SOMA
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October 16, 2017

**RECEIVED**
*By Alameda County Environmental Health 4:57 pm, Oct 16, 2017*

Mr. Martin Musonge
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: **File No. 01-0098 (MYM)**
Site Located at 2844 Mountain Boulevard, Oakland, California

Dear Mr. Musonge:

Enclosed for your review is SOMA's "Second Semi-Annual 2017 Groundwater Monitoring Report" for the subject property. It has been uploaded to the State's GeoTracker database and Alameda County's FTP site.

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

Sincerely,

Mansour Sepehr, Ph.D., PE
Principal Hydrogeologist


cc: Mr. Tejindar Singh w/enclosure
Ms. Dilan Roe – Alameda County Env. Health

# Second Semi-Annual 2017
# Groundwater Monitoring Report

## 2844 Mountain Boulevard
## Oakland, California
## Regional Board File Number 01-0098

**October 16, 2017**

**Project 5081**

**Prepared for**

**Tejindar Singh**
**6400 Dublin Blvd.**
**Dublin, California, 94568**

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# ACKNOWLEDGEMENT STATEMENT

**Site Location:** 2844 Mountain Boulevard, Oakland, California

"I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's Geotracker website."

Tejindar Singh
6400 Dublin Boulevard
Dublin, California 94568
Responsible Party

## CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf Tejindar Singh, property owner of 2844 Mountain Blvd., Oakland, California, to comply with requirements of the San Francisco Bay Regional Water Quality Control Board for the Second Semi-Annual 2017 groundwater monitoring event.

Mansour Sepehr, PhD, PE
Principal Hydrogeologist

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# 1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Tejindar Singh, property owner of 2844 Mountain Blvd., Oakland, California. The site is located east of Highway 13 and west of Joaquin Miller Park (Figure 1). Former underground storage tank (UST) locations and site features are shown in Figure 2.

This report summarizes results of the Second Semi-Annual 2017 groundwater monitoring event conducted at the site on September 1, 2017. It includes physical and chemical properties measured in the field for each groundwater sample and laboratory analytical results for groundwater samples. This monitoring event was conducted based on a request from the San Francisco Regional Water Quality Control Board (SFRWQCB) to reduce the frequency of groundwater monitoring events from quarterly to semi-annual until the site obtains closure.

## 1.1 Previous Activities

In March 1989 soil contamination was identified during replacement of product lines. Analytical results for a soil sample collected from the southern edge of a premium unleaded tank reported total petroleum hydrocarbons (TPHs) as gasoline (TPH-g) concentration of 8,400 mg/kg. Samples from beneath the lines near the pump islands reported TPH concentrations of less than 100 mg/kg.

In July 1989, contaminated soil was excavated and from the area of the southern end of the premium unleaded UST disposed of. Analysis of 12 soil samples collected from the sides of the excavation reported TPH concentrations ranging between ND to 3,300 mg/kg.

In May 1990, further site investigation including installation of four monitoring wells (RS-1 through RS-4) was conducted. Analysis of soil samples collected above the water table reported TPH concentrations ranging from 1 to 240 mg/kg. Hydrocarbons were detected in groundwater samples collected from all the wells; the highest concentration was found in a sample monitoring well RS-2.

In June 1991 soil vapor extraction began in June 1991. Groundwater remediation began in October 1992. Remediation was suspended in 1992, apparently due to responsible party financial issues.

In April 1994, one 280-gallon waste oil UST was removed with approximately 280 gallons of fluid and rinsate. The site operated as a retail gasoline station. Three USTs, two pump islands and an office/garage building were among the site features. The USTs contained various grades of unleaded gasoline and diesel with storage capacities of 3,000, 4,000, and 10,000 gallons.

In 1996 free product was reported in RS-1.

In July 1998, one 4,000-gallon gasoline UST was excavated and disposed of off-site.

Between July 29 and August 18, 2011, two USTs, one 10,000 gallon and one 3,000 gallon capacity, were excavated and disposed of off-site. The site is currently fenced in, which limits public access to the property.

Further soil and groundwater investigation was conducted at the site in March 2012. In October 2012, two wells (RS-1 and RS-2) were decommissioned in anticipation of excavation activities onsite. Excavation activities commenced on October 3, 2012, and an area of approximately 1,200 square feet was excavated to a depth of 15 feet. A total of 788.65 tons of waste soil was removed and replaced with clean fill material.

On May 9 and 10, 2013, two groundwater monitoring wells (MW-1 and MW-2) and soil and groundwater borings (DPT-5/5W) were installed as approved and requested by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB). All site wells were surveyed by a licensed surveyor on May 28, 2013.

Based on the success of a multi-phase extraction (MPE) pilot test conducted at the site in December 2013, SFRWQCB approved an extended MPE event. This event was conducted at the site from September 17, 2014 to November 5, 2014. Details and results of this event are documented in SOMA's report dated December 12, 2014.

Based on SFRWQCB's approval, SOMA installed an additional MPE well (MW-3) on May 1, 2015, in the vicinity of historical groundwater sample T-1, where high contaminant concentrations were observed during UST removal of August 2011. An extended MPE event was conducted utilizing this well and other site wells during May and June 2015.

SOMA submitted a workplan on December 4, 2015 for delineation of horizontal and vertical extent of soil and groundwater contamination of MtBE and TBA. This workplan was approved on February 11, 2016. Therefore, in March 2016, SOMA advanced four soil borings (DPT-6 through DPT-9) for collection of soil and groundwater samples. Results and recommendations are documented in SOMA's 'Additional Site Investigation Report' dated April 14, 2016.

SOMA submitted a workplan on April 17, 2017 to define the horizontal and vertical extent of soil and groundwater contamination of MtBE and TBA downgradient of previously installed DPT-9. This workplan was approved on May 31, 2017. Therefore, SOMA completed the installation of DPT-10 through DPT-

13 in July 2017. A sensitive receptor survey wad also completed. Results were documented in 'Plume Definition Investigation Report' dated September 7, 2017.

### 1.2 Summary of Field Activities and Laboratory Analysis

#### 1.2.1 Field Activities

On September 1, 2017, five monitoring wells (RS-3, RS-4, MW-1, MW-2, and MW-3) were measured for depth to groundwater. Additional field measurements and groundwater samples were collected from all five wells. Properties measured in the field were pH, temperature, and electrical conductivity (EC). This monitoring event was conducted in accordance with procedures and guidelines of SFBRWQCB.

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

Purged groundwater was temporarily stored and secured on-site in 55-gallon drums pending transport to an appropriate disposal facility. There were two drums of purged water and three drums of spent granular activated carbon (GAC) stored at the site awaiting disposal. The purged water drums were generated during previous groundwater monitoring events. GAC drums were utilized during the previous multi-phase extraction events events that have been conducted at the site. On April 3, 2017, a sample was obtained from the spent GAC drums and sent to the analytical laboratory for waste profiling. All waste drums were hauled off on May 3, 2017 for proper disposal. The laboratory analytical report and waste manifest are attached in Appendix D.

#### 1.2.2 Laboratory Analysis

Groundwater samples were submitted to a California state-certified laboratory Curtis and Tompkins Laboratories, for the following analysis:

- TPH-g (gasoline by EPA Method 8260B),
- TPH-d (diesel by EPA Method 8015B)
- BTEX (benzene, toluene, ethylbenzene, and total xylenes), MtBE, gasoline oxygenates (by EPA Method 8260B).

## 2. RESULTS

Results of field measurements and laboratory analyses for the groundwater monitoring event conducted on September 1, 2017 follow below.

## 2.1 Field Measurements

Monitoring wells MW-1, MW-2, MW-3, RS-3 and RS-4 were measured for depth to groundwater (Table 1). Depths to groundwater ranged from 6.25 feet in MW-3 to 9.31 feet in RS-4. Groundwater elevations ranged from 665.96 feet in RS-4 to 669.55 feet in RS-3.

Figure 3 displays the groundwater elevation map. The groundwater flows southeasterly at a gradient of 0.068 ft/ft. Since the previous monitoring event (March 2017), the groundwater flow direction has remained the same and gradient has decreased. Groundwater gradient calculations are included in Appendix B.

## 2.2 Laboratory Analysis

Groundwater analytical data for this monitoring event is shown in Table 1. Appendix C includes the laboratory report and chain of custody form. No measurable floating product was observed during this monitoring event.

TPH-g was detected in MW-1 and MW-2 at 510 µg/L and 910 µg/L, respectively and was below laboratory-reporting limit in other groundwater samples. Since the previous monitoring event (March 2017), TPH-g concentrations increased in MW-2, decreased in MW-1, and remained below laboratory-reporting limits in RS-3, RS-4, and MW-3. Figure 4 shows a map of TPH-g concentrations in groundwater. The TPH-g plume appears to be centered in the vicinity of the pump islands around MW-2.

TPH-d was below laboratory reporting limit in RS-3 and was detected in concentrations ranging from 390 µg/L in RS-4 to 2,300 µg/L in MW-1. Since the monitoring event of November 2016, TPH-d has decreased in RS-3, RS-4, MW-1, and MW-2 and increased in MW-3. Figure 5 shows a contour map of TPH-d concentrations in groundwater. TPH-d plume appears to be centered southwest of the pump islands in the vicinity of MW-1.

During the analysis of TPH-d, some groundwater samples exhibited chromatographic pattern that did not resemble the standard pattern for diesel. Refer to the laboratory analytical report attached in Appendix C for further clarification of diesel testing and analysis.

The following BTEX concentrations were observed during this monitoring event:

- All BTEX analytes were below laboratory-reporting limits in RS-3, RS-4, MW-1, and MW-3.
- Benzene was detected in MW-2 at 33 µg/L. Other BTEX analytes were below laboratory-reporting limits in this sample.
- Since the previous monitoring event (March 2017) benzene has increased in MW-2. Figure 4 shows a map of benzene concentrations in

groundwater. The benzene plume appears to be centered to the south of the pump islands in the vicinity of MW-2.

Methyl tertiary-butyl ether (MtBE) was detected in concentrations ranging from 1.30 µg/L in RS-3 to 430 µg/L in RS-4. Since the previous monitoring event (March 2017), MtBE has increased in RS-3 and MW-2 and decreased in RS-4, MW-1, and MW-3.

Figure 5 shows a contour map of current MtBE concentrations in groundwater. This figure includes the results of Second Semi-Annual 2017 groundwater monitoring event as well as the results of recent and previous site investigations. As illustrated, high MtBE concentrations were detected in on-site and off-site borings during recent site investigations. The MtBE plume appears to be centered in the southwestern corner of the site.

Tertiary-butyl alcohol (TBA) was below laboratory-reporting limit in RS-3. Detectable TBA concentrations ranged from 55 µg/L in MW-3 to 35,000 µg/L in RS-4. Since the previous monitoring event (March 2017), TBA increased in RS-4, decreased in MW-1 and MW-3, and remained same in MW-2. Since November 2016, TBA has increased significantly in RS-4.

Figure 6 shows a contour map of current TBA concentrations in groundwater. Similar to MtBE, this figure includes the results of Second Semi-Annual 2017 groundwater monitoring event as well as the results of site investigations. As illustrated, high TBA concentrations were detected in on-site and off-site borings during previous site investigations. The TBA plume appears to be centered in the southwestern corner of the site.

Tertiary amyl methyl ether (TAME) was below laboratory reporting-limit in RS-3 and MW-2 and was detected at concentrations ranging from 1.20 µg/L in MW-1 to 23 µg/L in RS-4. Since the previous monitoring event (March 2017), TAME has increased in MW-2 and decreased in RS-4, MW-1, and MW-3. Figure 7 shows a contour map of current TAME concentrations in groundwater. This figure includes the results of Second Semi-Annual 2017 groundwater monitoring event as well as the results of site investigations.

# 3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations based on results of Second Semi-Annual 2017 groundwater monitoring are summarized below.

- The groundwater flows southeasterly across the site.
- No free/floating product was observed in any monitoring wells during this monitoring event.

- The highest TPH-g and benzene was detected to the south of the pump islands around MW-2. The highest TPH-d was detected to the west of the pump islands around MW-1. The highest MtBE, TBA, and TAME concentrations were detected around the southeastern corner of the pump islands in RS-4. Since the previous monitoring event (March 2017), TBA increased in RS-4, decreased in MW-1 and MW-3. TBA has increased significantly in RS-4, since November 2016.
- During the site investigations, significantly high concentrations of MtBE, TBA, and TAME were observed in on and off-site borings, as illustrated in Figures 6 through 8. MtBE and TBA plume appear to be centered in the southwestern corner of the site in the vicinity of DPT-2.
- Since the previous monitoring event in March 2017, TPH-g increased in MW-2, decreased in MW-1and remained below laboratory-reporting limits in RS-3, RS-4, and MW-3; benzene increased in MW-2; MtBE increased in RS-3 and MW-2 and decreased in RS-4, MW-1, and MW-3; TBA increased RS-4, decreased in MW-1 and MW-3; and TAME increased in MW-2 and decreased in RS-4, MW-1, and MW-3. Since November 2016, TPH-d decreased in RS-3, RS-4, MW-1, and MW-2 and increased in MW-3.

Based on SFRWQCB's directive dated May 31, 2017, SOMA completed a downgradient investigation for definition of MtBE and TBA plumes. The results and SOMA's recommendations were documented in a report dated September 7, 2017.

## 4. REPORT LIMITATIONS

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

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

# Figures


*Source: Google (R) 2012*

N

approximate scale in feet

0 100 200

Figure 1: Site Vicinity Map

SOMA ENVIRONMENTAL ENGINEERING, INC.

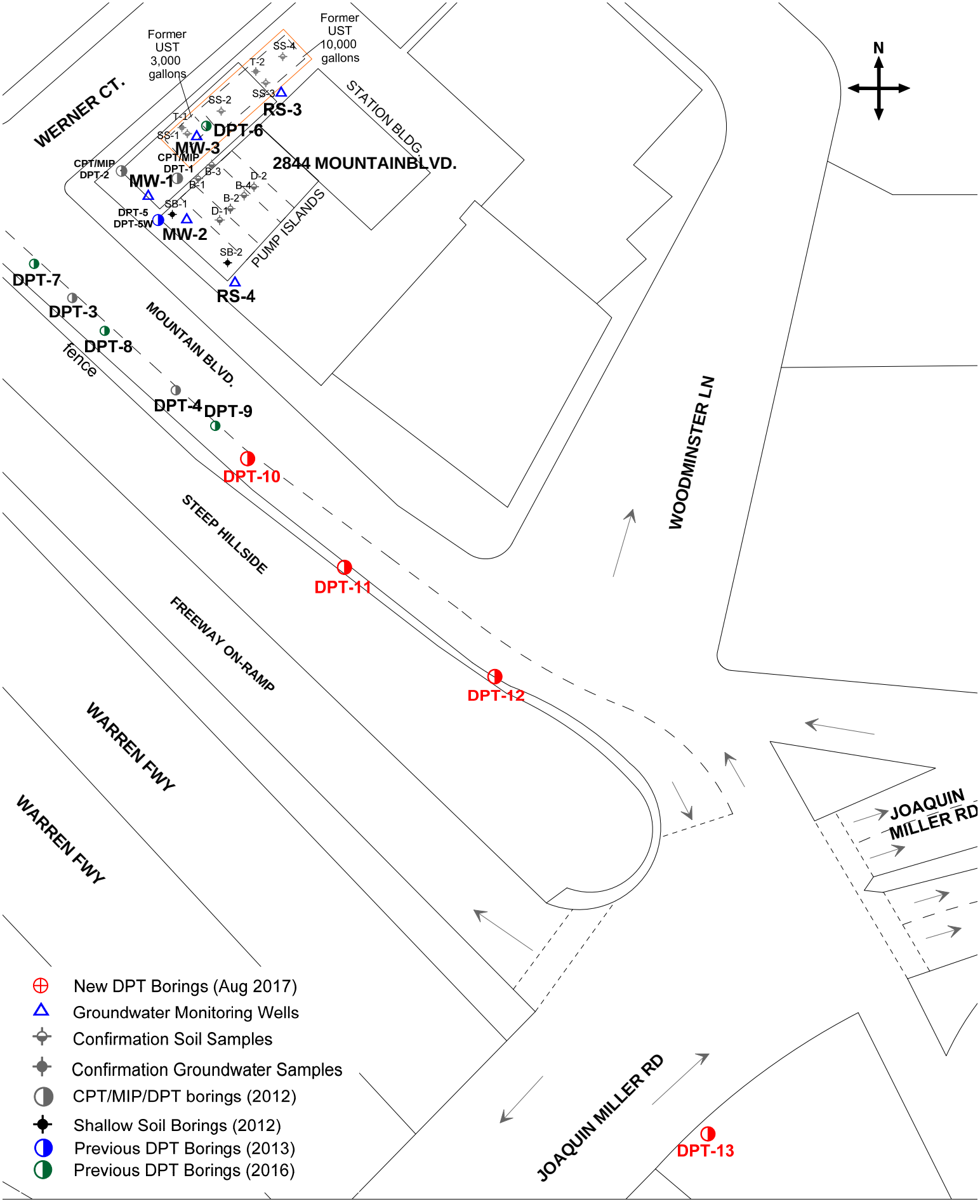


Figure 2: Site Map Showing Locations of Former USTs, Soil Borings, and Groundwater Monitoring Wells

SOMA ENVIRONMENTAL ENGINEERING, INC.

