bromodichloromethane	ND	250	
Dibromomethane	ND	250	
4-Methyl-2-Pentanone	ND	500	
cis-1,3-Dichloropropene	ND	250	
Toluene	ND	250	
trans-1,3-Dichloropropene	ND	250	
1,1,2-Trichloroethane	ND	250	
2-Hexanone	ND	500	
1,3-Dichloropropane	ND	250	
Tetrachloroethene	ND	250	

RL= Reporting Limit



Purgeable Organics by GC/MS				
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B	
Project#:	5032	Analysis:	EPA 8260B	
Field ID:	B-5 @ 8	Diln Fac:	50.00	
Lab ID:	228688-006	Batch#:	175851	
Matrix:	Soil	Sampled:	06/10/11	
Units:	ug/Kg	Received:	06/13/11	
Basis:	as received	Analyzed:	06/15/11	

Analyte	Result	RL
Dibromochloromethane	ND	250
1,2-Dibromoethane	ND	250
Chlorobenzene	ND	250
1,1,1,2-Tetrachloroethane	ND	250
Ethylbenzene	ND	250
m,p-Xylenes	ND	250
o-Xylene	ND	250
Styrene	ND	250
Bromoform	ND	250
Isopropylbenzene	ND	250
1,1,2,2-Tetrachloroethane	ND	250
1,2,3-Trichloropropane	ND	250
Propylbenzene	ND	250
Bromobenzene	ND	250
1,3,5-Trimethylbenzene	ND	250
2-Chlorotoluene	ND	250
4-Chlorotoluene	ND	250
tert-Butylbenzene	ND	250
1,2,4-Trimethylbenzene	ND	250
sec-Butylbenzene	ND	250
para-Isopropyl Toluene	ND	250
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
n-Butylbenzene	290	250
1,2-Dichlorobenzene	ND	250
1,2-Dibromo-3-Chloropropane	ND	250
1,2,4-Trichlorobenzene	ND	250
Hexachlorobutadiene	ND	250
Naphthalene	ND	250
1,2,3-Trichlorobenzene	ND	250

Surrogate	%REC	Limits	
Dibromofluoromethane	96	71-126	
1,2-Dichloroethane-d4	95	74-130	
Toluene-d8	99	80-120	
Bromofluorobenzene	113	76-131	
Trifluorotoluene (MeOH)	96	58-142	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	В-6 @ 7	Diln Fac:	0.9506		
Lab ID:	228688-014	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Freon 12	ND	9.5	
Chloromethane	ND	9.5	
Vinyl Chloride	ND	9.5	
Bromomethane	ND	9.5	
Chloroethane	ND	9.5	
Trichlorofluoromethane	ND	4.8	
Acetone	ND	19	
Freon 113	ND	4.8	
1,1-Dichloroethene	ND	4.8	
Methylene Chloride	ND	19	
Carbon Disulfide	ND	4.8	
MTBE	ND	4.8	
trans-1,2-Dichloroethene	ND	4.8	
Vinyl Acetate	ND	48	
1,1-Dichloroethane	ND	4.8	
2-Butanone	ND	9.5	
cis-1,2-Dichloroethene	ND	4.8	
2,2-Dichloropropane	ND	4.8	
Chloroform	ND	4.8	
Bromochloromethane	ND	4.8	
1,1,1-Trichloroethane	ND	4.8	
1,1-Dichloropropene	ND	4.8	
Carbon Tetrachloride	ND	4.8	
1,2-Dichloroethane	ND	4.8	
Benzene	ND	4.8	
Trichloroethene	ND	4.8	
1,2-Dichloropropane	ND	4.8	
Bromodichloromethane	ND	4.8	
Dibromomethane	ND	4.8	
4-Methyl-2-Pentanone	ND	9.5	
cis-1,3-Dichloropropene	ND	4.8	
Toluene	ND	4.8	
trans-1,3-Dichloropropene	ND	4.8	
1,1,2-Trichloroethane	ND	4.8	
2-Hexanone	ND	9.5	
1,3-Dichloropropane	ND	4.8	
Tetrachloroethene	ND	4.8	

RL= Reporting Limit



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	В-6 @ 7	Diln Fac:	0.9506		
Lab ID:	228688-014	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Dibromochloromethane	ND	4.8	
1,2-Dibromoethane	ND	4.8	
Chlorobenzene	ND	4.8	
1,1,1,2-Tetrachloroethane	ND	4.8	
Ethylbenzene	ND	4.8	
m,p-Xylenes	ND	4.8	
o-Xylene	ND	4.8	
Styrene	ND	4.8	
Bromoform	ND	4.8	
Isopropylbenzene	ND	4.8	
1,1,2,2-Tetrachloroethane	ND	4.8	
1,2,3-Trichloropropane	ND	4.8	
Propylbenzene	ND	4.8	
Bromobenzene	ND	4.8	
1,3,5-Trimethylbenzene	ND	4.8	
2-Chlorotoluene	ND	4.8	
4-Chlorotoluene	ND	4.8	
tert-Butylbenzene	ND	4.8	
1,2,4-Trimethylbenzene	ND	4.8	
sec-Butylbenzene	ND	4.8	
para-Isopropyl Toluene	ND	4.8	
1,3-Dichlorobenzene	ND	4.8	
1,4-Dichlorobenzene	ND	4.8	
n-Butylbenzene	ND	4.8	
1,2-Dichlorobenzene	ND	4.8	
1,2-Dibromo-3-Chloropropane	ND	4.8	
1,2,4-Trichlorobenzene	ND	4.8	
Hexachlorobutadiene	ND	4.8	
Naphthalene	ND	4.8	
1,2,3-Trichlorobenzene	ND	4.8	

Surrogate	%REC	Limits	
Dibromofluoromethane	99	71-126	
1,2-Dichloroethane-d4	102	74-130	
Toluene-d8	101	80-120	
Bromofluorobenzene	103	76-131	

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-7 @ 10	Diln Fac:	50.00		
Lab ID:	228688-028	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Freon 12	ND	500	
Chloromethane	ND	500	
Vinyl Chloride	ND	500	
Bromomethane	ND	500	
Chloroethane	ND	500	
Trichlorofluoromethane	ND	250	
Acetone	ND	1,000	
Freon 113	ND	250	
1,1-Dichloroethene	ND	250	
Methylene Chloride	ND	1,000	
Carbon Disulfide	ND	250	
MTBE	ND	250	
trans-1,2-Dichloroethene	ND	250	
Vinyl Acetate	ND	2,500	
1,1-Dichloroethane	ND	250	
2-Butanone	ND	500	
cis-1,2-Dichloroethene	ND	250	
2,2-Dichloropropane	ND	250	
Chloroform	ND	250	
Bromochloromethane	ND	250	
1,1,1-Trichloroethane	ND	250	
1,1-Dichloropropene	ND	250	
Carbon Tetrachloride	ND	250	
1,2-Dichloroethane	ND	250	
Benzene	ND	250	
Trichloroethene	ND	250	
1,2-Dichloropropane	ND	250	
Bromodichloromethane	ND	250	
Dibromomethane	ND	250	
4-Methyl-2-Pentanone	ND	500	
cis-1,3-Dichloropropene	ND	250	
Toluene	ND	250	
trans-1,3-Dichloropropene	ND	250	
1,1,2-Trichloroethane	ND	250	
2-Hexanone	ND	500	
1,3-Dichloropropane	ND	250	
Tetrachloroethene	ND	250	

RL= Reporting Limit



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-7 @ 10	Diln Fac:	50.00		
Lab ID:	228688-028	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL
Dibromochloromethane	ND	250
1,2-Dibromoethane	ND	250
Chlorobenzene	ND	250
1,1,1,2-Tetrachloroethane	ND	250
Ethylbenzene	ND	250
m,p-Xylenes	ND	250
o-Xylene	ND	250
Styrene	ND	250
Bromoform	ND	250
Isopropylbenzene	300	250
1,1,2,2-Tetrachloroethane	ND	250
1,2,3-Trichloropropane	ND	250
Propylbenzene	1,000	250
Bromobenzene	ND	250
1,3,5-Trimethylbenzene	ND	250
2-Chlorotoluene	ND	250
4-Chlorotoluene	ND	250
tert-Butylbenzene	ND	250
1,2,4-Trimethylbenzene	ND	250
sec-Butylbenzene	ND	250
para-Isopropyl Toluene	ND	250
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
n-Butylbenzene	840	250
1,2-Dichlorobenzene	ND	250
1,2-Dibromo-3-Chloropropane	ND	250
1,2,4-Trichlorobenzene	ND	250
Hexachlorobutadiene	ND	250
Naphthalene	330	250
1,2,3-Trichlorobenzene	ND	250

Surrogate	%REC	Limits
Dibromofluoromethane	96	71-126
1,2-Dichloroethane-d4	97	74-130
Toluene-d8	97	80-120
Bromofluorobenzene	105	76-131
Trifluorotoluene (MeOH)	96	58-142

RL= Reporting Limit

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Purgeable Organics by GC/MS					
Lab #:	228688		Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental E	ngineering Inc.	Prep:	EPA 5030B	
Project#:	5032		Analysis:	EPA 8260B	
Field ID:	B-8 @ 4.5		Diln Fac:	0.9709	
Lab ID:	228688-034		Batch#:	175851	
Matrix:	Soil		Sampled:	06/10/11	
Units:	ug/Kg		Received:	06/13/11	
Basis:	as received		Analyzed:	06/15/11	

Analyte	Result	RL	
Freon 12	ND	9.7	
Chloromethane	ND	9.7	
Vinyl Chloride	ND	9.7	
Bromomethane	ND	9.7	
Chloroethane	ND	9.7	
Trichlorofluoromethane	ND	4.9	
Acetone	ND	19	
Freon 113	ND	4.9	
1,1-Dichloroethene	ND	4.9	
Methylene Chloride	ND	19	
Carbon Disulfide	ND	4.9	
MTBE	ND	4.9	
trans-1,2-Dichloroethene	ND	4.9	
Vinyl Acetate	ND	49	
1,1-Dichloroethane	ND	4.9	
2-Butanone	ND	9.7	
cis-1,2-Dichloroethene	ND	4.9	
2,2-Dichloropropane	ND	4.9	
Chloroform	ND	4.9	
Bromochloromethane	ND	4.9	
1,1,1-Trichloroethane	ND	4.9	
1,1-Dichloropropene	ND	4.9	
Carbon Tetrachloride	ND	4.9	
1,2-Dichloroethane	ND	4.9	
Benzene	ND	4.9	
Trichloroethene	ND	4.9	
1,2-Dichloropropane	ND	4.9	
Bromodichloromethane	ND	4.9	
Dibromomethane	ND	4.9	
4-Methyl-2-Pentanone	ND	9.7	
cis-1,3-Dichloropropene	ND	4.9	
Toluene	ND	4.9	
trans-1,3-Dichloropropene	ND	4.9	
1,1,2-Trichloroethane	ND	4.9	
2-Hexanone	ND	9.7	
1,3-Dichloropropane	ND	4.9	
Tetrachloroethene	ND	4.9	

RL= Reporting Limit



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-8 @ 4.5	Diln Fac:	0.9709		
Lab ID:	228688-034	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Dibromochloromethane	ND	4.9	
1,2-Dibromoethane	ND	4.9	
Chlorobenzene	ND	4.9	
1,1,1,2-Tetrachloroethane	ND	4.9	
Ethylbenzene	ND	4.9	
m,p-Xylenes	ND	4.9	
o-Xylene	ND	4.9	
Styrene	ND	4.9	
Bromoform	ND	4.9	
Isopropylbenzene	ND	4.9	
1,1,2,2-Tetrachloroethane	ND	4.9	
1,2,3-Trichloropropane	ND	4.9	
Propylbenzene	ND	4.9	
Bromobenzene	ND	4.9	
1,3,5-Trimethylbenzene	ND	4.9	
2-Chlorotoluene	ND	4.9	
4-Chlorotoluene	ND	4.9	
tert-Butylbenzene	ND	4.9	
1,2,4-Trimethylbenzene	ND	4.9	
sec-Butylbenzene	ND	4.9	
para-Isopropyl Toluene	ND	4.9	
1,3-Dichlorobenzene	ND	4.9	
1,4-Dichlorobenzene	ND	4.9	
n-Butylbenzene	ND	4.9	
1,2-Dichlorobenzene	ND	4.9	
1,2-Dibromo-3-Chloropropane	ND	4.9	
1,2,4-Trichlorobenzene	ND	4.9	
Hexachlorobutadiene	ND	4.9	
Naphthalene	ND	4.9	
1,2,3-Trichlorobenzene	ND	4.9	