N

Mountain Boulevard

Werner Court

Warren Fwy 13

sewer line

gas line

water line

phone lines

Trees and shrubs

fence

storm water line

REMEDIAL EXCAVATION ~15 feet bgs

Former UST Pit

Former UST 3,000 gallons

Former UST 10,000 gallons

Station Building

Pump Islands

removed fuel piping

T-Junction

~11.5' bgs

RS-1

RS-2

RS-3 669.55

RS-4 665.96

SS-1

SS-2

SS-3

SS-4

T-1

T-2

MW-1 668

MW-2 667.2

MW-3 669.33

SB-1

SB-2

B-1

B-2

B-3

B-4

D-1

D-2

CPT/ MIP/ DPT-1

CPT/ MIP/ DPT-2

DPT-1

DPT-2

DPT-3

DPT-4

DPT-5

DPT-5W

DPT-6

DPT-7

DPT-8

DPT-9

DPT-10

671.2

670.8

670.4

670

669.6

669.2

668.8

2.8'

2.6'

2.3'

2.35'

generalized groundwater flow direction

Rose Diagram

- Groundwater Monitoring Wells
- Decommissioned Monitoring Wells
- Confirmation Soil Samples
- Confirmation Groundwater Samples
- CPT/MIP/DPT borings (2012)
- Shallow Soil Borings (2012)
- DPT Boring (2013)
- DPT Borings (2016)
- Recent DPT Borings (Aug 2017)

approximate scale in feet

0 20 40

Figure 3: Groundwater Elevation Contour Map in Feet, September 1, 2017

SOMA ENVIRONMENTAL ENGINEERING, INC.

N

Mountain Boulevard

Werner Court

Warren Fwy 13

Station Building

Pump Islands

sewer line

gas line

phone lines

Trees and shrubs

water line

fence

storm water line

REMEDIAL EXCAVATION ~15 feet bgs

Former UST 3,000 gallons

Former UST 10,000 gallons

Former UST Pit

SS-4

T-2

SS-3

SS-2

RS-3 <50 <0.5

RS-2

DPT-6

T-1

SS-1

MW-3 <50 <0.5

CPT/ MIP/ DPT-2

T-Junction

~11.5' bgs

B-3

CPT/ MIP/ DPT-1

RS-1

D-2

B-1

removed fuel piping

B-4

MW-1 510 <1.0

SB-1

B-2

DPT-5 DPT-5W

D-1

MW-2 910 33

SB-2

DPT-7

DPT-3

RS-4 <710 <7.1

DPT-8

DPT-4

DPT-9

DPT-10

generalized groundwater flow direction

Rose Diagram

0.0 TPH-g Concentrations (ug/L)

0.0 Benzene Concentrations (ug/L)

Groundwater Monitoring Wells

Decommissioned Monitoring Wells

Confirmation Soil Samples

Confirmation Groundwater Samples

CPT/MIP/DPT borings (2012)

Shallow Soil Borings (2012)

DPT Boring (2013)

DPT Borings (2016)

Recent DPT Borings (Aug 2017)

approximate scale in feet

0 20 40

Figure 4: Map Showing TPH-g and Benzene Concentrations in Groundwater, September 1, 2017

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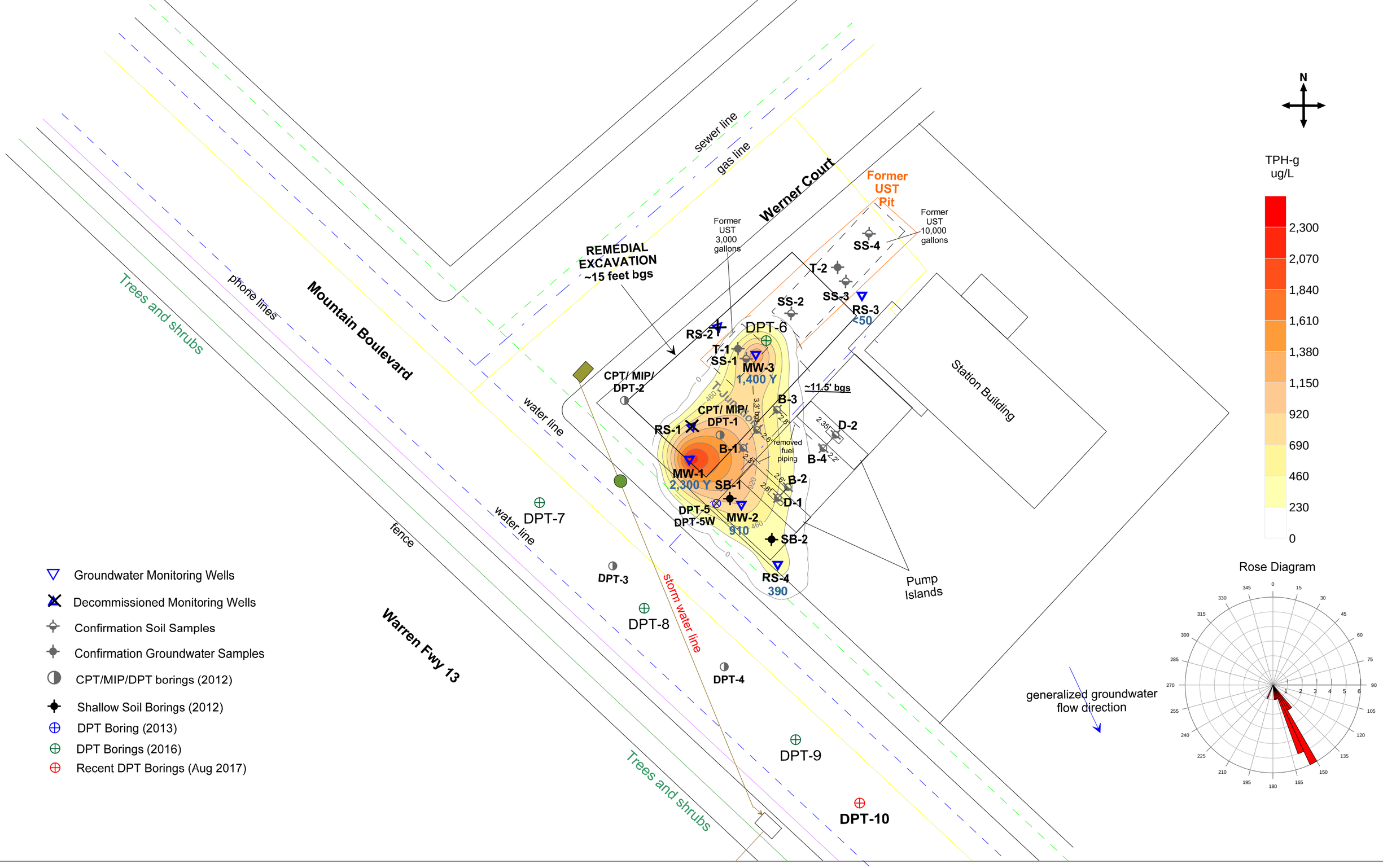


Figure 5: Contour Map Showing TPH-d Concentrations in Groundwater, September 1, 2017

ENVIRONMENTAL ENGINEERING, INC

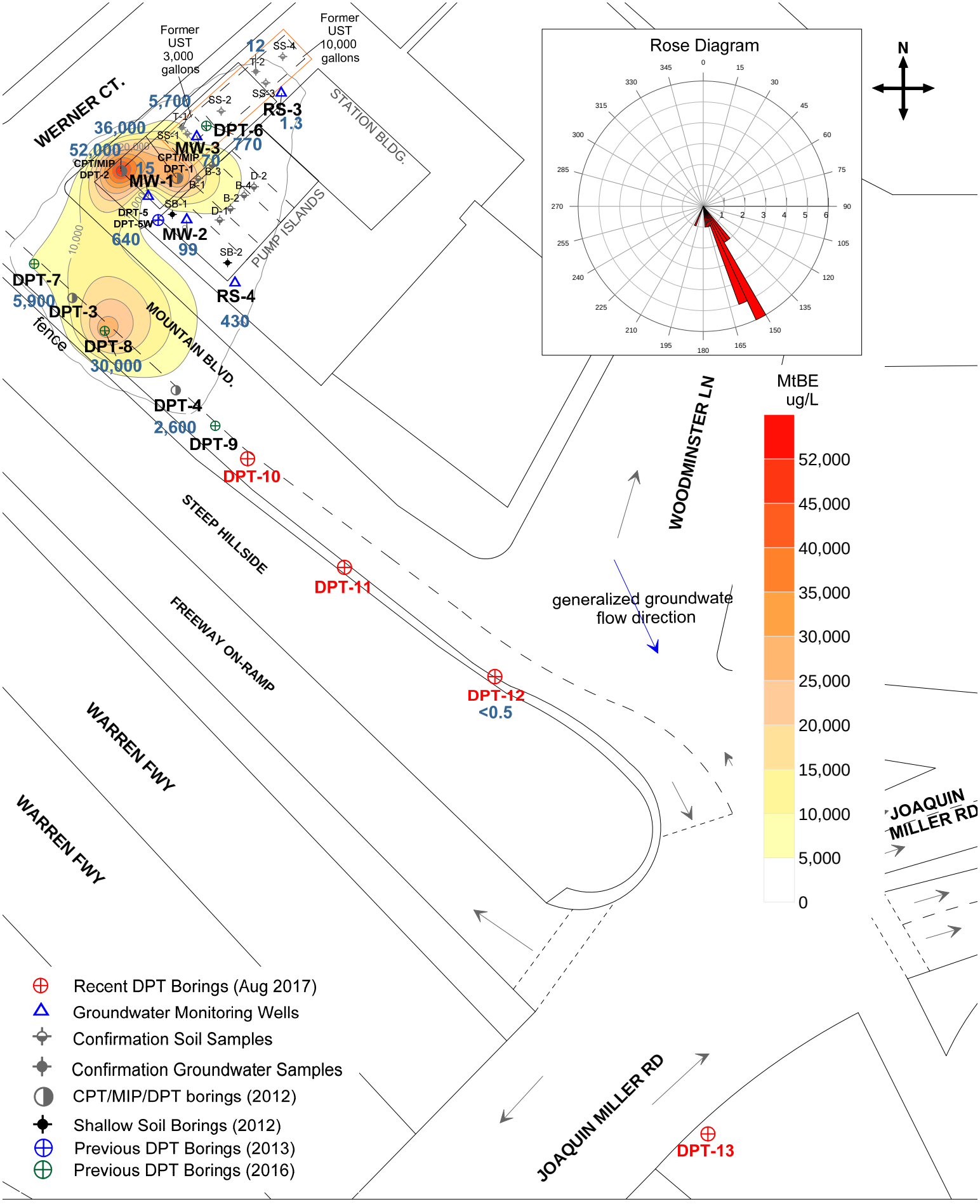


Figure 6: Contour Map Showing Current MtBE Concentrations in Groundwater

ENVIRONMENTAL ENGINEERING, INC.

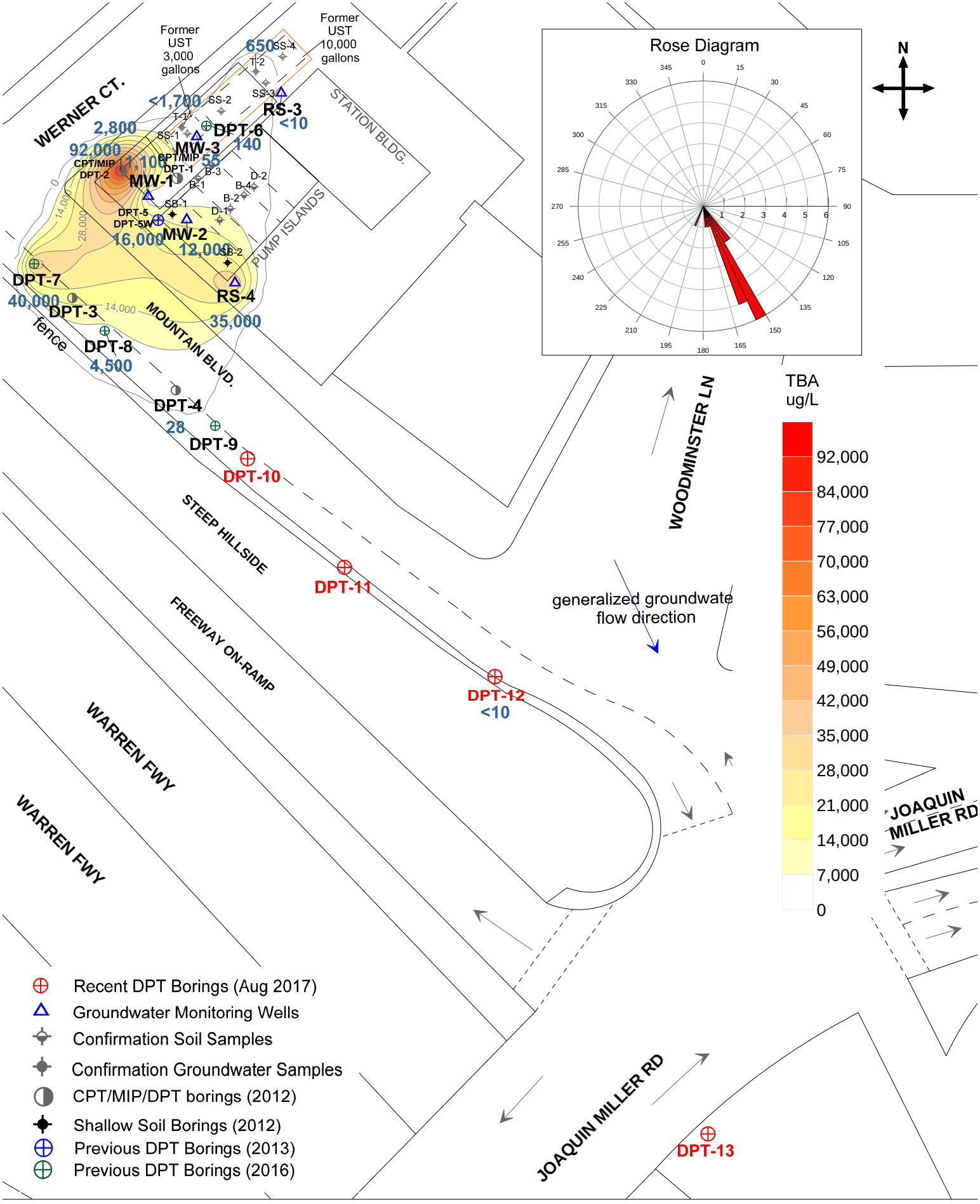


Figure 7: Contour Map Showing Current TBA Concentrations in Groundwater

ENVIRONMENTAL ENGINEERING, INC.