Surrogate	%REC	Limits	
Dibromofluoromethane	101	71-126	
1,2-Dichloroethane-d4	105	74-130	
Toluene-d8	99	80-120	
Bromofluorobenzene	103	76-131	

RL= Reporting Limit

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10.0



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-9 @ 8	Diln Fac:	50.00		
Lab ID:	228688-046	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL	
Freon 12	ND	500	
Chloromethane	ND	500	
Vinyl Chloride	ND	500	
Bromomethane	ND	500	
Chloroethane	ND	500	
Trichlorofluoromethane	ND	250	
Acetone	ND	1,000	
Freon 113	ND	250	
1,1-Dichloroethene	ND	250	
Methylene Chloride	ND	1,000	
Carbon Disulfide	ND	250	
MTBE	ND	250	
trans-1,2-Dichloroethene	ND	250	
Vinyl Acetate	ND	2,500	
1,1-Dichloroethane	ND	250	
2-Butanone	ND	500	
cis-1,2-Dichloroethene	ND	250	
2,2-Dichloropropane	ND	250	
Chloroform	ND	250	
Bromochloromethane	ND	250	
1,1,1-Trichloroethane	ND	250	
1,1-Dichloropropene	ND	250	
Carbon Tetrachloride	ND	250	
1,2-Dichloroethane	ND	250	
Benzene	ND	250	
Trichloroethene	ND	250	
1,2-Dichloropropane	ND	250	
Bromodichloromethane	ND	250	
Dibromomethane	ND	250	
4-Methyl-2-Pentanone	ND	500	
cis-1,3-Dichloropropene	ND	250	
Toluene	ND	250	
trans-1,3-Dichloropropene	ND	250	
1,1,2-Trichloroethane	ND	250	
2-Hexanone	ND	500	
1,3-Dichloropropane	ND	250	
Tetrachloroethene	ND	250	

RL= Reporting Limit



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Field ID:	B-9 @ 8	Diln Fac:	50.00		
Lab ID:	228688-046	Batch#:	175851		
Matrix:	Soil	Sampled:	06/10/11		
Units:	ug/Kg	Received:	06/13/11		
Basis:	as received	Analyzed:	06/15/11		

Analyte	Result	RL
Dibromochloromethane	ND	250
1,2-Dibromoethane	ND	250
Chlorobenzene	ND	250
1,1,1,2-Tetrachloroethane	ND	250
Ethylbenzene	ND	250
m,p-Xylenes	ND	250
o-Xylene	ND	250
Styrene	ND	250
Bromoform	ND	250
Isopropylbenzene	ND	250
1,1,2,2-Tetrachloroethane	ND	250
1,2,3-Trichloropropane	ND	250
Propylbenzene	750	250
Bromobenzene	ND	250
1,3,5-Trimethylbenzene	ND	250
2-Chlorotoluene	ND	250
4-Chlorotoluene	ND	250
tert-Butylbenzene	ND	250
1,2,4-Trimethylbenzene	ND	250
sec-Butylbenzene	ND	250
para-Isopropyl Toluene	ND	250
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
n-Butylbenzene	860	250
1,2-Dichlorobenzene	ND	250
1,2-Dibromo-3-Chloropropane	ND	250
1,2,4-Trichlorobenzene	ND	250
Hexachlorobutadiene	ND	250
Naphthalene	ND	250
1,2,3-Trichlorobenzene	ND	250

Surrogate	%REC	Limits
Dibromofluoromethane	96	71-126
1,2-Dichloroethane-d4	97	74-130
Toluene-d8	103	80-120
Bromofluorobenzene 1	107	76-131
Trifluorotoluene (MeOH)	98	58-142

RL= Reporting Limit

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11.0



Purgeable Organics by GC/MS					
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Type:	BLANK	Diln Fac:	1.000		
Lab ID:	QC596309	Batch#:	175851		
Matrix:	Soil	Analyzed:	06/15/11		
Units:	ug/Kg				

Analyte	Result	RL	
Freon 12	ND	10	
Chloromethane	ND	10	
Vinyl Chloride	ND	10	
Bromomethane	ND	10	
Chloroethane	ND	10	
Trichlorofluoromethane	ND	5.0	
Acetone	ND	20	
Freon 113	ND	5.0	
1,1-Dichloroethene	ND	5.0	
Methylene Chloride	ND	20	
Carbon Disulfide	ND	5.0	
MTBE	ND	5.0	
trans-1,2-Dichloroethene	ND	5.0	
Vinyl Acetate	ND	50	
1,1-Dichloroethane	ND	5.0	
2-Butanone	ND	10	
cis-1,2-Dichloroethene	ND	5.0	
2,2-Dichloropropane	ND	5.0	
Chloroform	ND	5.0	
Bromochloromethane	ND	5.0	
1,1,1-Trichloroethane	ND	5.0	
1,1-Dichloropropene	ND	5.0	
Carbon Tetrachloride	ND	5.0	
1,2-Dichloroethane	ND	5.0	
Benzene	ND	5.0	
Trichloroethene	ND	5.0	
1,2-Dichloropropane	ND	5.0	
Bromodichloromethane	ND	5.0	
Dibromomethane	ND	5.0	
4-Methyl-2-Pentanone	ND	10	
cis-1,3-Dichloropropene	ND	5.0	
Toluene	ND	5.0	
trans-1,3-Dichloropropene	ND	5.0	
1,1,2-Trichloroethane	ND	5.0	
2-Hexanone	ND	10	
1,3-Dichloropropane	ND	5.0	
Tetrachloroethene	ND	5.0	

ND= Not Detected

RL= Reporting Limit



Purgeable Organics by GC/MS				
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B	
Project#:	5032	Analysis:	EPA 8260B	
Type:	BLANK	Diln Fac:	1.000	
Lab ID:	QC596309	Batch#:	175851	
Matrix:	Soil	Analyzed:	06/15/11	
Units:	ug/Kg			

Analyte	Result	RL	
Dibromochloromethane	ND	5.0	
1,2-Dibromoethane	ND	5.0	
Chlorobenzene	ND	5.0	
1,1,1,2-Tetrachloroethane	ND	5.0	
Ethylbenzene	ND	5.0	
m,p-Xylenes	ND	5.0	
o-Xylene	ND	5.0	
Styrene	ND	5.0	
Bromoform	ND	5.0	
Isopropylbenzene	ND	5.0	
1,1,2,2-Tetrachloroethane	ND	5.0	
1,2,3-Trichloropropane	ND	5.0	
Propylbenzene	ND	5.0	
Bromobenzene	ND	5.0	
1,3,5-Trimethylbenzene	ND	5.0	
2-Chlorotoluene	ND	5.0	
4-Chlorotoluene	ND	5.0	
tert-Butylbenzene	ND	5.0	
1,2,4-Trimethylbenzene	ND	5.0	
sec-Butylbenzene	ND	5.0	
para-Isopropyl Toluene	ND	5.0	
1,3-Dichlorobenzene	ND	5.0	
1,4-Dichlorobenzene	ND	5.0	
n-Butylbenzene	ND	5.0	
1,2-Dichlorobenzene	ND	5.0	
1,2-Dibromo-3-Chloropropane	ND	5.0	
1,2,4-Trichlorobenzene	ND	5.0	
Hexachlorobutadiene	ND	5.0	
Naphthalene	ND	5.0	
1,2,3-Trichlorobenzene	ND	5.0	

Surrogate	%REC	Limits	
Dibromofluoromethane	105	71-126	
1,2-Dichloroethane-d4	104	74-130	
Toluene-d8	98	80-120	
Bromofluorobenzene	105	76-131	

ND= Not Detected

RL= Reporting Limit

Page 2 of 2



	Purgeable Org	ganics by GC/MS	
Lab #:	228688	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596310	Batch#:	175851
Matrix:	Soil	Analyzed:	06/15/11
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	20.00	20.27	101	69-127
Benzene	20.00	22.07	110	80-122
Trichloroethene	20.00	20.72	104	76-123
Toluene	20.00	22.43	112	80-120
Chlorobenzene	20.00	21.29	106	80-120

Surrogate	%REC	Limits	
Dibromofluoromethane	103	71-126	
1,2-Dichloroethane-d4	99	74-130	
Toluene-d8	100	80-120	
Bromofluorobenzene	100	76-131	



Purgeable Org	ganics by GC/MS	
Lab #: 228688	Location:	6501 Shattuck Ave., Oakland
Client: SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#: 5032	Analysis:	EPA 8260B
Field ID: B-4 @ 9 FT	Diln Fac:	0.9785
MSS Lab ID: 228688-003	Batch#:	175851
Matrix: Soil	Sampled:	06/10/11
Units: ug/Kg	Received:	06/13/11
Basis: as received	Analyzed:	06/15/11

Type: MS Lab ID: QC596311

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5887	48.92	33.55	69	57-134
Benzene	<0.9591	48.92	37.53	77	62-123
Trichloroethene	3.600	48.92	37.18	69	50-146
Toluene	<1.294	48.92	36.14	74	59-120
Chlorobenzene	<0.2890	48.92	34.08	70	53-120

Surrogate	%REC	Limits
Dibromofluoromethane	102	71-126
1,2-Dichloroethane-d4	101	74-130
Toluene-d8	101	80-120
Bromofluorobenzene	101	76-131

Type: MSD Lab ID: QC596312

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	48.92	42.29	86	57-134	23	45
Benzene	48.92	45.43	93	62-123	19	40
Trichloroethene	48.92	45.04	85	50-146	19	46
Toluene	48.92	44.99	92	59-120	22	43
Chlorobenzene	48.92	41.59	85	53-120	20	43

Surrogate	%REC	Limits
Dibromofluoromethane	103	71-126
1,2-Dichloroethane-d4	101	74-130
Toluene-d8	100	80-120
Bromofluorobenzene	99	76-131



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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

Laboratory Job Number 228818 ANALYTICAL REPORT

SOMA Environmental Engineering Inc. Project : 5032

6620 Owens Dr. Location: 6501 Shattuck Ave., Oakland

Pleasanton, CA 94588 Level : II

<u>Sample ID</u> <u>Lab ID</u> B-6 228818-001

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:

Troject Manager

Date: <u>06/24/2011</u>

NELAP # 01107CA



CASE NARRATIVE

Laboratory number: 228818

Client: SOMA Environmental Engineering Inc.

Project: 5032

Location: 6501 Shattuck Ave., Oakland

Request Date: 06/17/11 Samples Received: 06/17/11

This data package contains sample and QC results for one water sample, requested for the above referenced project on 06/17/11. The sample was received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):

No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

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

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

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

C&T LOGIN #2288 8

Sampler: Lizzie Hightower

Project No: 5032

Project Name: 6501 Shattuck Ave., Oakland

Turnaround Time: Standard

Report To: Joyce Bobek

Company: **SOMA Environmental**

925-734-6400 Telephone:

Lab No. Sample ID. Sampling Date Time Date Ti		TPH,
	ŜЩ	<u> </u>
	토 ^얼	TPH-g, TPH-d, '
	*	* *
Notes: EDF OUTPUT REQUIRED RELINQUISHED BY:	<u></u>	RECEI
	10/11	$+\Lambda$

DATE/TIME

ED BY:

⁻PH-mo 8015

DATE/TIME

DATE/TIME DATE/TIME

COOLER RECEIPT CHECKLIST



Login # 228818 Client & SOMA Date Received 6 711 Number of coolers Project 6501 Shaffuck Ave	_
Date Opened of Hu By (print) Living Cardi(sign) Logged in 1/20/11 By (print) R. Parus (sign)	5. -
1. Did cooler come with a shipping slip (airbill, etc)YES NOYES_NO	
2A. Were custody seals present? TYES (circle) on cooler on samples How many Name Date 2B. Were custody seals intact upon arrival? 3. Were custody papers dry and intact when received?) A
4. Were custody papers filled out properly (ink, signed, etc)? 5. Is the project identifiable from custody papers? (If so fill out top of form) 6. Indicate the packing in cooler: (if other, describe)	
Bubble Wrap 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)	
Samples Received on ice & cold without a temperature blank	
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	ン -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? YES NO) -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? YES NO	- -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? YES NO	<u>つ</u>
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? YES NO	- -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? YES NO N/A	<u>う</u>
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? YES NO N/A) -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? YES NO N/A YES NO N/A) -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A) -
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? YES NO N/A YES NO N/A	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? YES NO N/A YES NO N/A	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? YES NO N/A YES NO N/A	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? YES NO N/A YES NO N/A	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. Was the client contacted concerning this sample delivery? 19. Was called? 19. Date:	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. Was the client contacted concerning this sample delivery? 10. Date: 11. Are samples in the appropriate containers for indicated tests? 12. NO N/A 13. Was sufficient amount of sample sent for tests requested? 14. Are bubbles > 6mm absent in LIMS for unpreserved VOAs? 15. Did you change the hold time in LIMS for unpreserved VOAs? 16. Did you change the hold time in LIMS for unpreserved VOAs? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. Was the client contacted concerning this sample delivery? 19. Date: 10. COMMENTS	
If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete? 12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. Did you check preservatives for all bottles for each sample? 16. Did you document your preservative check? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. Was the client contacted concerning this sample delivery? 10. Date: 11. Are samples in the appropriate to remind tests? 12. NO N/A 13. Was the client contacted concerning this sample delivery? 14. Are bubbles > 6mm absent in VOA samples? 15. Did you change the hold time in LIMS for unpreserved VOAs? 16. Did you change the hold time in LIMS for unpreserved VOAs? 17. Did you change the hold time in LIMS for unpreserved VOAs? 18. Are bubbles > 6mm absent in VOA samples? 19. Was the client contacted concerning this sample delivery? 19. VES NO N/A 19. Was the client contacted concerning this sample delivery? 19. Date: 10. COMMENTS	



Total Volatile Hydrocarbons Lab #: 228818 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B EPA 8015B Project#: 5032 Analysis: B-6 Field ID: Batch#: 176014 06/16/11 Matrix: Water Sampled: Units: ug/L Received: 06/17/11 Diln Fac: 1.000 Analyzed: 06/20/11

Type: SAMPLE Lab ID: 228818-001

Analyte	Result	RL	
Gasoline C7-C12	ND	50	

Surrogate %REC Limits
mofluorobenzene (FID) 103 78-1

Type: BLANK Lab ID: QC596996

Analyte	Result	RL	
Gasoline C7-C12	ND	50	

ND= Not Detected RL= Reporting Limit



	Total Volatil	e Hydrocarbons	
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	5032	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC596995	Batch#:	176014
Matrix:	Water	Analyzed:	06/20/11
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	977.5	98	80-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID	102	78-123	

Page 1 of 1 5.0



Total Volatile Hydrocarbons						
Lab #: 228818	_	Location:	6501 Shattuck Ave., Oakland			
Client: SOMA E	Environmental Engineering Inc.	Prep:	EPA 5030B			
Project#: 5032		Analysis:	EPA 8015B			
Field ID:	ZZZZZZZZZZ	Batch#:	176014			
MSS Lab ID:	228805-002	Sampled:	06/17/11			
Matrix:	Water	Received:	06/17/11			
Units:	ug/L	Analyzed:	06/20/11			
Diln Fac:	1.000					

Type: MS

Lab ID: QC596997

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	148.1	2,000	1,868	86	66-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	109	78-123	

Type: MSD Lab ID: QC596998

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,942	90	66-120	4	25



Total Extractable Hydrocarbons								
Lab #:	228818		Location:	6501 Shattuck Ave., Oakland				
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 3520C				
Project#:	5032		Analysis:	EPA 8015B				
Field ID:	В-6		Batch#:	176013				
Matrix:	Water		Sampled:	06/16/11				
Units:	ug/L		Received:	06/17/11				
Diln Fac:	1.000		Prepared:	06/20/11				

Type: SAMPLE Analyzed: 06/22/11 Lab ID: 228818-001 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	101	68-120

Type: BLANK Analyzed: 06/21/11 Lab ID: QC596992 Cleanup Method: EPA 3630C

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

S	urrogate	%REC	Limits
o-Terphenyl	<u> </u>	106	68-120

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

10.0



	Total Extractable Hydrocarbons							
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland					
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 3520C					
Project#:	5032	Analysis:	EPA 8015B					
Matrix:	Water	Batch#:	176013					
Units:	ug/L	Prepared:	06/20/11					
Diln Fac:	1.000	Analyzed:	06/21/11					

Type: BS Cleanup Method: EPA 3630C

Lab ID: QC596993

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,711	108	61-120

Surrogate	%REC	Limits
o-Terphenyl	119	68-120

Type: BSD Cleanup Method: EPA 3630C

Lab ID: QC596994

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,449	98	61-120	10	20

Surrogate	%REC	Limits	
o-Terphenyl	112	68-120	



Purgeable Organics by GC/MS								
Lab #:	228818		Location:	6501 Shattuck Ave., Oakland				
Client:	SOMA Environmental	Engineering Inc.	Prep:	EPA 5030B				
Project#:	5032		Analysis:	EPA 8260B				
Field ID:	B-6		Batch#:	176046				
Lab ID:	228818-001		Sampled:	06/16/11				
Matrix:	Water		Received:	06/17/11				
Units:	ug/L		Analyzed:	06/21/11				
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	

RL= Reporting Limit



Purgeable Organics by GC/MS						
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland			
Client:	SOMA Environmental Engine	ering Inc. Prep:	EPA 5030B			
Project#:	5032	Analysis:	EPA 8260B			
Field ID:	B-6	Batch#:	176046			
Lab ID:	228818-001	Sampled:	06/16/11			
Matrix:	Water	Received:	06/17/11			
Units:	ug/L	Analyzed:	06/21/11			
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	91	80-127	
1,2-Dichloroethane-d4	93	73-145	
Toluene-d8	96	80-120	
Bromofluorobenzene	91	80-120	