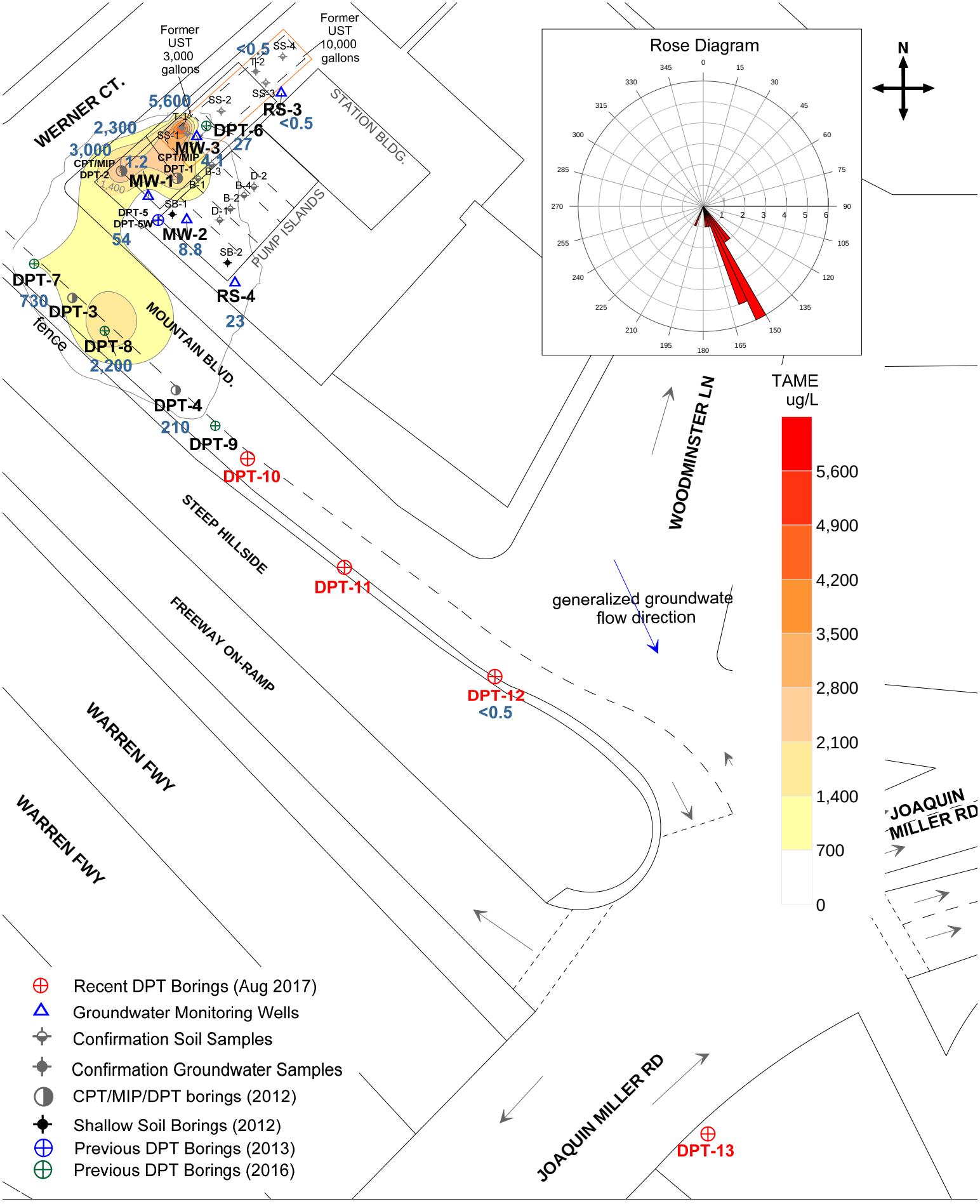


Figure 8: Contour Map Showing Current TAME Concentrations in Groundwater

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# Tables

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-1** | 5/1/90 | 675.63 | 7.20 | 7.20 | 0.00 | 668.43 | 2,700 | - | - | 370 | 420 | 40 | 320 | - | - | - |
| | 5/1/91 | 675.63 | 8.35 | 8.35 | 0.00 | 667.28 | 1,300 | - | - | 580 | 130 | 62 | 240 | - | - | - |
| | 10/1/91 | 675.63 | 10.22 | 10.22 | 0.00 | 665.41 | 1,100 | - | - | 140 | 100 | 45 | 210 | - | - | - |
| | 1/1/92 | 675.63 | 8.06 | 8.06 | 0.00 | 667.57 | 1,700 | - | - | 9.9 | 31 | 9.7 | 170 | - | - | - |
| | 1/1/93 | 675.63 | 5.30 | 5.30 | 0.00 | 670.33 | 3,700 | - | - | 650 | 9.2 | 51 | 170 | - | - | - |
| | 8/1/93 | 675.63 | 8.56 | 8.56 | 0.00 | 667.07 | 900 | - | - | 14 | 0.6 | 2.1 | 8 | - | - | - |
| | 11/1/93 | 675.63 | 8.44 | 8.44 | 0.00 | 667.19 | 1,400 | - | - | 9.6 | ND | 0.9 | 5 | - | - | - |
| | 1/1/94 | 675.63 | 6.88 | 6.88 | 0.00 | 668.75 | 4,200 | - | - | 95 | 3.1 | 58 | 130 | - | - | - |
| | 5/1/94 | 675.63 | 7.87 | 7.87 | 0.00 | 667.76 | 7,500 | - | - | 270 | 11 | 37 | 96 | - | - | - |
| | 8/1/94 | 675.63 | 16.28 | 16.28 | 0.00 | 659.35 | 130 | - | - | 12 | 0.5 | 2.6 | 5 | - | - | - |
| | 11/1/94 | 675.63 | 8.02 | 8.02 | 0.00 | 667.61 | 270 | - | - | 4.7 | 0.7 | 0.6 | 15 | - | - | - |
| | 2/1/95 | 675.63 | 6.51 | 6.51 | 0.00 | 669.12 | 12,000 | - | - | 81 | 2.3 | 1 | 12 | - | - | - |
| | 6/1/95 | 675.63 | 7.34 | 7.34 | 0.00 | 668.29 | 37,000 | - | - | 460 | ND | ND | ND | 63,000 | - | - |
| | 11/1/95 | 675.63 | 8.71 | 8.71 | 0.00 | 666.92 | ND | - | - | 660 | 16 | 140 | 330 | 31,000 | - | - |
| | 2/1/96 | 675.63 | 6.95 | 6.95 | 0.00 | 668.68 | 66,000 | - | - | 110 | ND | 12 | 21 | 84,000 | - | - |
| | 9/18/96 | 675.63 | 8.44 | 8.52 | 0.08 | 667.17 | 1 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 12/11/96 | 675.63 | 6.42 | 6.62 | 0.20 | 669.17 | 79,000 | - | - | 4,000 | 37,000 | 8,000 | 45,000 | 220,000 | - | - |
| | 2/21/97 | 675.63 | 6.88 | 6.92 | 0.04 | 668.74 | 1/2 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/28/97 | 675.63 | 7.88 | 7.96 | 0.08 | 667.73 | 156,000 | - | - | 9,400 | 51,000 | 7,000 | 45,000 | 112,000 | - | - |
| | 9/2/97 | 675.63 | 8.34 | 8.38 | 0.04 | 667.28 | 1/2 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 11/24/97 | 675.63 | 6.98 | 7.00 | 0.02 | 668.65 | 1/4 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 2/25/98 | 675.63 | 3.51 | 3.52 | 0.01 | 672.12 | 1/8 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/27/98 | 675.63 | 7.31 | 7.31 | 0.00 | 668.32 | 40,000 | - | - | 2,200 | 4,000 | 2,300 | 19,000 | 350,000 | - | - |
| | 9/16/98 | 675.63 | 8.10 | 8.10 | 0.00 | 667.53 | 62,000 | - | - | 2,400 | 2,300 | 2,100 | 14,000 | 250,000 | - | - |
| | 11/23/98 | 675.63 | 7.10 | 7.10 | 0.00 | 668.53 | 99,000 | - | - | 2,600 | 5,800 | 2,500 | 18,000 | 130,000 | - | - |
| | 2/23/99 | 675.67 | 4.82 | 4.87 | 0.05 | 670.84 | 5/8 INCH FLOATING PRODUCT | | | - | - | - | - | - | - | - |
| | 5/5/99 | 675.67 | 6.86 | 6.90 | 0.04 | 668.80 | FLOATING PRODUCT | | - | - | - | - | - | - | - | - |
| | 8/24/99 | 675.67 | 7.87 | 7.90 | 0.03 | 667.80 | FLOATING PRODUCT | | - | - | - | - | - | - | - | - |
| | 2/8/12 | 675.67 | 6.80 | 6.80 | 0.00 | 668.87 | 60,000 x | 8,200 x | <936 | 790 | <6.4 | 2,000 | 430 | 65,000 | 41,000 | 5,100 |
| | 5/4/12 | 675.67 | 6.57 | 6.57 | 0.00 | 669.10 | 18,000 | 10,000 | NA | 600 | <36 | 2,000 | 870 | 22,000 | 11,000 | 1,800 |
| | 8/6/12 | 675.67 | 7.61 | 7.61 | 0.00 | 668.06 | 16,000 | 12,000 | NA | 940 | <130 | 2,000 | 560 | 42,000 | 35,000 | 3,400 |
| | **Well Destroyed October 1, 2012** | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| **RS-2** | 5/1/90 | 689.00 | 7.06 | 7.06 | 0.00 | 681.94 | 23,000 | - | - | 7,200 | 4,800 | 300 | 3,300 | - | - | - |
| | 5/1/91 | 689.00 | 7.14 | 7.14 | 0.00 | 681.86 | 26,000 | - | - | 14,000 | 1,800 | 750 | 2,900 | - | - | - |
| | 10/1/91 | 688.89 | 8.84 | 8.84 | 0.00 | 680.05 | 13,000 | - | - | 4,300 | 910 | 300 | 2,300 | - | - | - |
| | 1/1/92 | 688.89 | 7.34 | 7.34 | 0.00 | 681.55 | 8,300 | - | - | 1,800 | 920 | 140 | 1,700 | - | - | - |
| | 1/1/93 | 688.89 | 4.10 | 4.10 | 0.00 | 684.79 | 41,000 | - | - | 7,000 | 210 | 1,200 | 4,200 | - | - | - |
| | 8/1/93 | 688.89 | 7.32 | 7.32 | 0.00 | 681.57 | 19,000 | - | - | 5,300 | 62 | 810 | 1,600 | - | - | - |
| | 11/1/93 | 688.89 | 7.34 | 7.34 | 0.00 | 681.55 | 9,300 | - | - | 2,400 | 3.90 | 46 | 800 | - | - | - |
| | 1/1/94 | 688.89 | 5.52 | 5.52 | 0.00 | 683.37 | 30,000 | - | - | 4,900 | ND | 880 | 2,600 | - | - | - |
| | 5/1/94 | 675.25 | 6.40 | 6.40 | 0.00 | 668.85 | 120,000 | - | - | 3,300 | 330 | ND | 2,200 | - | - | - |
| | 8/1/94 | 675.25 | | | 0.00 | 675.25 | 510 | - | - | 7.30 | 3.80 | 3.50 | 32 | - | - | - |
| | 11/1/94 | 675.25 | 9.82 | 9.82 | 0.00 | 665.43 | 620 | - | - | 6.60 | 3.90 | 1.10 | 47 | - | - | - |

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-2** cont. | 2/1/95 | 675.25 | 4.81 | 4.81 | 0.00 | 670.44 | 22,000 | - | - | 228 | 80 | 2 | 463 | - | - | - |
| | 6/1/95 | 675.25 | 5.80 | 5.80 | 0.00 | 669.45 | 49,000 | - | - | 1,300 | 160 | 200 | 1,600 | 71,000 | - | - |
| | 11/1/95 | 675.25 | 7.64 | 7.64 | 0.00 | 667.61 | ND | - | - | 670 | 25 | 150 | 360 | 65,000 | - | - |
| | 2/1/96 | 675.25 | 4.69 | 4.69 | 0.00 | 670.56 | 75,000 | - | - | 1,400 | 170 | 59 | 460 | 71,000 | - | - |
| | 9/18/96 | 675.25 | 7.34 | 7.34 | 0.00 | 667.91 | 6,300 | - | - | 2,000 | 48 | 350 | 570 | 160,000 | - | - |
| | 12/11/96 | 675.25 | 5.08 | 5.08 | 0.00 | 670.17 | 16,000 | - | - | 2,000 | 840 | 200 | 3,200 | 180,000 | - | - |
| | 2/21/97 | 675.25 | 5.42 | 5.42 | 0.00 | 669.83 | 22,000 | - | - | 2,100 | 1,300 | 600 | 5,100 | 56,000 | - | - |
| | 5/28/97 | 675.25 | 6.40 | 6.40 | 0.00 | 668.85 | 156,000 | - | - | 4,200 | 89 | 1,000 | 6,900 | 390,000 | - | - |
| | 9/2/97 | 675.25 | 6.93 | 6.93 | 0.00 | 668.32 | <50 | - | - | 1,300 | 25 | 360 | 1,400 | 180,000 | - | - |
| | 11/24/97 | 675.25 | 5.93 | 5.93 | 0.00 | 669.32 | <50 | - | - | 600 | ND | ND | ND | 610,000 | - | - |
| | 2/25/98 | 675.25 | 4.59 | 4.59 | 0.00 | 670.66 | 11,000 | - | - | 1,100 | <50 | 320 | 2,400 | 330,000 | - | - |
| | 5/27/98 | 675.25 | 5.61 | 5.61 | 0.00 | 669.64 | 13,000 | - | - | 2,000 | 150 | 600 | 2,700 | 380,000 | - | - |
| | 9/16/98 | 675.25 | 6.84 | 6.84 | 0.00 | 668.41 | 11,000 | - | - | 1,600 | 20 | 1,600 | 1,600 | 280,000 | - | - |
| | 11/23/98 | 675.25 | 6.24 | 6.24 | 0.00 | 669.01 | 12,000 | - | - | 1,200 | 84 | <5 | 960 | 140,000 | - | - |
| | 2/23/99 | 675.28 | 4.62 | 4.62 | 0.00 | 670.66 | 8,800 | - | - | 1,500 | 650 | 640 | 1,500 | 450,000 | - | - |
| | 5/5/99 | 675.28 | 7.55 | 7.55 | 0.00 | 667.73 | 29,000 | - | - | 2,000 | 1,300 | 500 | 3,700 | 270,000 | - | - |
| | 8/24/99 | 675.28 | 6.62 | 6.62 | 0.00 | 668.66 | 12,000 | - | - | 1,900 | 20 | 370 | 980 | 340,000 | - | - |
| | 2/8/12 | 675.28 | 5.52 | 5.52 | 0.00 | 669.76 | 18,000 x | 6,800 x | <378 | 540 | <6.4 | 120 | 710 | 2,800 | 64,000 | 420 |
| | 5/4/12 | 675.28 | 5.18 | 5.18 | 0.00 | 670.10 | 16,000 | 13,000 | NA | 690 | 23 | 460 | 1,140 | 6,800 | 21,000 | 960 |
| | 8/6/12 | 675.28 | 6.33 | 6.33 | 0.00 | 668.95 | 11,000 | 10,000 | NA | 810 | <25 | 210 | 473 | 3,300 | 18,000 | 580 |
| | **Well Destroyed October 1, 2012** | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| **RS-3** | 5/1/90 | 670.00 | 6.00 | 6.00 | 0.00 | 664.00 | 330 | - | - | 2 | 1 | 1 | 150 | - | - | - |
| | 5/1/91 | 670.00 | 6.76 | 6.76 | 0.00 | 663.24 | ND | - | - | 0.40 | ND | 0.80 | 8 | - | - | - |
| | 10/1/91 | 670.00 | 8.98 | 8.98 | 0.00 | 661.02 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 1/1/92 | 670.00 | 6.81 | 6.81 | 0.00 | 663.19 | ND | - | - | 2.20 | 7.20 | 0.60 | 4 | - | - | - |
| | 1/1/93 | 670.00 | 4.05 | 4.05 | 0.00 | 665.95 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 8/1/93 | 670.00 | 7.19 | 7.19 | 0.00 | 662.81 | ND | - | - | 30 | 6 | 2.40 | 5 | - | - | - |
| | 11/1/93 | 670.00 | 7.12 | 7.12 | 0.00 | 662.88 | ND | - | - | 4.80 | 0.40 | 0.60 | 2 | - | - | - |
| | 1/1/94 | 670.00 | 5.42 | 5.42 | 0.00 | 664.58 | 330 | - | - | 25 | 3.20 | 3.90 | 12 | - | - | - |
| | 5/1/94 | 676.20 | 5.78 | 5.78 | 0.00 | 670.42 | 670 | - | - | 34 | 4 | 28 | 70 | - | - | - |
| | 8/1/94 | 676.20 | 5.86 | 5.86 | 0.00 | 670.34 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 11/1/94 | 676.20 | 5.08 | 5.08 | 0.00 | 671.12 | 69 | - | - | 2.50 | 3.10 | 1 | 4 | - | - | - |
| | 2/1/95 | 676.20 | 4.51 | 4.51 | 0.00 | 671.69 | ND | - | - | 0.30 | 0.40 | ND | 1 | - | - | - |
| | 6/1/95 | 676.20 | 5.29 | 5.29 | 0.00 | 670.91 | ND | - | - | ND | ND | ND | ND | 66 | - | - |
| | 11/1/95 | 676.20 | 7.10 | 7.10 | 0.00 | 669.10 | ND | - | - | ND | ND | ND | ND | 44 | - | - |
| | 2/1/96 | 676.20 | 4.48 | 4.48 | 0.00 | 671.72 | 120 | - | - | ND | ND | ND | ND | 110 | - | - |
| | 9/18/96 | 676.20 | 6.92 | 6.92 | 0.00 | 669.28 | 1,000 | - | - | 13 | 8.60 | 10 | 17 | 33 | - | - |
| | 12/11/96 | 676.20 | 4.90 | 4.90 | 0.00 | 671.30 | 85 | - | - | 20 | 2 | <0.5 | 14 | 4,700 | - | - |
| | 2/21/97 | 676.20 | 4.94 | 4.94 | 0.00 | 671.26 | 120 | - | - | 5 | 2 | 2 | 6 | 850 | - | - |
| | 5/28/97 | 676.20 | 7.92 | 7.92 | 0.00 | 668.28 | <50 | - | - | 6 | <0.5 | <0.5 | <2 | 2,400 | - | - |
| | 9/2/97 | 676.20 | 6.60 | 6.60 | 0.00 | 669.60 | <50 | - | - | 0.90 | <0.5 | <0.5 | <2 | 8,600 | - | - |
| | 11/24/97 | 676.20 | 5.89 | 5.89 | 0.00 | 670.31 | 140 | - | - | 13 | 2 | 1 | 12 | 3,600 | - | - |
| | 2/25/98 | 676.20 | 4.29 | 4.29 | 0.00 | 671.91 | <50 | - | - | <0.5 | <0.5 | <0.5 | 4 | 850 | - | - |
| | 5/27/98 | 676.20 | 5.01 | 5.01 | 0.00 | 671.19 | <50 | - | - | 7 | <0.5 | <0.5 | 11 | 940 | - | - |