RL= Reporting Limit

Page 2 of 2



Purgeable Organics by GC/MS				
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B	
Project#:	5032	Analysis:	EPA 8260B	
Matrix:	Water	Batch#:	176046	
Units:	ug/L	Analyzed:	06/21/11	
Diln Fac:	1.000			

Type: BS Lab ID: QC597142

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	10.33	83	64-133
Benzene	12.50	12.69	102	80-122
Trichloroethene	12.50	12.74	102	78-120
Toluene	12.50	13.30	106	80-120
Chlorobenzene	12.50	13.36	107	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	94	80-127
1,2-Dichloroethane-d4	86	73-145
Toluene-d8	98	80-120
Bromofluorobenzene	96	80-120

Type: BSD Lab ID: QC597143

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	9.855	79	64-133	5	20
Benzene	12.50	13.04	104	80-122	3	20
Trichloroethene	12.50	12.97	104	78-120	2	20
Toluene	12.50	13.63	109	80-120	2	20
Chlorobenzene	12.50	13.40	107	80-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	86	80-127
1,2-Dichloroethane-d4	88	73-145
Toluene-d8	99	80-120
Bromofluorobenzene	95	80-120



	Purgeable Organics by GC/MS				
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B		
Project#:	5032	Analysis:	EPA 8260B		
Type:	BLANK	Diln Fac:	1.000		
Lab ID:	QC597146	Batch#:	176046		
Matrix:	Water	Analyzed:	06/21/11		
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



Purgeable Organics by GC/MS				
Lab #:	228818	Location:	6501 Shattuck Ave., Oakland	
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B	
Project#:	5032	Analysis:	EPA 8260B	
Type:	BLANK	Diln Fac:	1.000	
Lab ID:	QC597146	Batch#:	176046	
Matrix:	Water	Analyzed:	06/21/11	
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	91	80-127	
1,2-Dichloroethane-d4	90	73-145	
Toluene-d8	95	80-120	
Bromofluorobenzene	94	80-120	

ND= Not Detected

RL= Reporting Limit

Page 2 of 2



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

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

Laboratory Job Number 228958 ANALYTICAL REPORT

SOMA Environmental Engineering Inc. Project : 5032

6620 Owens Dr. Location: 6501 Shattuck Ave., Oakland

Pleasanton, CA 94588 Level : II

<u>Sample ID</u> <u>Lab ID</u> B-7 @ 12 228958-001 B-9 @ 10 228958-002

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:

Project Manager

Date: <u>06/30/2011</u>

NELAP # 01107CA



CASE NARRATIVE

Laboratory number: 228958

Client: SOMA Environmental Engineering Inc.

Project: 5032

Location: 6501 Shattuck Ave., Oakland

Request Date: 06/24/11 Samples Received: 06/13/11

This data package contains sample and QC results for two soil samples, requested for the above referenced project on 06/24/11. 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):

Matrix spikes QC597824,QC597825 (batch 176211) were not reported because the parent sample required a dilution that would have diluted out the spikes. No other analytical problems were encountered.



Subject: Re: Expiring Hold Samples Please analyze ASAP

From: Tracy Babjar <tracy.babjar@ctberk.com>

Date: Fri, 24 Jun 2011 08:36:44 -0700

To: Elena Manzo <emanzo@somaenv.com>, John Goyette <Goyette@ctberk.com>

Hi Elena,

I will have to charge rush sur charge for the extraction of the TEH which will be 50% and 100% for the TVH.

Is that ok? We are slammed over here.

Tracy

Tracy Babjar
Project Manager
Curtis & Tompkins, Ltd.
510 204-2226
www.curtisandtompkins.com

On 6/23/2011 6:47 PM, Elena Manzo wrote:

Hi Tracy,

I know it's a short notice, but at 6501 Shattuck Ave (228688) we have two hold samples I would like to process, the hold expires tomorrow. Once again I am sorry about the short notice, I just finally had the chance to look at it. The samples B-9 @10' and B-7 @12' need to be analyzed for TPH-g and TPH-d only, not the entire list from the COC. I cc-ed John, just in case you are out tomorrow, I don't want them to be missed. Please do not hesitate to call me at (925)734-6400, if you have any questions or concerns.

Sincerely,

Elena K. Manzo
Principal Scientist
SOMA Environmental Engineering, Inc.
925-734-6400 (Phone)
925-734-6401 (Fax)
www.somaenv.com

Curtis & Tompkins, Ltd.

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

C&T LOGIN#228688

Sampler: Erica Fisker

Project No: 5032

Project Name: 6501 Shattuck Ave., Oakland

- July July

Turnaround Time: Standard

Report To:

Joyce Bobek

Company:

SOMA Environmental

Telephone:

925-734-6400

Fax:

925-734-6401

			Matrix			x		Preservati				/e
Lab No.	Sample ID.	Sampling Date Time	Soil	Water	Waste		# of Containers	HCL	H ₂ SO ₄	HNO3	ICE	
21	B6@ 20	6-10-11 1153	*				iosin Sierum			_	*	
22	860 21	1 110.59	X				1				×	
23	B-) ()	17:45		X			6 SCEWI	χ			X	
24	B-7 @ 2	15.17	χ				6-17 Sizeva				አ	
25	B-70 4	15.70					1				T	
260	B-7@ 6	15.23										
27	B-708	15:34			ľ						\parallel	
28	B.7 @ 10	15:38			1						\Box	
29	B-700 12	15:42	\prod								\parallel	
30	C-76 14	15:50									H	

N	otes:	EDF	OU	TPU	JΤ	REC	QUIR	ED
---	-------	-----	----	-----	----	-----	------	----

Silica-gel clean-up required RH-d amo

RELINQUISHED BY:

DATE/TIME

CIRCLE

DATE/TIME

DATE/TIME

RECEIVED BY:

DATE/TIME

TPH-g, TPH-d, TPH-mo 8015

VOCs (Full List) 8260

Hold

Holi

Hold

H bld

200 01 DATE/THME

13/1 DATETIME

DATE/TIME

Special Pricing for Train

Curtis & Tompkins, Ltd.

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

C&T LOGIN #228688

Sampler: Erica Fisker

Project No: 5032

Project Name: 6501 Shattuck Ave., Oakland

Turnaround Time: Standard

Report To: Joyce E

Joyce Bobek

Company: SOMA Environmental

Telephone: 925-734-6400

Fax: 925-734-6401

				Matrix					Preser			vative	
Lab No.	Sample ID.	Sampling Date Time		Soil	Water	Waste	Co	# of Containers		H ₂ SO ₄	HNO3	CE	
41	B8@18	6-10	-11 1340	*			1300	- \ Y) - oz ja r				*	
42	B-9	6-11	0 11 17:30		X		160	linber	۲			×	
43	6-9@ 3	1	14:25	Χ			ı	n Sieven				1	
45	B-9 @ 4	_	14:30		\dashv	\downarrow							
46	B.9 (0 6 B.9 (0 8		14:34		\dashv	-	-		_		_	$-\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!\!$	
47	B.9 @ 10		14:40	\dashv	\dashv	+	$\left\{ -\right\}$	_		_	4	4	
48	B-9 @ 12	+	14:40 14:55	\dashv	+	╁			-	-	_	#	_
49	B90 14		14:57	+	+	+	\dagger		-	+		$\left\{ \cdot \right\}$	_
Notes:	3-4 (a) Ho			1			7		+	7	1	1	\dashv

Notes: EDF OUTPUT REQUIRED

Silica-gel clean-up required PH-d, mb

RELINQUISHED BY:

DATE/TIME

6/13//0 1/:30 DATE/TIME

DATE/TIME

RECEIVED BY:

TPH-g, TPH-d, TPH-mo 8015

VOCs (Full List)

told

Hold

told

Hold

udo

6/10/11 20-6

DATE/TIME

DATE/TIME

5 of 1

COOLER RECEIPT CHECKLIST



Login #228683 Date Received 1/13/11 Number of coolers 1 Client SOMA Project 6561 Shattuck Ave Oakland
Date Opened 13/11 By (print) Viola Oca Li (sign) Combi (sign) Date Logged in 14/11 By (print) R. Part S (sign)
1. Did cooler come with a shipping slip (airbill, etc) YES NO Shipping info
2A. Were custody seals present? TYES (circle) on cooler on samples How many Name Date 2B. Were custody seals intact upon arrival? Were custody papers dry and intact when received? Were custody papers filled out properly (ink, signed, etc)? Is the project identifiable from custody papers? (If so fill out top of form) NO NO NO List the project identifiable from custody papers? (If so fill out top of form) NO NO NO List the project identifiable from custody papers? (If so fill out top of form) NO NO List the project identifiable from custody papers? (If so fill out top of form) NO NO NO List the project identifiable from custody papers? (If so fill out top of form)
Bubble Wrap Cloth material Cardboard Temperature documentation: Bags None Styrofoam Paper towels Temperature exceeds 6°C
Type of ice used: Wet Blue/Gel None Temp(°C) Samples Received on ice & cold without a temperature blank
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? 10. Are samples in the appropriate containers for indicated tests? NO NO
12. Do the sample labels agree with custody papers? 13. Was sufficient amount of sample sent for tests requested? 14. Are the samples appropriately preserved? 15. NO 16. NO 17. Are sample labels present, in good condition and complete? 18. NO 19.
15. Did you check preservatives for all bottles for each sample? YES NO NA 16. Did you document your preservative check? YES NO NA
17. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A 18. Are bubbles > 6mm absent in VOA samples? YES NO N/A 19. Was the client contacted concerning this sample delivery? If YES, Who was called? By Vac Date: VIII
COMMENTS Gedinent found at bottom of containers.



Total Volatile Hydrocarbons Lab #: 228958 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. Prep: EPA 5030B EPA 8015B Project#: 5032 Analysis: Soil Matrix: Batch#: 176170 mg/Kg 06/10/11 Units: Sampled: as received Basis: Received: 06/13/11 Diln Fac: 1.000

Field ID: B-7 @ 12 Lab ID: 228958-001 Type: SAMPLE Analyzed: 06/24/11

AnalyteResultRLGasoline C7-C12ND0.98

Surrogate %REC Limits
Bromofluorobenzene (FID) 95 74-132

Field ID: B-9 @ 10 Lab ID: 228958-002 Type: SAMPLE Analyzed: 06/24/11

Analyte Result RL
Gasoline C7-C12 ND 1.0

Surrogate %REC Limits
Bromofluorobenzene (FID) 97 74-132

Type: BLANK Analyzed: 06/23/11

Lab ID: QC597653

AnalyteResultRLGasoline C7-C12ND0.20

Surrogate%RECLimitsBromofluorobenzene (FID)9574-132

ND= Not Detected
RL= Reporting Limit

Page 1 of 1

3.0



Batch QC Report

Total Volatile Hydrocarbons							
Lab #:	228958	Location:	6501 Shattuck Ave., Oakland				
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B				
Project#:	5032	Analysis:	EPA 8015B				
Type:	LCS	Diln Fac:	1.000				
Lab ID:	QC597652	Batch#:	176170				
Matrix:	Soil	Analyzed:	06/23/11				
Units:	mg/Kg						

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.8539	85	80-120

Surrogate	%REC	Limits	
Bromofluorobenzene (FID)	98	74-132	

Page 1 of 1 4.0



Batch QC Report

Total Volatile Hydrocarbons							
Lab #: 228958		Location:	6501 Shattuck Ave., Oakland				
Client: SOMA E	nvironmental Engineering Inc.	Prep:	EPA 5030B				
Project#: 5032		Analysis:	EPA 8015B				
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000				
MSS Lab ID:	228899-001	Batch#:	176170				
Matrix:	Soil	Sampled:	06/21/11				
Units:	mg/Kg	Received:	06/22/11				
Basis:	as received	Analyzed:	06/23/11				

Type: MS Lab ID: QC597654

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.05481	10.20	8.188	80	43-120

Surrogate	%REC	Limits
omofluorobenzene (FID)	99	74-132

Type: MSD Lab ID: QC597655

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.615	8.194	85	43-120	6	34

Currogate	_	%REC	Timita
Surrogate	=	∘REC	Limits
Bromofluorobenzene	(FID)	1 0 4	74-132