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-3** cont. | 9/16/98 | 676.20 | 6.21 | 6.21 | 0.00 | 669.99 | <50 | - | - | 2 | 2 | 2 | 10 | 670 | - | - |
| | 11/24/98 | 676.20 | 5.58 | 5.58 | 0.00 | 670.62 | 85 | - | - | 9 | 23 | <0.5 | 19 | 180 | - | - |
| | 2/24/99 | 676.23 | 4.30 | 4.30 | 0.00 | 671.93 | <50 | - | - | <0.5 | 0.90 | <0.5 | <1.0 | 150 | - | - |
| | 5/5/99 | 676.23 | 4.92 | 4.92 | 0.00 | 671.31 | <50 | - | - | 1 | 2 | 1 | 6 | 130 | - | - |
| | 8/24/99 | 676.23 | 6.64 | 6.64 | 0.00 | 669.59 | 80 | - | - | 0.80 | <0.5 | 0.60 | <1 | 300 | - | - |
| | 2/8/12 | 676.23 | 5.72 | 5.72 | 0.00 | 670.51 | 130 x | <42 | <94 | <0.13 | 0.59 | 2.90 | 18.1 | 7.9 | <1.5 | <0.17 |
| | 5/4/12 | 676.23 | 5.25 | 5.25 | 0.00 | 670.98 | <50 | 330 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 10 | 18 | 2.4 |
| | 8/6/12 | 676.23 | 6.65 | 6.65 | 0.00 | 669.58 | <50 | 390 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 13 | <10 | 3.2 |
| | 3/29/13 | 676.23 | 6.01 | 6.01 | 0.00 | 670.22 | <50 | 90 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 3.6 | <10 | <0.5 |
| | 6/6/13 | 676.08 | 6.45 | 6.45 | 0.00 | 669.63 | <50 | 66 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 1.5 | <10 | <0.5 |
| | 9/4/13 | 676.08 | 6.91 | 6.91 | 0.00 | 669.17 | <50 | 170 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | 12/30/13 | 676.08 | 7.21 | 7.21 | 0.00 | 668.87 | <50 | 61 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 21 | 680 | 0.64 |
| | 3/10/14 | 676.08 | 5.68 | 5.68 | 0.00 | 670.40 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 14 | 320 | 0.61 |
| | 6/3/14 | 676.08 | 6.72 | 6.72 | 0.00 | 669.36 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 41 | 490 | 1.70 |
| | 8/27/14 | 676.08 | 7.10 | 7.10 | 0.00 | 668.98 | <50 | 120 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 27 | <10 | 1.20 |
| | 11/13/14 | 676.08 | 6.53 | 6.53 | 0.00 | 669.55 | <50* | 58 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 19 | <10 | 0.60 |
| | 2/12/15 | 676.08 | 5.95 | 5.95 | 0.00 | 670.13 | <50 | 56 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 19 | <10 | <0.5 |
| | 5/13/15 | 676.08 | 6.93 | 6.93 | 0.00 | 669.15 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 4.6 | <10 | <0.5 |
| post-MPE | 6/22/15 | 676.08 | 8.87 | 8.87 | 0.00 | 667.21 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | 8/12/15 | 676.08 | 7.79 | 7.79 | 0.00 | 668.29 | <50 | <52 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 0.57 | <10 | <0.5 |
| | 11/12/15 | 676.08 | 7.85 | 7.85 | 0.00 | 668.23 | <50 | <49 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 1.10 | <10 | <0.5 |
| | 2/15/16 | 676.08 | 5.88 | 5.88 | 0.00 | 670.20 | <50 | <49 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 5.40 | <10 | <0.5 |
| | 5/6/16 | 676.08 | 5.93 | 5.93 | 0.00 | 670.15 | <50 | <50 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 4.80 | <10 | <0.5 |
| | 8/17/16 | 676.08 | 6.70 | 6.70 | 0.00 | 669.38 | <50 | 81Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 0.51 | <10 | <0.5 |
| | 11/18/16 | 676.08 | 6.18 | 6.18 | 0.00 | 669.90 | <50 | 62Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | 3/18/17 | 676.08 | 4.65 | 4.65 | 0.00 | 671.43 | <50 | NA | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <10 | <0.5 |
| | **9/1/17** | **676.08** | **6.53** | **6.53** | **0.00** | **669.55** | **<50** | **<50** | **NA** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **1.30** | **<10** | **<0.5** |
| | | | | | | | | | | | | | | | | |
| **RS-4** | 5/1/90 | 675.38 | 8.34 | 8.34 | 0.00 | 667.04 | 440 | - | - | 9 | 11 | 9 | 49 | - | - | - |
| | 5/1/91 | 675.38 | 9.50 | 9.50 | 0.00 | 665.88 | ND | - | - | 8 | 4 | 3 | 5 | - | - | - |
| | 10/1/91 | 675.38 | 10.82 | 10.82 | 0.00 | 664.56 | 830 | - | - | 280 | 120 | 24 | 170 | - | - | - |
| | 1/1/92 | 675.38 | 9.31 | 9.31 | 0.00 | 666.07 | 620 | - | - | 34 | 8.30 | 2.10 | 21 | - | - | - |
| | 1/1/93 | 675.38 | 6.89 | 6.89 | 0.00 | 668.49 | 150 | - | - | 32 | 1.70 | 5.80 | 13 | - | - | - |
| | 8/1/93 | 675.38 | 9.68 | 9.68 | 0.00 | 665.70 | ND | - | - | 0.90 | 0.70 | ND | 0 | - | - | - |
| | 11/1/93 | 675.38 | 9.83 | 9.83 | 0.00 | 665.55 | ND | - | - | ND | ND | ND | ND | - | - | - |
| | 1/1/94 | 675.38 | 8.17 | 8.17 | 0.00 | 667.21 | ND | - | - | 1.70 | ND | 0.81 | 2 | - | - | - |
| | 5/1/94 | 675.38 | 8.69 | 8.69 | 0.00 | 666.69 | ND | - | - | ND | ND | ND | 1 | - | - | - |
| | 8/1/94 | 675.38 | 9.04 | 9.04 | 0.00 | 666.34 | 420 | - | - | 6.50 | 4.10 | 1.90 | 40 | - | - | - |
| | 11/1/94 | 675.38 | 8.00 | 8.00 | 0.00 | 667.38 | 130 | - | - | 4.10 | 0.70 | 1.70 | 8 | - | - | - |
| | 2/1/95 | 675.38 | 7.93 | 7.93 | 0.00 | 667.45 | ND | - | - | 6 | 1.20 | 3.50 | 13 | - | - | - |
| | 6/1/95 | 675.38 | 8.61 | 8.61 | 0.00 | 666.77 | ND | - | - | ND | ND | ND | ND | 69 | - | - |
| | 11/1/95 | 675.38 | 10.43 | 10.43 | 0.00 | 664.95 | ND | - | - | ND | ND | ND | ND | 47 | - | - |

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RS-4** cont. | 2/1/96 | 675.38 | 7.44 | 7.44 | 0.00 | 667.94 | 960 | - | - | ND | ND | 0.60 | ND | 80 | - | - |
| | 9/18/96 | 675.38 | 9.58 | 9.58 | 0.00 | 665.80 | <50 | - | - | <0.5 | <0.5 | <0.5 | <2 | 200 | - | - |
| | 12/11/96 | 675.38 | 7.50 | 7.50 | 0.00 | 667.88 | 75 | - | - | <0.5 | 0.60 | <0.5 | <0.5 | 104 | - | - |
| | 2/21/97 | 675.38 | 8.26 | 8.26 | 0.00 | 667.12 | <50 | - | - | 1 | 1 | <0.5 | 1 | 190 | - | - |
| | 5/28/97 | 675.38 | 8.92 | 8.92 | 0.00 | 666.46 | <50 | - | - | 6 | <0.5 | <0.5 | <2 | 110 | - | - |
| | 9/2/97 | 675.38 | 9.39 | 9.39 | 0.00 | 665.99 | 100 | - | - | 3 | <0.5 | <0.5 | <2 | 39 | - | - |
| | 11/24/97 | 675.38 | 8.22 | 8.22 | 0.00 | 667.16 | 41 | - | - | <0.5 | 2 | <0.5 | <2 | 210 | - | - |
| | 2/25/98 | 675.38 | 7.19 | 7.19 | 0.00 | 668.19 | <50 | - | - | 3 | <0.5 | <0.5 | <1 | 5,600 | - | - |
| | 5/27/98 | 675.38 | 8.40 | 8.40 | 0.00 | 666.98 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | 2,400 | - | - |
| | 9/16/98 | 675.38 | 9.26 | 9.26 | 0.00 | 666.12 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | 230 | - | - |
| | 11/24/98 | 675.38 | 8.50 | 8.50 | 0.00 | 666.88 | <50 | - | - | 2 | <0.5 | <0.5 | <1 | 100 | - | - |
| | 2/24/99 | 675.42 | 7.20 | 7.20 | 0.00 | 668.22 | <50 | - | - | 2 | 3 | 0.80 | 5 | 670 | - | - |
| | 5/5/99 | 675.42 | 8.37 | 8.37 | 0.00 | 667.05 | 100 | - | - | <0.5 | <0.5 | <0.5 | <1 | 440 | - | - |
| | 8/24/99 | 675.42 | 8.36 | 8.36 | 0.00 | 667.06 | <50 | - | - | <0.5 | <0.5 | <0.5 | <1 | <500 | - | - |
| | 2/8/12 | 675.42 | 8.11 | 8.11 | 0.00 | 667.31 | 140,000 | 130,000 x | <9,360 | 120 | 2,600 | 4,700 | 28,200 | 28,000 | 100,000 | 1,800 |
| | 5/4/12 | 675.42 | 8.31 | 8.31 | 0.00 | 667.11 | 67,000 | 12,000 Y | NA | 61 | 900 | 2,100 | 9,700 | 32,000 | 69,000 | 1,700 |
| | 8/6/12 | 675.42 | 9.01 | 9.01 | 0.00 | 666.41 | 49,000 | 8,900 | NA | <130 | 350 | 1,700 | 8,100 | 19,000 | 90,000 | 1,300 |
| | 3/29/13 | 675.42 | 8.49 | 8.49 | 0.00 | 666.93 | 14,000 | 14,000 | NA | <100 | <100 | 440 | 1,340 | 14,000 | 110,000 | 590 |
| | 6/6/13 | 675.27 | 8.48 | 8.48 | 0.00 | 666.79 | 12,000 | 7,200 | NA | 11 | <3.6 | 420 | 886 | 16,000 | 66,000 | 970 |
| | 9/4/13 | 675.27 | 9.39 | 9.39 | 0.00 | 665.88 | 20,000 | 5,100 | NA | <100 | <100 | 660 | 2,830 | 18,000 | 75,000 | 1,200 |
| | 12/30/13 | 675.27 | 9.57 | 9.57 | 0.00 | 665.70 | <13,000 | 9,900 | NA | <130 | <130 | <130 | 150 | 16,000 | 37,000 | 1,100 |
| | 3/10/14 | 675.27 | 7.65 | 7.65 | 0.00 | 667.62 | <10,000 | 3,700 | NA | <100 | <100 | <100 | <100 | 11,000 | 38,000 | 640 |
| | 6/3/14 | 675.27 | 9.27 | 9.27 | 0.00 | 666.00 | <3,600 | 4,400 | NA | <36 | <36 | 40 | <36 | 3,700 | 27,000 | 260 |
| | 8/27/14 | 675.27 | 9.43 | 9.43 | 0.00 | 665.84 | 2,500 | 4,700 | NA | <20 | <20 | 40 | <20 | 2,100 | 28,000 | 150 |
| | 11/13/14 | 675.27 | 9.56 | 9.56 | 0.00 | 665.71 | 2,200* | 3,500 | NA | <20 | <20 | <20 | 36 | 11,000 | 15,000 | 910 |
| | 2/12/15 | 675.27 | 8.03 | 8.03 | 0.00 | 667.24 | <1,300 | 1,900 | NA | <13 | <13 | <13 | <13 | 500 | 14,000 | 25 |
| | 5/13/15 | 675.27 | 9.05 | 9.05 | 0.00 | 666.22 | <1,300 | 1,100 | NA | <13 | <13 | <13 | <13 | 460 | 25,000 | 21 |
| Post-MPE | 6/22/15 | 675.27 | 10.62 | 10.62 | 0.00 | 664.65 | <1,300 | 770 | NA | <13 | <13 | <13 | <13 | 5,900 | 7,900 | 500 |
| | 8/12/15 | 675.27 | 9.93 | 9.93 | 0.00 | 665.34 | 320 | 1,300 | NA | <1.3 | <1.3 | 1.3 | 1.7 | 230 | 6,400 | 18 |
| | 11/12/15 | 675.27 | 9.58 | 9.58 | 0.00 | 665.69 | 170 | 440 | NA | <0.5 | <0.5 | 1.4 | 0.55 | 12 | 1,400 | 0.66 |
| | 2/15/16 | 675.27 | 8.43 | 8.43 | 0.00 | 666.84 | <100 | 350 Y | NA | <1.0 | <1.0 | <1.0 | <1.0 | 8.80 | 270 | <1.0 |
| | 5/6/16 | 675.27 | 6.47 | 6.47 | 0.00 | 668.80 | <50 | 850 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 160 | 21 | 5.60 |
| | 8/17/16 | 675.27 | 9.38 | 9.38 | 0.00 | 665.89 | 100 | 710 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 47 | 8,100 | 2.80 |
| | 11/18/16 | 675.27 | 8.80 | 8.80 | 0.00 | 666.47 | <100 | 690 | NA | <1.0 | <1.0 | <1.0 | <1.0 | 190 | 5,400 | 13 |
| | 3/18/17 | 675.27 | 7.63 | 7.63 | 0.00 | 667.64 | <710 | NA | NA | <7.1 | <7.1 | <7.1 | <7.1 | 820 | 33,000 | 45 |
| | **9/1/17** | **675.27** | **9.31** | **9.31** | **0.00** | **665.96** | **<710** | **390** | **NA** | **<7.1** | **<7.1** | **<7.1** | **<7.1** | **430** | **35,000** | **23** |
| | | | | | | | | | | | | | | | | |
| **MW-1** | 6/6/13 | 674.92 | 6.03 | 6.03 | 0.00 | 668.89 | <17,000 | 13,000 | NA | 930 | 370 | 470 | 1,760 | 55,000 | 32,000 | 7,200 |
| | 9/4/13 | 674.92 | 7.10 | 7.10 | 0.00 | 667.82 | <50,000 | 13,000 | NA | 2,000 | <500 | 1,400 | 4,200 | 70,000 | 48,000 | 7,700 |
| | 12/30/13 | 674.92 | 7.27 | 7.27 | 0.00 | 667.65 | 34,000 | 13,000 | NA | 920 | 1,000 | 1,300 | 4,900 | 43,000 | 43,000 | 4,500 |
| | 3/10/14 | 674.92 | 5.51 | 5.51 | 0.00 | 669.41 | <20,000 | 11,000 | NA | 720 | <200 | 890 | 1,970 | 25,000 | 30,000 | 2,600 |
| | 6/3/14 | 674.92 | 6.74 | 6.74 | 0.00 | 668.18 | 8,900 | 7,400 | NA | 350 | <83 | 550 | 1,420 | 11,000 | 28,000 | 1,300 |
| | 8/27/14 | 674.92 | 7.23 | 7.23 | 0.00 | 667.69 | 8,100 | 12,000 | NA | 640 | <63 | 610 | 720 | 8,400 | 23,000 | 1,500 |
| | 11/13/14 | 674.92 | 7.36 | 7.36 | 0.00 | 667.56 | 7,400* | 7,900 | NA | 270 | <63 | 360 | 880 | 6,100 | 12,000 | 910 |

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MW-1** cont. | 2/12/15 | 674.92 | 5.80 | 5.80 | 0.00 | 669.12 | 4,300 | 11,000 | NA | 200 | <25 | 200 | 350 | 3,400 | 18,000 | 500 |
| | 5/13/15 | 674.92 | 7.00 | 7.00 | 0.00 | 667.92 | 2,700 | 7,100 | NA | 150 | <8.3 | 170 | 76 | 1,000 | 12,000 | 150 |
| Post-MPE | 6/22/15 | 674.92 | 12.11 | 12.11 | 0.00 | 662.81 | <1,300 | 2,600 | NA | <13 | <13 | <13 | <13 | 4,800 | 17,000 | 450 |
| | 8/12/15 | 674.92 | 8.25 | 8.25 | 0.00 | 666.67 | 2,000 | 8,100 | NA | 31 | <8.3 | 27 | 46 | 530 | 10,000 | 57 |
| | 11/12/15 | 674.92 | 7.79 | 7.79 | 0.00 | 667.13 | 2,500 | 5,100 | NA | 16 | <5.0 | 34 | 6.9 | 120 | 6,200 | 13 |
| | 2/15/16 | 674.92 | 5.94 | 5.94 | 0.00 | 668.98 | 970 | 3,700 | NA | 3.20 | <2.5 | 27 | 11 | 75 | 4,100 | 7.40 |
| | 5/6/16 | 674.92 | 5.92 | 5.92 | 0.00 | 669.00 | 690 | 2,900 | NA | 1.80 | <1.7 | <1.7 | <1.7 | 26 | 2,900 | 2.50 |
| | 8/17/16 | 674.92 | 6.62 | 6.62 | 0.00 | 668.30 | 940 | 5,000 Y | NA | <1.7 | <1.7 | <1.7 | <1.7 | 17 | 2,300 | <1.7 |
| | 11/18/16 | 674.92 | 6.08 | 6.08 | 0.00 | 668.84 | 340 | 3,900 | NA | <2.0 | <2.0 | <2.0 | <2.0 | 12 | 1,800 | <2.0 |
| | 3/18/17 | 674.92 | 4.73 | 4.73 | 0.00 | 670.19 | 920 | NA | NA | <2.0 | <2.0 | <2.0 | <2.0 | 34 | 2,300 | 2.40 |
| | **9/1/17** | **674.92** | **6.92** | **6.92** | **0.00** | **668.00** | **510** | **2,300 Y** | **NA** | **<1.0** | **<1.0** | **<1.0** | **<1.0** | **15** | **1,100** | **1.20** |
| | | | | | | | | | | | | | | | | |
| **MW-2** | 6/6/13 | 675.02 | 6.70 | 6.70 | 0.00 | 668.32 | 16,000 | 5,400 | NA | 910 | <130 | 610 | 2,290 | 59,000 | 64,000 | 7,700 |
| | 9/4/13 | 675.02 | 7.79 | 7.79 | 0.00 | 667.23 | <25,000 | 3,900 | NA | 860 | <250 | 710 | 1,580 | 32,000 | 31,000 | 4,600 |
| | 12/30/13 | 675.02 | 8.05 | 8.05 | 0.00 | 666.97 | <13,000 | 6,300 | NA | 180 | <130 | <130 | 330 | 18,000 | 53,000 | 1,800 |
| | 3/10/14 | 675.02 | 6.08 | 6.08 | 0.00 | 668.94 | 14,000 | 11,000 | NA | 210 | <130 | 360 | 700 | 15,000 | 40,000 | 1,800 |
| | 6/3/14 | 675.02 | 7.54 | 7.54 | 0.00 | 667.48 | <7,100 | 6,200 | NA | 170 | <71 | 310 | 150 | 8,000 | 29,000 | 920 |
| | 8/27/14 | 675.02 | 7.90 | 7.90 | 0.00 | 667.12 | 3,400 | 5,000 | NA | 100 | <8.3 | 120 | 88 | 2,300 | 25,000 | 310 |
| | 11/13/14 | 675.02 | 8.12 | 8.12 | 0.00 | 666.90 | 1,000* | 4,700 | NA | 120 | <8.3 | 11 | <8.3 | 4,000 | 22,000 | 460 |
| | 2/12/15 | 675.02 | 6.33 | 6.33 | 0.00 | 668.69 | <4,200 | 5,400 | NA | 98 | <42 | 58 | <42 | 6,300 | 42,000 | 610 |
| | 5/13/15 | 675.02 | 7.72 | 7.72 | 0.00 | 667.30 | <2,000 | 4,900 | NA | 86 | <20 | 45 | <20 | 870 | 34,000 | 96 |
| Post-MPE | 6/22/15 | 675.02 | 11.30 | 11.30 | 0.00 | 663.72 | <2,000 | 3,300 | NA | <20 | <20 | <20 | <20 | 3,400 | 18,000 | 460 |
| | 8/12/15 | 675.02 | 8.86 | 8.86 | 0.00 | 666.16 | <2,000 | 2,800 Y | NA | <20 | <20 | <20 | <20 | 470 | 23,000 | 31 |
| | 11/12/15 | 675.02 | 8.30 | 8.30 | 0.00 | 666.72 | <2,000 | 1,800 | NA | <20 | <20 | <20 | <20 | 340 | 37,000 | 25 |
| | 2/15/16 | 675.02 | 6.67 | 6.67 | 0.00 | 668.35 | 620 | 1,900 | NA | 32 | <2.0 | 8.2 | <2.0 | 180 | 26,000 | 15 |
| | 5/6/16 | 675.02 | 5.72 | 5.72 | 0.00 | 669.30 | 1,200 | 1,700 | NA | 43 | <2.5 | 14 | <2.5 | 220 | 19,000 | 20 |
| | 8/17/16 | 675.02 | 7.67 | 7.67 | 0.00 | 667.35 | <710 | 1,100 | NA | 20 | <7.1 | <7.1 | <7.1 | 140 | 10,000 | 10 |
| | 11/18/16 | 675.02 | 6.95 | 6.95 | 0.00 | 668.07 | <710 | 1,100 | NA | 9.80 | <7.1 | <7.1 | <7.1 | 40 | 6,400 | <7.1 |
| | 3/18/17 | 675.02 | 5.68 | 5.68 | 0.00 | 669.34 | <50 | NA | NA | 10 | <7.1 | <7.1 | <7.1 | 88 | 12,000 | <7.1 |
| | **9/1/17** | **675.02** | **7.82** | **7.82** | **0.00** | **667.20** | **910** | **910** | **NA** | **33** | **<7.1** | **<7.1** | **<7.1** | **99** | **12,000** | **8.80** |
| | | | | | | | | | | | | | | | | |
| **MW-3** | 5/13/15 | 675.58 | 6.60 | 6.60 | 0.00 | 668.98 | <50 | 7,000 | NA | <0.5 | <0.5 | <0.5 | 0.75 | 160 | 380 | 8.4 |
| Post-MPE | 6/22/15 | 675.58 | 14.31 | 14.31 | 0.00 | 661.27 | <100 | 650 Y | NA | <1.0 | <1.0 | <1.0 | <1.0 | 190 | 17 | 6.3 |
| | 8/12/15 | 675.58 | 7.80 | 7.80 | 0.00 | 667.78 | <170 | 410 Y | NA | <1.7 | <1.7 | <1.7 | <1.7 | 590 | 41 | 20 |
| | 11/12/15 | 675.58 | 7.78 | 7.78 | 0.00 | 667.80 | <50 | 220 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 67 | <10 | 1.70 |
| | 2/15/16 | 675.58 | 5.40 | 5.40 | 0.00 | 670.18 | <50 | 370 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 140 | <10 | 3.20 |
| | 5/6/16 | 675.58 | 5.68 | 5.68 | 0.00 | 669.90 | 140 | 490 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 190 | 9,000 | 10 |
| | 8/17/16 | 675.58 | 6.37 | 6.37 | 0.00 | 669.21 | <50 | 870 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 30 | 19 | 1.30 |
| | 11/18/16 | 675.58 | 5.71 | 5.71 | 0.00 | 669.87 | <50 | 460 Y | NA | <0.5 | <0.5 | <0.5 | <0.5 | 2.10 | <10 | <0.5 |
| | 3/18/17 | 675.58 | 4.11 | 4.11 | 0.00 | 671.47 | <50 | NA | NA | <0.5 | <0.5 | <0.5 | <0.5 | 160 | 140 | 10 |
| | **9/1/17** | **675.58** | **6.25** | **6.25** | **0.00** | **669.33** | **<50** | **1,400 Y** | **NA** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **70** | **55** | **4.10** |
| **ESLs (µg/L)** | **Ground-water** | | | | | | 100 | 100 | NA | 1.00 | 40 | 13 | 20 | 5.00 | 12 | NL |
| | **Vapor Intrusion** | | | | | | NV | NV | NV | 1.10 | 3,600 | 13 | 1,300 | 1,200 | NV | NL |

**Table 1**
**Historical Groundwater Analytical Results**
**2844 Mountain Boulevard, Oakland, CA**

| Monitoring Well | Date | Casing Elevation (Ft.) | Depth to Top Fluid (Ft.) | Depth to Groundwater (Ft.) | Free-Product Thickness | Groundwater Elevation | TPH-g µg/L | TPH-d µg/L | TPH-mo µg/L | Benzene µg/L | Toluene µg/L | Ethylbenzene µg/L | Xylenes µg/L | MtBE µg/L | TBA µg/L | TAME µg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Note:

< : Below Laboratory Reporting Limit (Method Detection Limit)

x : Does not match pattern of reference Gasoline standard/ Not typical of diesel standard pattern (possibly fuel lighter than diesel)

* : Laboratory instruments for EPA8260 were down. Therefore, TPH-g was analyzed by EPA8015B instead of EPA8260 for samples collected on 11/13/2014

ESL: Environmental Screening Level by California Regional Water Quality Control Board San Francisco Bay Region, February 2016

NL: Not Listed

NV: No Value

# Appendix A

Standard Operating Procedures for Conducting Groundwater Monitoring Activities

# Standard Operating Procedures for Conducting Groundwater Monitoring Activities

## Water Level Measurements

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

## Purging and Field Measurements

Prior to sample collection, each monitoring well is purged using a battery-operated, 2-inch-diameter pump (Model ES-60 DC). To ensure that final samples are in equilibrium with, and representative of, the surrounding groundwater, during purging several samples are taken for field measurements of pH, temperature and electrical conductivity (EC). These parameters are measured with a Hanna pH, conductivity, and temperature meter. Equipment is calibrated on-site using standard solutions and procedures provided by the manufacturer.

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

Purging continues until these parameters stabilize or three casing volumes are purged.

## Sampling

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

# Appendix B

Tables of Elevations and Coordinates on Wells,
Field Measurements of Physical and Chemical
Parameters of the Groundwater Samples
and Groundwater Gradient Calculations

DATE: 5/16/2015
JOB# 15006

# TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL ENGINEERING
2844 MOUNTAIN BLVD
OAKLAND, CA 94602

| WELL ID # | NORTHING (FT.) / LATITUDE (D.DEG.) | EASTING (FT.) / LONGITUDE (D.DEG.) | ELEVATION (FT.) | DESCRIPTION |
|---|---|---|---|---|
| MW-3 | 2122428.726 | 6071190.266 | 675.58 | SET NOTCH N. SIDE 4" PVC |
| | N37.811587175 | W122.197953799 | 675.85 | SET PUNCH N. SIDE |
| | | | 675.83 | NORTH SIDE AC |
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**HORIZONTAL CONTROL:**
SURVEY BASED ON PREVIOUS SURVEY BY EDGIS LAND SURVEYING DATED: 5/28/2013
COORDINATE VALUES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE 3, NAD83.

**VERTICAL CONTROL:** BENCH MARK: CITY OF OAKLAND BM 2806
CINCH NAIL IN SOUTHWESTERLY CURB OF MOUNTAIN BLVD, 150' SOUTHEASTERLY FROM THE CENTERLINE OF KEARNEY AVE EXTENDED. NORTHING 2,122,547.687', EASTING 6,070,956.301'
ELEVATION= 674.892' NAVD 88 DATUM

PROFESSIONAL LAND SURVEYOR
EDUARDO A. ESPINOZA
No. L 6772
STATE OF CALIFORNIA

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

5/16/15

**EDGIS LAND SURVEYING**
**LAND SURVEYING AND MAPPING**
2519 Shaw Ave., Ste. 111
Fresno, CA 93711
Phone (559) 803-2679
Email: edgis@aol.com

DATE: 5/28/2013
JOB# 13004

# TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL ENGINEERING
2844 MOUNTAIN BLVD
OAKLAND, CA 94602

| WELL ID # | NORTHING (FT.) / LATITUDE (D.DEG.) | EASTING (FT.) / LONGITUDE (D.DEG.) | ELEVATION (FT.) | DESCRIPTION |
|---|---|---|---|---|
| MW-1 | 2122404.169 | 6071174.709 | 674.92 | SET NOTCH N. SIDE 4" PVC |
| | N37.81151896 | W122.1980061 | 675.50 | SET PUNCH N. SIDE |
| | | | 675.49 | NORTH SIDE AC |
| | | | | |
| MW-2 | 2122393.627 | 6071186.912 | 675.02 | SET NOTCH N. SIDE 4" PVC |
| | N37.81149062 | W122.1979632 | 675.53 | SET PUNCH N. SIDE |
| | | | 675.51 | |
| | | | | |
| RS-3 | 2122442.569 | 6071215.114 | 676.08 | SET NOTCH N. SIDE 4" PVC |
| | N37.81162641 | W122.1978687 | 676.47 | SET PUNCH N. SIDE |
| | | | 676.38 | NORTH SIDE AC |
| | | | | |
| RS-4 | 2122379.611 | 6071195.421 | 675.27 | TOP 4" PVC |
| | N37.81145256 | W122.1979329 | 675.70 | SET PUNCH N. SIDE |
| | | | 675.59 | NORTH SIDE AC |
| | | | | |
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**HORIZONTAL CONTROL: CALIFORNIA COORDINATE SYSTEM ZONE 3, NAD83.**
ELLIPSOID: WGS 1984
EPOCH: NAD_83 (2011) 2010.0000
GEOID MODEL: GEOID12A

**VERTICAL CONTROL:** BENCH MARK: CITY OF OAKLAND BM 2806
CINCH NAIL IN SOUTHWESTERLY CURB OF MOUNTAIN BLVD, 150' SOUTHEASTERLY FROM THE CENTERLINE OF KEARNEY AVE EXTENDED. NORTHING 2,122,547.687', EASTING 6,070,956.301'
ELEVATION= 674.892' NAVD 88 DATUM


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

6/03/13

**EDGIS LAND SURVEYING**
**LAND SURVEYING AND MAPPING**
1374 Garland Avenue, Clovis, CA 93612
Phone (559) 803-2679
email: edgis@aol.com

ENVIRONMENTAL ENGINEERING, INC

| | | | |
|---|---|---|---|
| **Well No.:** | RS-3 | **Project No.:** | 5081 |
| **Casing Diameter:** | 4" inches | **Address:** | 2844 Mountain Blvd. |
| **Depth of Well:** | 25.50 feet | | Oakland, CA |
| **Top of Casing Elevation:** | 676.08 feet | **Date:** | September 1, 2017 |
| **Depth to Groundwater:** | 6.53 feet | **Sampler:** | Davoud Bazrpash |
| **Groundwater Elevation:** | 669.55 feet | | |
| **Water Column Height:** | 16.97 feet | | |
| **Purged Volume:** | 6 gallons | | |

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

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

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

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

**Odor:** **Yes** ☐ **No** ☑ **Describe:** _____

**Field Measurements:**

| Time | Vol (gallons) | pH | Temp (°C) | E.C. (µs/cm) |
|---|---|---|---|---|
| START | | | | |
| 9:10 | 2 | 705 | 17.3 | 561 |
| 9:13 | 4 | 701 | 16.7 | 565 |
| 9:17 | 6 | 706 | 16.5 | 567 |
| 9:25 | Sampled | | | |
| | | | | |

Notes:

ENVIRONMENTAL ENGINEERING, INC

| | | | |
|---|---|---|---|
| **Well No.:** | RS-4 | **Project No.:** | 5081 |
| **Casing Diameter:** | 4" inches | **Address:** | 2844 Mountain Blvd. |
| **Depth of Well:** | 25.50 feet | | Oakland, CA |
| **Top of Casing Elevation:** | 675.27 feet | **Date:** | September 1, 2017 |
| **Depth to Groundwater:** | 9.31 feet | **Sampler:** | Davoud Bazrpash |
| **Groundwater Elevation:** | 665.96 feet | | |
| **Water Column Height:** | 16.19 feet | | |
| **Purged Volume:** | 6 gallons | | |

| | | | | |
|---|---|---|---|---|
| **Purging Method:** | **Bailer** | ☐ | **Pump** | ☑ |
| **Sampling Method:** | **Bailer** | ☑ | **Pump** | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| **Color:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Sheen:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Odor:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |

**Field Measurements:**

| Time | Vol (gallons) | pH | Temp (°C) | E.C. (µs/cm) |
|---|---|---|---|---|
| START | | | | |
| 11:25 | 2 | 7.05 | 17.1 | 765 |
| 11:28 | 4 | 7.09 | 17.5 | 771 |
| 11:31 | 6 | 7.02 | 17.6 | 778 |
| 11:35 | Sampled | | | |
| | | | | |

Notes:

ENVIRONMENTAL ENGINEERING, INC

| | | | |
|---|---|---|---|
| **Well No.:** | MW-1 | **Project No.:** | 5081 |
| **Casing Diameter:** | 4" inches | **Address:** | 2844 Mountain Blvd. |
| **Depth of Well:** | 19.70 feet | | Oakland, CA |
| **Top of Casing Elevation:** | 674.92 feet | **Date:** | September 1, 2017 |
| **Depth to Groundwater:** | 6.92 feet | **Sampler:** | Davoud Bazrpash |
| **Groundwater Elevation:** | 668.00 feet | | |
| **Water Column Height:** | 12.78 feet | | |
| **Purged Volume:** | 6 gallons | | |

| | | | | |
|---|---|---|---|---|
| **Purging Method:** | **Bailer** | ☐ | **Pump** | ☑ |
| **Sampling Method:** | **Bailer** | ☑ | **Pump** | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| **Color:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Sheen:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Odor:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |

**Field Measurements:**

| Time | Vol (gallons) | pH | Temp (°C) | E.C. (µs/cm) |
|---|---|---|---|---|
| START | | | | |
| 10:05 | 2 | 7.07 | 17.7 | 584 |
| 10:08 | 4 | 7.12 | 17.1 | 589 |
| 10:12 | 6 | 7.15 | 17.3 | 591 |
| 10:15 | Sampled | | | |
| | | | | |

Notes:

ENVIRONMENTAL ENGINEERING, INC

| | | | |
|---|---|---|---|
| **Well No.:** | MW-2 | **Project No.:** | 5081 |
| **Casing Diameter:** | 4" inches | **Address:** | 2844 Mountain Blvd. |
| **Depth of Well:** | 19.75 feet | | Oakland, CA |
| **Top of Casing Elevation:** | 675.02 feet | **Date:** | September 1, 2017 |
| **Depth to Groundwater:** | 7.82 feet | **Sampler:** | Davoud Bazrpash |
| **Groundwater Elevation:** | 667.20 feet | | |
| **Water Column Height:** | 11.93 feet | | |
| **Purged Volume:** | 6 gallons | | |

| | | | | |
|---|---|---|---|---|
| **Purging Method:** | **Bailer** | ☐ | **Pump** | ☑ |
| **Sampling Method:** | **Bailer** | ☑ | **Pump** | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| **Color:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Sheen:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Odor:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |

**Field Measurements:**

| Time | Vol (gallons) | pH | Temp (°C) | E.C. (µs/cm) |
|---|---|---|---|---|
| | | | | |
| 10:25 | 2 | 7.17 | 17.6 | 571 |
| 10:28 | 4 | 7.21 | 17.7 | 579 |
| 10:31 | 6 | 7.28 | 17.5 | 587 |
| 10:45 | Sampled | | | |
| | | | | |

Notes:

ENVIRONMENTAL ENGINEERING, INC

| | | | |
|---|---|---|---|
| **Well No.:** | MW-3 | **Project No.:** | 5081 |
| **Casing Diameter:** | 4" inches | **Address:** | 2844 Mountain Blvd. |
| **Depth of Well:** | 24.60 feet | | Oakland, CA |
| **Top of Casing Elevation:** | 675.58 feet | **Date:** | September 1, 2017 |
| **Depth to Groundwater:** | 6.25 feet | **Sampler:** | Davoud Bazrpash |
| **Groundwater Elevation:** | 669.33 feet | | |
| **Water Column Height:** | 18.35 feet | | |
| **Purged Volume:** | 6 gallons | | |

| | | | | |
|---|---|---|---|---|
| **Purging Method:** | **Bailer** | ☐ | **Pump** | ☑ |
| **Sampling Method:** | **Bailer** | ☑ | **Pump** | ☐ |

| | | | | | |
|---|---|---|---|---|---|
| **Color:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Sheen:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |
| **Odor:** | **Yes** | ☐ | **No** | ☑ | **Describe:** |

**Field Measurements:**

| Time | Vol (gallons) | pH | Temp (°C) | E.C. (µs/cm) |
|---|---|---|---|---|
| START | | | | |
| 9:40 | 2 | 7.67 | 19.1 | 585 |
| 9:43 | 4 | 7.54 | 18.7 | 577 |
| 9:46 | 6 | 7.71 | 18.6 | 581 |
| 9:55 | Sampled | | | |
| | | | | |

Notes:

# EPA On-line Tools for Site Assessment Calculation

**Hydraulic Gradient -- Magnitude and Direction**

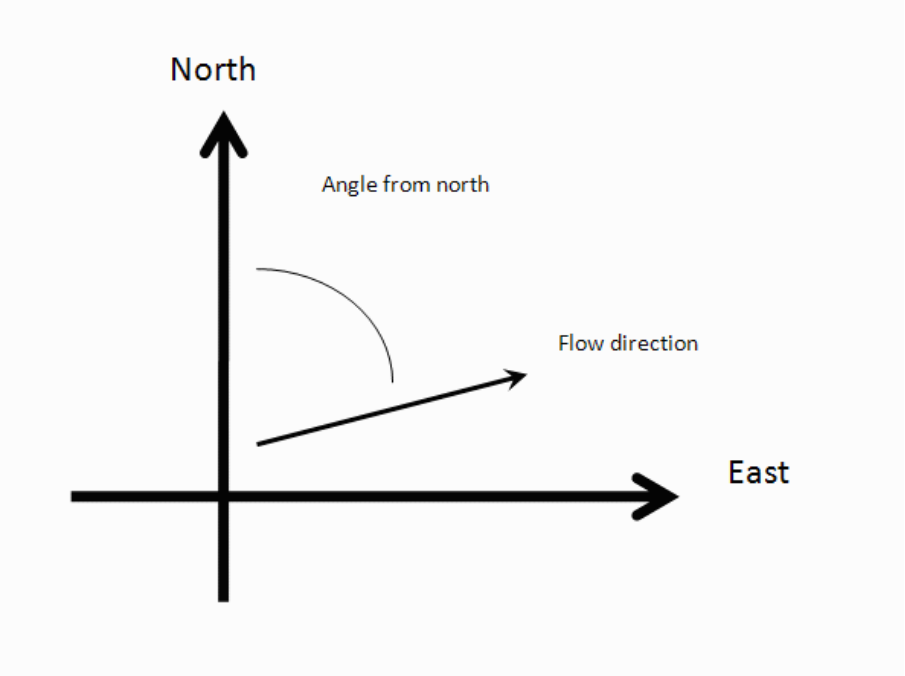
**Gradient Calculation** from fitting a plane to as many as thirty points

$a\,x_1 + b\,y_1 + c = h_1$
$a\,x_2 + b\,y_2 + c = h_2$
$a\,x_3 + b\,y_3 + c = h_3$
. . .
$a\,x_{30} + b\,y_{30} + c = h_{30}$

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

i = 1,2,3, ... , 30
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

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




**Inputs**

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back
Site Name: 2844 Mountain Blvd, Oaklar
Date: September 1, 2017 | Current Date
Calculation basis: Head
Coordinates: ft

| I.D. | | x-coordinate | y-coordinate | head ft |
|---|---|---|---|---|
| 1) | RS-3 | 6071215.111 | 2122442.671 | 669.55 |
| 2) | RS-4 | 6071195.458 | 2122379.324 | 665.96 |
| 3) | MW-1 | 6071174.931 | 2122404.178 | 668.00 |
| 4) | MW-2 | 6071186.39 | 2122393.492 | 667.20 |
| 5) | MW-3 | 6071190.453 | 2122428.874 | 669.33 |
| 6) | | | | |
| 7) | | | | |
| 8) | | | | |
| 9) | | | | |
| 10) | | | | |
| 11) | | | | |
| 12) | | | | |
| 13) | | | | |
| 14) | | | | |
| 15) | | | | |
| 16) | | | | |

| | | | | |
|---|---|---|---|---|
| 17) | | | | |
| 18) | | | | |
| 19) | | | | |
| 20) | | | | |
| 21) | | | | |
| 22) | | | | |
| 23) | | | | |
| 24) | | | | |
| 25) | | | | |
| 26) | | | | |
| 27) | | | | |
| 28) | | | | |
| 29) | | | | |
| 30) | | | | |

**Results**

| | |
|---|---|
| Number of Points Used in Calculation | 5 |
| Max. Difference Between Head Values | 1.094 |
| Gradient Magnitude (i) | 0.06836 |
| Flow direction as degrees from North (positive y axis) | 159.5 |
| Coefficient of Determination ($R^2$) | 0.998 |

WCMS

Last updated on 2/23/2016

# Appendix C

Laboratory Report and Chain of Custody Form

Enthalpy Analytical

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

**Laboratory Job Number 292068**
**ANALYTICAL REPORT**

| | |
|---|---|
| SOMA Environmental Engineering Inc. | Project : 5081 |
| 6620 Owens Dr. | Location : 2844 Mountain Blvd., Oakland |
| Pleasanton, CA 94588 | Level : II |

| Sample ID | Lab ID |
|---|---|
| RS-3 | 292068-001 |
| RS-4 | 292068-002 |
| MW-1 | 292068-003 |
| MW-2 | 292068-004 |
| MW-3 | 292068-005 |

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

Signature: Tracy Babjar Date: 09/08/2017

Tracy Babjar
Project Manager
tracy.babjar@enthalpy.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

## CASE NARRATIVE

| | |
|---|---|
| Laboratory number: | **292068** |
| Client: | **SOMA Environmental Engineering Inc.** |
| Project: | **5081** |
| Location: | **2844 Mountain Blvd., Oakland** |
| Request Date: | **09/01/17** |
| Samples Received: | **09/01/17** |

This data package contains sample and QC results for five water samples, requested for the above referenced project on 09/01/17. The samples were received cold and intact.

**TPH-Extractables by GC (EPA 8015B):**
No analytical problems were encountered.

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

# CHAIN OF CUSTODY



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

LOGIN # 292068

**Sampler: Davoud Bazrpash**

**Project No: 5081**

**Report To: Joyce Bobek**

**Project Name: 2844 Mountain Blvd., Oakland**

**Company :** SOMA Environmental

**Turnaround Time: Standard**

**Telephone:** 925-734-6400

**Fax:** 925-734-6401

| Lab No. | Sample ID. | Sampling Date Time | Matrix: Soil | Water | Waste | # of Containers | Preservative: HCL | $H_2SO_4$ | $HNO_3$ | ICE | Analyses: TPH-g, BTEX, MtBE 8260B | Gasoline Oxygenates 8260B | TPH-d 8015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RS-3 | 9/1/17 9:25 | | * | | 3 VOAs, 1 L Amber | * | | | * | * | * | * |
| 2 | RS-4 | 9/1/17 11:35 | | * | | 3 VOAs, 1 L Amber | * | | | * | * | * | * |
| 3 | MW-1 | 9/1/17 10:15 | | * | | 3 VOAs, 1 L Amber | * | | | * | * | * | * |
| 4 | MW-2 | 9/1/17 10:45 | | * | | 3 VOAs, 1 L Amber | * | | | * | * | * | * |
| 5 | MW-3 | 9/1/17 9:55 | | * | | 3 VOAs, 1 L Amber | * | | | * | * | * | * |

**Notes:** **EDF OUTPUT REQUIRED**
**GasOx: DIPE, ETBE, TAME, TBA**

| RELINQUISHED BY: | RECEIVED BY: |
|---|---|
| 9/1/17 12:25 DATE/TIME | Pat Hanafy 9/1/17 12:25 DATE/TIME |
| DATE/TIME | DATE/TIME |
| DATE/TIME | DATE/TIME |

## COOLER RECEIPT CHECKLIST

ENTHALPY Berkeley

Login # 292068 Date Received 09/01/17 Number of coolers –
Client SOMA Environmental Project 5081

Date Opened 09/01/17 By (print) EHS (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labelled ↓ By (print) ↓ (sign) ↓

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

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

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

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

☐ Temperature blank(s) included? ☐ Thermometer# ☐ IR Gun#

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

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

COMMENTS

Rev 14, 8/01/17

ENTHALPY ANALYTICAL

# Detections Summary for 292068

Results for any subcontracted analyses are not included in this summary.

Client : SOMA Environmental Engineering Inc.
Project : 5081
Location : 2844 Mountain Blvd., Oakland

Client Sample ID : RS-3 Laboratory Sample ID : 292068-001

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| MTBE | 1.3 | | 0.50 | ug/L | As Recd | 1.000 | EPA 8260B | EPA 5030B |

Client Sample ID : RS-4 Laboratory Sample ID : 292068-002

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| Diesel C10-C24 | 390 | | 50 | ug/L | As Recd | 1.000 | EPA 8015B | EPA 3520C |
| tert-Butyl Alcohol (TBA) | 35,000 | | 500 | ug/L | As Recd | 50.00 | EPA 8260B | EPA 5030B |
| Methyl tert-Amyl Ether (TAME) | 23 | | 7.1 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |
| MTBE | 430 | | 7.1 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |

Client Sample ID : MW-1 Laboratory Sample ID : 292068-003

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| Diesel C10-C24 | 2,300 | Y | 50 | ug/L | As Recd | 1.000 | EPA 8015B | EPA 3520C |
| Gasoline C7-C12 | 510 | | 100 | ug/L | As Recd | 2.000 | EPA 8260B | EPA 5030B |
| tert-Butyl Alcohol (TBA) | 1,100 | | 20 | ug/L | As Recd | 2.000 | EPA 8260B | EPA 5030B |
| Methyl tert-Amyl Ether (TAME) | 1.2 | | 1.0 | ug/L | As Recd | 2.000 | EPA 8260B | EPA 5030B |
| MTBE | 15 | | 1.0 | ug/L | As Recd | 2.000 | EPA 8260B | EPA 5030B |

Client Sample ID : MW-2 Laboratory Sample ID : 292068-004

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| Diesel C10-C24 | 910 | | 50 | ug/L | As Recd | 1.000 | EPA 8015B | EPA 3520C |
| Gasoline C7-C12 | 910 | | 710 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |
| tert-Butyl Alcohol (TBA) | 12,000 | | 140 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |
| Methyl tert-Amyl Ether (TAME) | 8.8 | | 7.1 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |
| MTBE | 99 | | 7.1 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |
| Benzene | 33 | | 7.1 | ug/L | As Recd | 14.29 | EPA 8260B | EPA 5030B |

Client Sample ID : MW-3 Laboratory Sample ID : 292068-005

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| Diesel C10-C24 | 1,400 | Y | 50 | ug/L | As Recd | 1.000 | EPA 8015B | EPA 3520C |
| tert-Butyl Alcohol (TBA) | 55 | | 10 | ug/L | As Recd | 1.000 | EPA 8260B | EPA 5030B |
| Methyl tert-Amyl Ether (TAME) | 4.1 | | 0.50 | ug/L | As Recd | 1.000 | EPA 8260B | EPA 5030B |
| MTBE | 70 | | 0.50 | ug/L | As Recd | 1.000 | EPA 8260B | EPA 5030B |

Y = Sample exhibits chromatographic pattern which does not resemble standard

ENTHALPY ANALYTICAL

## Total Extractable Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3520C |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Matrix: | Water | Sampled: | 09/01/17 |
| Units: | ug/L | Received: | 09/01/17 |
| Diln Fac: | 1.000 | Prepared: | 09/05/17 |
| Batch#: | 251299 | | |

Field ID: RS-3 Lab ID: 292068-001
Type: SAMPLE Analyzed: 09/07/17

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | ND | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 102 | 52-138 |

Field ID: RS-4 Lab ID: 292068-002
Type: SAMPLE Analyzed: 09/07/17

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | 390 | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 100 | 52-138 |

Field ID: MW-1 Lab ID: 292068-003
Type: SAMPLE Analyzed: 09/07/17

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | 2,300 Y | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 98 | 52-138 |

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

## Total Extractable Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3520C |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Matrix: | Water | Sampled: | 09/01/17 |
| Units: | ug/L | Received: | 09/01/17 |
| Diln Fac: | 1.000 | Prepared: | 09/05/17 |
| Batch#: | 251299 | | |

Field ID: MW-2 Lab ID: 292068-004
Type: SAMPLE Analyzed: 09/07/17

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | 910 | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 92 | 52-138 |

Field ID: MW-3 Lab ID: 292068-005
Type: SAMPLE Analyzed: 09/07/17

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | 1,400 Y | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 101 | 52-138 |

Type: BLANK Analyzed: 09/06/17
Lab ID: QC899539

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | ND | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 108 | 52-138 |

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

## Total Extractable Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3520C |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Matrix: | Water | Batch#: | 251299 |
| Units: | ug/L | Prepared: | 09/05/17 |
| Diln Fac: | 1.000 | Analyzed: | 09/06/17 |

Type: BS Lab ID: QC899540

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| Diesel C10-C24 | 2,500 | 2,584 | 103 | 52-124 |

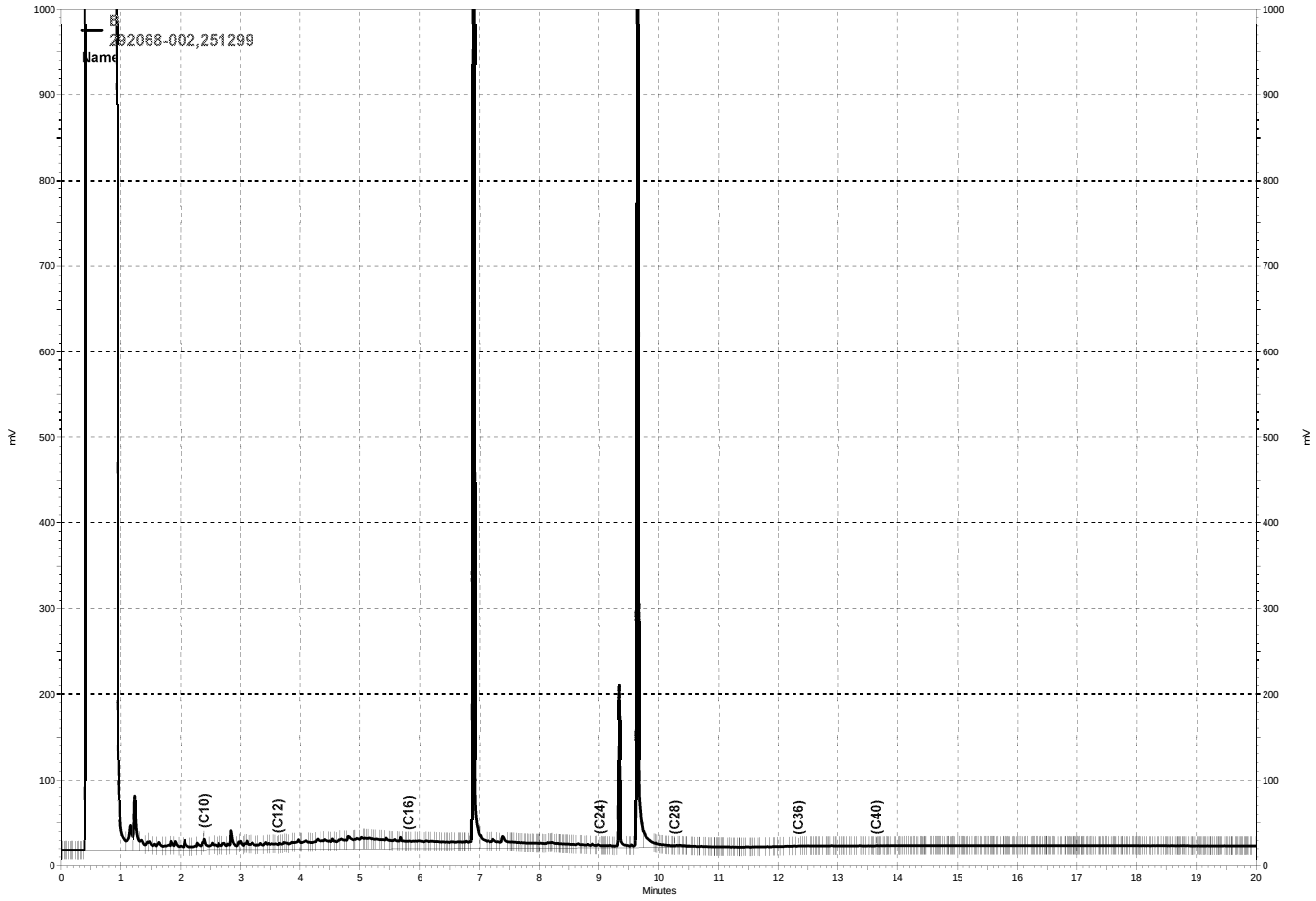
| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 109 | 52-138 |

Type: BSD Lab ID: QC899541

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| Diesel C10-C24 | 2,500 | 2,640 | 106 | 52-124 | 2 | 34 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 112 | 52-138 |

RPD= Relative Percent Difference

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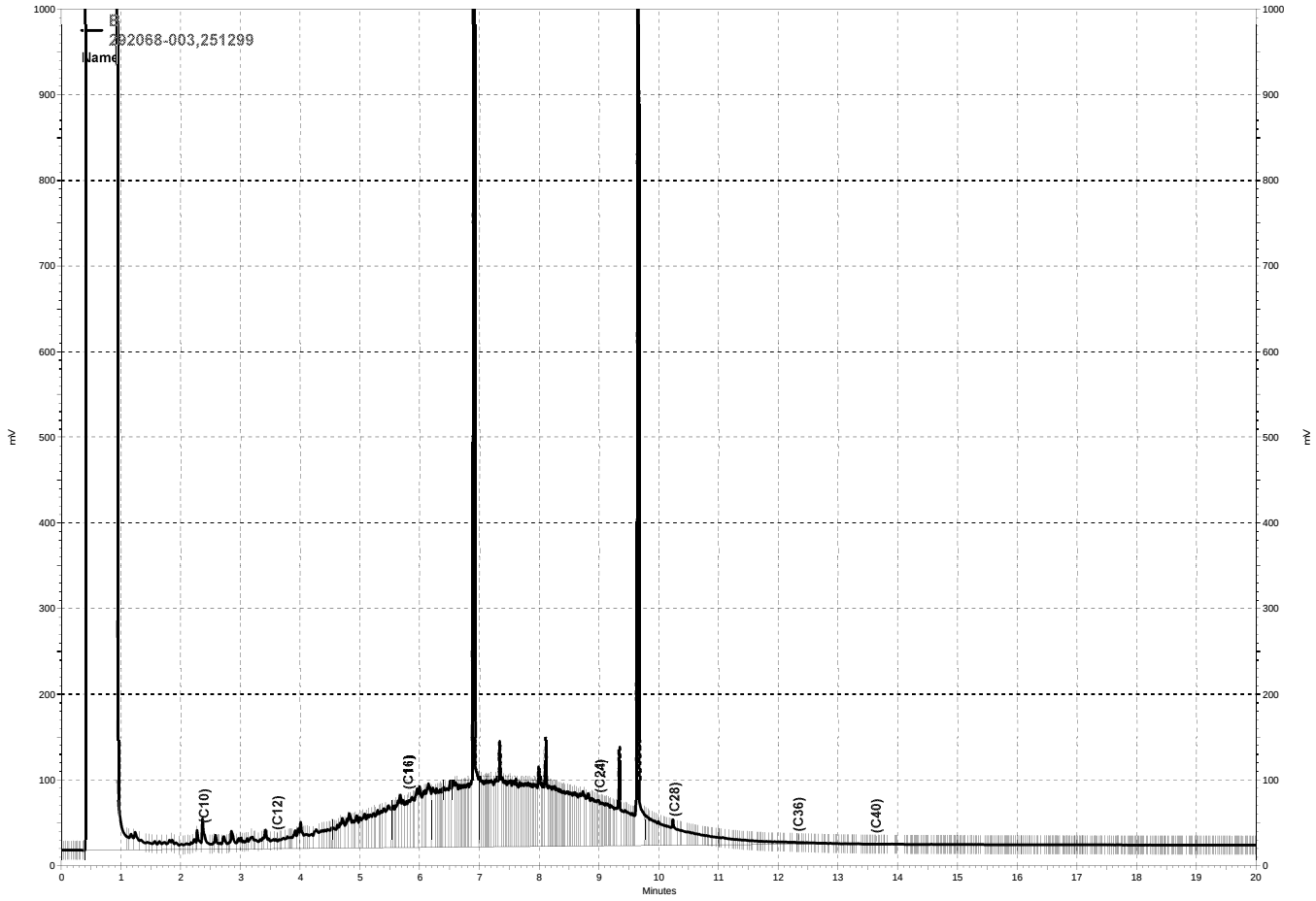


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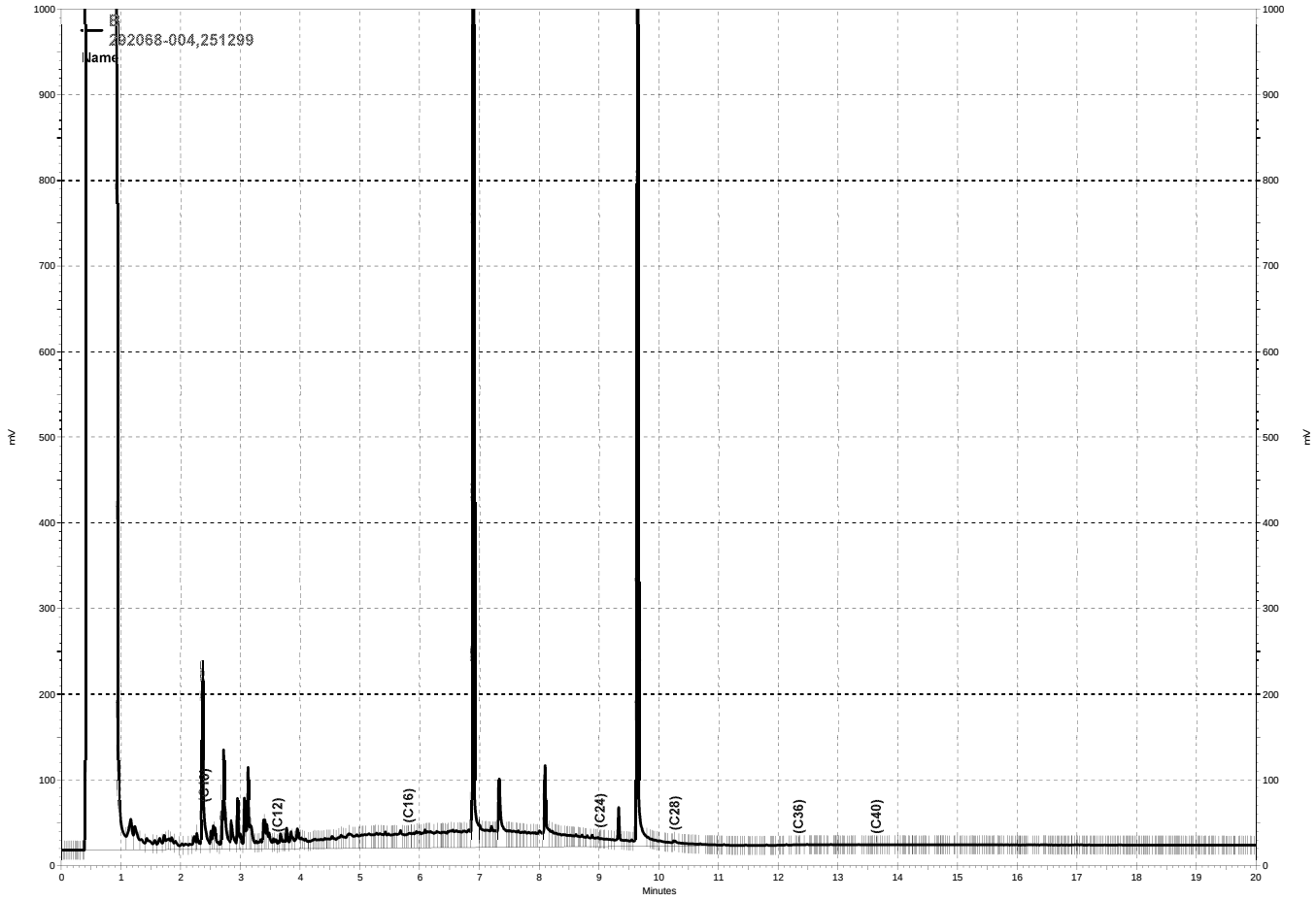


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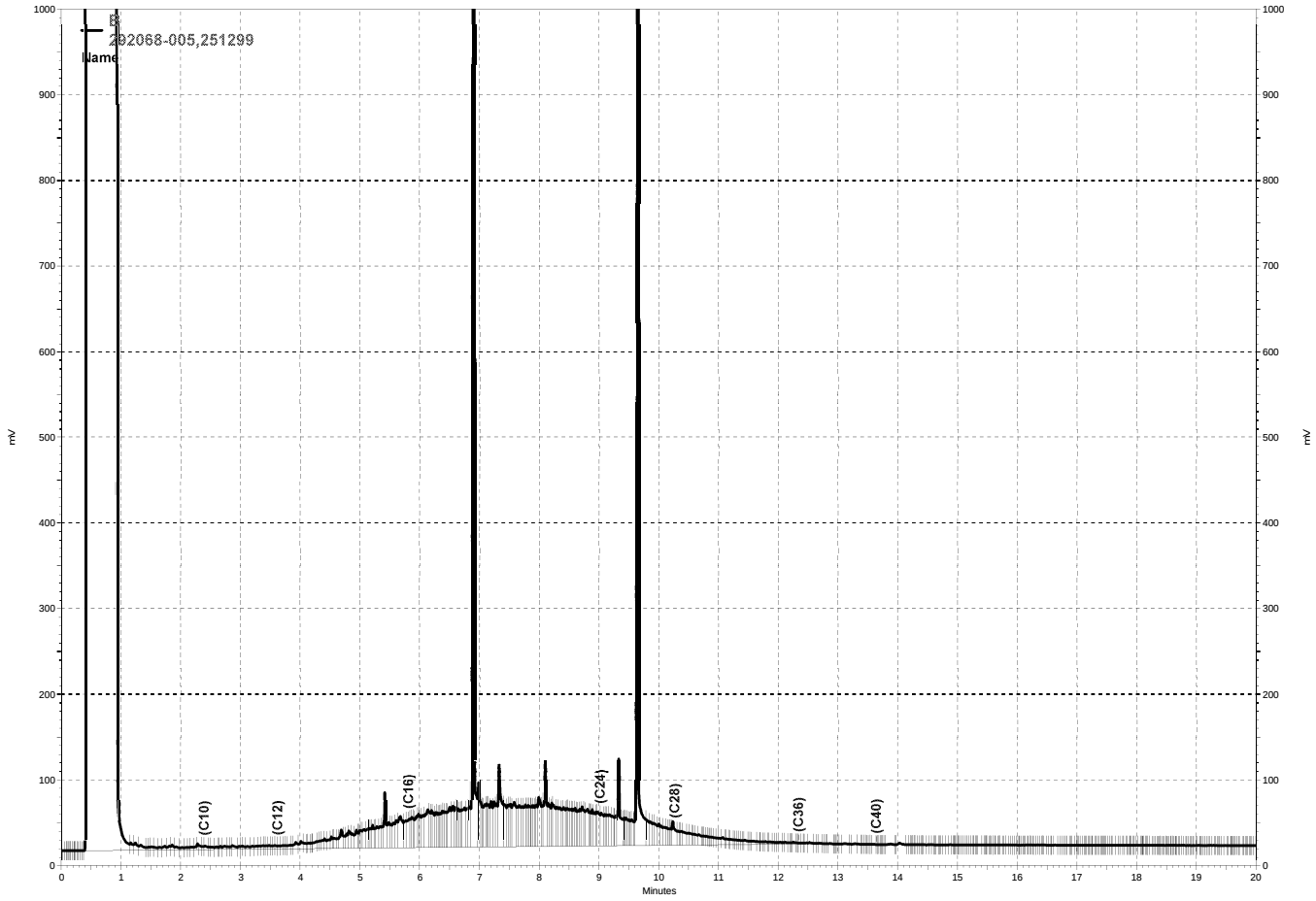


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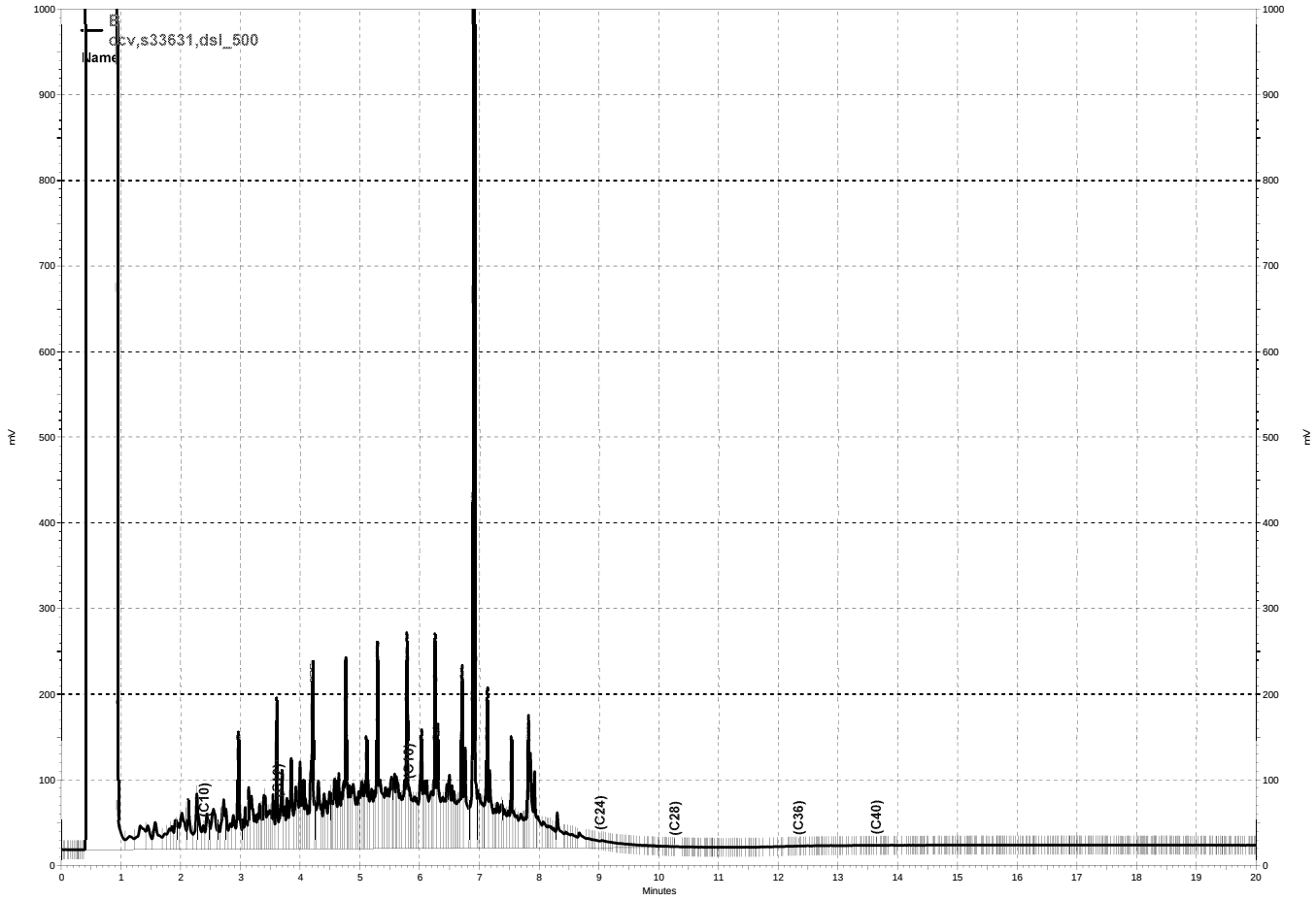


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ENTHALPY ANALYTICAL

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | RS-3 | Batch#: | 251278 |
| Lab ID: | 292068-001 | Sampled: | 09/01/17 |
| Matrix: | Water | Received: | 09/01/17 |
| Units: | ug/L | Analyzed: | 09/05/17 |
| Diln Fac: | 1.000 | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 50 |
| tert-Butyl Alcohol (TBA) | ND | 10 |
| Isopropyl Ether (DIPE) | ND | 0.50 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 0.50 |
| Methyl tert-Amyl Ether (TAME) | ND | 0.50 |
| Ethanol | ND | 1,000 |
| MTBE | 1.3 | 0.50 |
| 1,2-Dichloroethane | ND | 0.50 |
| Benzene | ND | 0.50 |
| Toluene | ND | 0.50 |
| 1,2-Dibromoethane | ND | 0.50 |
| Ethylbenzene | ND | 0.50 |
| m,p-Xylenes | ND | 0.50 |
| o-Xylene | ND | 0.50 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 110 | 73-136 |
| Toluene-d8 | 103 | 80-120 |
| Bromofluorobenzene | 103 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | RS-4 | Units: | ug/L |
| Lab ID: | 292068-002 | Sampled: | 09/01/17 |
| Matrix: | Water | Received: | 09/01/17 |

| Analyte | Result | RL | Diln Fac | Batch# | Analyzed |
|---|---|---|---|---|---|
| Gasoline C7-C12 | ND | 710 | 14.29 | 251278 | 09/05/17 |
| tert-Butyl Alcohol (TBA) | 35,000 | 500 | 50.00 | 251324 | 09/06/17 |
| Isopropyl Ether (DIPE) | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| Methyl tert-Amyl Ether (TAME) | 23 | 7.1 | 14.29 | 251278 | 09/05/17 |
| Ethanol | ND | 14,000 | 14.29 | 251278 | 09/05/17 |
| MTBE | 430 | 7.1 | 14.29 | 251278 | 09/05/17 |
| 1,2-Dichloroethane | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| Benzene | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| Toluene | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| 1,2-Dibromoethane | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| Ethylbenzene | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| m,p-Xylenes | ND | 7.1 | 14.29 | 251278 | 09/05/17 |
| o-Xylene | ND | 7.1 | 14.29 | 251278 | 09/05/17 |

| Surrogate | %REC | Limits | Diln Fac | Batch# | Analyzed |
|---|---|---|---|---|---|
| Dibromofluoromethane | 106 | 80-120 | 14.29 | 251278 | 09/05/17 |
| 1,2-Dichloroethane-d4 | 114 | 73-136 | 14.29 | 251278 | 09/05/17 |
| Toluene-d8 | 102 | 80-120 | 14.29 | 251278 | 09/05/17 |
| Bromofluorobenzene | 101 | 80-120 | 14.29 | 251278 | 09/05/17 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | MW-1 | Batch#: | 251324 |
| Lab ID: | 292068-003 | Sampled: | 09/01/17 |
| Matrix: | Water | Received: | 09/01/17 |
| Units: | ug/L | Analyzed: | 09/06/17 |
| Diln Fac: | 2.000 | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | 510 | 100 |
| tert-Butyl Alcohol (TBA) | 1,100 | 20 |
| Isopropyl Ether (DIPE) | ND | 1.0 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 1.0 |
| Methyl tert-Amyl Ether (TAME) | 1.2 | 1.0 |
| Ethanol | ND | 2,000 |
| MTBE | 15 | 1.0 |
| 1,2-Dichloroethane | ND | 1.0 |
| Benzene | ND | 1.0 |
| Toluene | ND | 1.0 |
| 1,2-Dibromoethane | ND | 1.0 |
| Ethylbenzene | ND | 1.0 |
| m,p-Xylenes | ND | 1.0 |
| o-Xylene | ND | 1.0 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 104 | 80-120 |
| 1,2-Dichloroethane-d4 | 108 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 103 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | MW-2 | Batch#: | 251278 |
| Lab ID: | 292068-004 | Sampled: | 09/01/17 |
| Matrix: | Water | Received: | 09/01/17 |
| Units: | ug/L | Analyzed: | 09/05/17 |
| Diln Fac: | 14.29 | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | 910 | 710 |
| tert-Butyl Alcohol (TBA) | 12,000 | 140 |
| Isopropyl Ether (DIPE) | ND | 7.1 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 7.1 |
| Methyl tert-Amyl Ether (TAME) | 8.8 | 7.1 |
| Ethanol | ND | 14,000 |
| MTBE | 99 | 7.1 |
| 1,2-Dichloroethane | ND | 7.1 |
| Benzene | 33 | 7.1 |
| Toluene | ND | 7.1 |
| 1,2-Dibromoethane | ND | 7.1 |
| Ethylbenzene | ND | 7.1 |
| m,p-Xylenes | ND | 7.1 |
| o-Xylene | ND | 7.1 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 107 | 80-120 |
| 1,2-Dichloroethane-d4 | 111 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 101 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | MW-3 | Batch#: | 251278 |
| Lab ID: | 292068-005 | Sampled: | 09/01/17 |
| Matrix: | Water | Received: | 09/01/17 |
| Units: | ug/L | Analyzed: | 09/05/17 |
| Diln Fac: | 1.000 | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 50 |
| tert-Butyl Alcohol (TBA) | 55 | 10 |
| Isopropyl Ether (DIPE) | ND | 0.50 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 0.50 |
| Methyl tert-Amyl Ether (TAME) | 4.1 | 0.50 |
| Ethanol | ND | 1,000 |
| MTBE | 70 | 0.50 |
| 1,2-Dichloroethane | ND | 0.50 |
| Benzene | ND | 0.50 |
| Toluene | ND | 0.50 |
| 1,2-Dibromoethane | ND | 0.50 |
| Ethylbenzene | ND | 0.50 |
| m,p-Xylenes | ND | 0.50 |
| o-Xylene | ND | 0.50 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 106 | 80-120 |
| 1,2-Dichloroethane-d4 | 108 | 73-136 |
| Toluene-d8 | 109 | 80-120 |
| Bromofluorobenzene | 102 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Type: | BLANK | Diln Fac: | 1.000 |
| Lab ID: | QC899465 | Batch#: | 251278 |
| Matrix: | Water | Analyzed: | 09/05/17 |
| Units: | ug/L | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 50 |
| tert-Butyl Alcohol (TBA) | ND | 10 |
| Isopropyl Ether (DIPE) | ND | 0.50 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 0.50 |
| Methyl tert-Amyl Ether (TAME) | ND | 0.50 |
| Ethanol | ND | 1,000 |
| MTBE | ND | 0.50 |
| 1,2-Dichloroethane | ND | 0.50 |
| Benzene | ND | 0.50 |
| Toluene | ND | 0.50 |
| 1,2-Dibromoethane | ND | 0.50 |
| Ethylbenzene | ND | 0.50 |
| m,p-Xylenes | ND | 0.50 |
| o-Xylene | ND | 0.50 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 104 | 80-120 |
| 1,2-Dichloroethane-d4 | 108 | 73-136 |
| Toluene-d8 | 99 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Matrix: | Water | Batch#: | 251278 |
| Units: | ug/L | Analyzed: | 09/05/17 |
| Diln Fac: | 1.000 | | |

Type: BS Lab ID: QC899466

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| Gasoline C7-C12 | 800.0 | 852.6 | 107 | 80-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 107 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 104 | 80-120 |

Type: BSD Lab ID: QC899467

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| Gasoline C7-C12 | 800.0 | 876.3 | 110 | 80-120 | 3 | 20 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 107 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 102 | 80-120 |

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Matrix: | Water | Batch#: | 251278 |
| Units: | ug/L | Analyzed: | 09/05/17 |
| Diln Fac: | 1.000 | | |

Type: BS Lab ID: QC899468

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| tert-Butyl Alcohol (TBA) | 62.50 | 65.40 | 105 | 42-149 |
| Isopropyl Ether (DIPE) | 12.50 | 11.99 | 96 | 57-128 |
| Ethyl tert-Butyl Ether (ETBE) | 12.50 | 12.41 | 99 | 67-124 |
| Methyl tert-Amyl Ether (TAME) | 12.50 | 12.26 | 98 | 71-120 |
| MTBE | 12.50 | 12.04 | 96 | 63-120 |
| 1,2-Dichloroethane | 12.50 | 12.92 | 103 | 66-130 |
| Benzene | 12.50 | 13.03 | 104 | 78-123 |
| Toluene | 12.50 | 13.00 | 104 | 80-120 |
| 1,2-Dibromoethane | 12.50 | 13.14 | 105 | 76-120 |
| Ethylbenzene | 12.50 | 13.17 | 105 | 80-122 |
| m,p-Xylenes | 25.00 | 26.59 | 106 | 79-123 |
| o-Xylene | 12.50 | 13.00 | 104 | 77-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 106 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 101 | 80-120 |

Type: BSD Lab ID: QC899469

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| tert-Butyl Alcohol (TBA) | 62.50 | 64.18 | 103 | 42-149 | 2 | 38 |
| Isopropyl Ether (DIPE) | 12.50 | 12.21 | 98 | 57-128 | 2 | 20 |
| Ethyl tert-Butyl Ether (ETBE) | 12.50 | 12.71 | 102 | 67-124 | 2 | 20 |
| Methyl tert-Amyl Ether (TAME) | 12.50 | 12.45 | 100 | 71-120 | 2 | 20 |
| MTBE | 12.50 | 12.42 | 99 | 63-120 | 3 | 20 |
| 1,2-Dichloroethane | 12.50 | 12.98 | 104 | 66-130 | 0 | 20 |
| Benzene | 12.50 | 12.73 | 102 | 78-123 | 2 | 20 |
| Toluene | 12.50 | 12.74 | 102 | 80-120 | 2 | 20 |
| 1,2-Dibromoethane | 12.50 | 12.89 | 103 | 76-120 | 2 | 20 |
| Ethylbenzene | 12.50 | 12.88 | 103 | 80-122 | 2 | 20 |
| m,p-Xylenes | 25.00 | 25.97 | 104 | 79-123 | 2 | 20 |
| o-Xylene | 12.50 | 12.41 | 99 | 77-120 | 5 | 20 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 105 | 73-136 |
| Toluene-d8 | 100 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Type: | BLANK | Diln Fac: | 1.000 |
| Lab ID: | QC899625 | Batch#: | 251324 |
| Matrix: | Water | Analyzed: | 09/06/17 |
| Units: | ug/L | | |

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 50 |
| tert-Butyl Alcohol (TBA) | ND | 10 |
| Isopropyl Ether (DIPE) | ND | 0.50 |
| Ethyl tert-Butyl Ether (ETBE) | ND | 0.50 |
| Methyl tert-Amyl Ether (TAME) | ND | 0.50 |
| Ethanol | ND | 1,000 |
| MTBE | ND | 0.50 |
| 1,2-Dichloroethane | ND | 0.50 |
| Benzene | ND | 0.50 |
| Toluene | ND | 0.50 |
| 1,2-Dibromoethane | ND | 0.50 |
| Ethylbenzene | ND | 0.50 |
| m,p-Xylenes | ND | 0.50 |
| o-Xylene | ND | 0.50 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 108 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Matrix: | Water | Batch#: | 251324 |
| Units: | ug/L | Analyzed: | 09/06/17 |
| Diln Fac: | 1.000 | | |

Type: BS Lab ID: QC899626

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| Gasoline C7-C12 | 500.0 | 541.7 | 108 | 80-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 107 | 80-120 |
| 1,2-Dichloroethane-d4 | 105 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

Type: BSD Lab ID: QC899627

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| Gasoline C7-C12 | 500.0 | 563.4 | 113 | 80-120 | 4 | 20 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 106 | 80-120 |
| 1,2-Dichloroethane-d4 | 109 | 73-136 |
| Toluene-d8 | 101 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

## Purgeable Organics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 292068 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Matrix: | Water | Batch#: | 251324 |
| Units: | ug/L | Analyzed: | 09/06/17 |
| Diln Fac: | 1.000 | | |

Type: BS Lab ID: QC899628

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| tert-Butyl Alcohol (TBA) | 62.50 | 72.59 | 116 | 42-149 |
| Isopropyl Ether (DIPE) | 12.50 | 11.91 | 95 | 57-128 |
| Ethyl tert-Butyl Ether (ETBE) | 12.50 | 12.39 | 99 | 67-124 |
| Methyl tert-Amyl Ether (TAME) | 12.50 | 12.88 | 103 | 71-120 |
| MTBE | 12.50 | 12.36 | 99 | 63-120 |
| 1,2-Dichloroethane | 12.50 | 13.14 | 105 | 66-130 |
| Benzene | 12.50 | 13.39 | 107 | 78-123 |
| Toluene | 12.50 | 13.11 | 105 | 80-120 |
| 1,2-Dibromoethane | 12.50 | 13.26 | 106 | 76-120 |
| Ethylbenzene | 12.50 | 13.19 | 105 | 80-122 |
| m,p-Xylenes | 25.00 | 26.54 | 106 | 79-123 |
| o-Xylene | 12.50 | 13.17 | 105 | 77-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 108 | 73-136 |
| Toluene-d8 | 102 | 80-120 |
| Bromofluorobenzene | 100 | 80-120 |

Type: BSD Lab ID: QC899629

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| tert-Butyl Alcohol (TBA) | 62.50 | 64.61 | 103 | 42-149 | 12 | 38 |
| Isopropyl Ether (DIPE) | 12.50 | 11.78 | 94 | 57-128 | 1 | 20 |
| Ethyl tert-Butyl Ether (ETBE) | 12.50 | 12.14 | 97 | 67-124 | 2 | 20 |
| Methyl tert-Amyl Ether (TAME) | 12.50 | 12.25 | 98 | 71-120 | 5 | 20 |
| MTBE | 12.50 | 12.10 | 97 | 63-120 | 2 | 20 |
| 1,2-Dichloroethane | 12.50 | 12.79 | 102 | 66-130 | 3 | 20 |
| Benzene | 12.50 | 12.54 | 100 | 78-123 | 7 | 20 |
| Toluene | 12.50 | 12.67 | 101 | 80-120 | 3 | 20 |
| 1,2-Dibromoethane | 12.50 | 13.01 | 104 | 76-120 | 2 | 20 |
| Ethylbenzene | 12.50 | 12.92 | 103 | 80-122 | 2 | 20 |
| m,p-Xylenes | 25.00 | 25.76 | 103 | 79-123 | 3 | 20 |
| o-Xylene | 12.50 | 12.38 | 99 | 77-120 | 6 | 20 |

| Surrogate | %REC | Limits |
|---|---|---|
| Dibromofluoromethane | 105 | 80-120 |
| 1,2-