Total Extractable Hydrocarbons Lab #: 228958 Location: 6501 Shattuck Ave., Oakland Client: SOMA Environmental Engineering Inc. SHAKER TABLE Prep: EPA 8015B Project#: 5032 Analysis: Soil Matrix: Batch#: 176211 06/10/11 Units: mg/Kg Sampled: Basis: as received Received: 06/13/11 Diln Fac: 1.000 Prepared: 06/24/11

B-7 @ 12 Field ID: Analyzed: 06/27/11 Type: SAMPLE Cleanup Method: EPA 3630C

Lab ID: 228958-001

Analyte	Result	RL	
Diesel C10-C24	1.6 Y	1.0	
Motor Oil C24-C36	ND	5.0	

Surrogate	%REC	Limits
o-Terphenyl	79	62-120

Field ID: B-9 @ 10 Analyzed: 06/27/11 Type: SAMPLE Cleanup Method: EPA 3630C

Lab ID: 228958-002

Analyte	Result	RL	
Diesel C10-C24	ND	0.99	
Motor Oil C24-C36	ND	5.0	

Surrogate	%REC	Limits
o-Terphenyl	72	62-120

Analyzed: 06/26/11 Type: BLANK Lab ID: QC597822 Cleanup Method: EPA 3630C

Analyte	Result	RL	
Diesel C10-C24	ND	0.99	
Motor Oil C24-C36	ND	5.0	

Surrogate	%REC	Limits
o-Terphenyl	108	62-120

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 1 of 1

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6.0



Batch QC Report

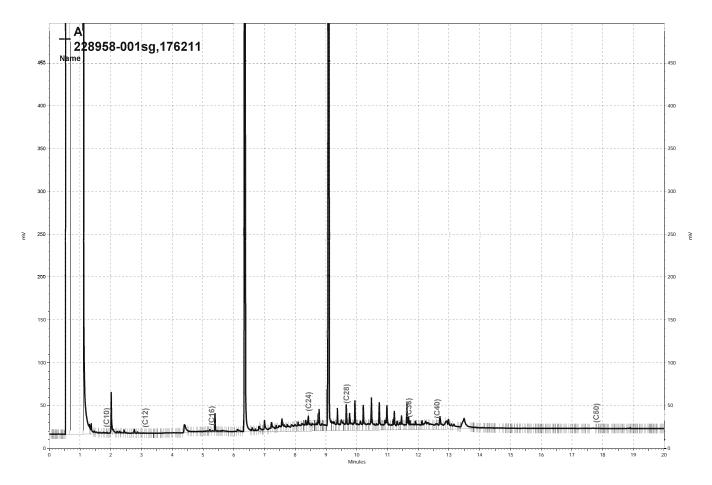
Total Extractable Hydrocarbons					
Lab #:	228958	Location:	6501 Shattuck Ave., Oakland		
Client:	SOMA Environmental Engineering Inc.	Prep:	SHAKER TABLE		
Project#:	5032	Analysis:	EPA 8015B		
Type:	LCS	Diln Fac:	1.000		
Lab ID:	QC597823	Batch#:	176211		
Matrix:	Soil	Prepared:	06/24/11		
Units:	mg/Kg	Analyzed:	06/27/11		

Cleanup Method: EPA 3630C

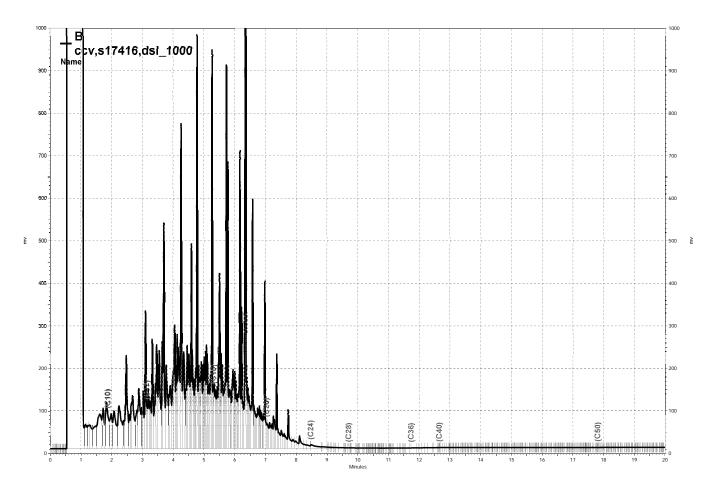
Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.86	51.02	102	54-138

Surrogate	%REC	Limits
o-Terphenyl	115	62-120

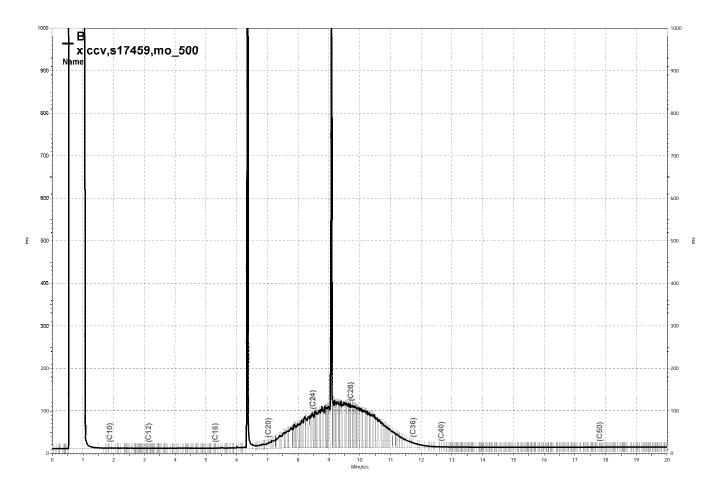
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\Lims\gdrive\ezchrom\Projects\GC17A\Data\177a037, A



\Lims\gdrive\ezchrom\Projects\GC15B\Data\177b005, B



\Lims\gdrive\ezchrom\Projects\GC15B\Data\177b009, B

APPENDIX D

HISTORICAL CONTOUR FIGURES



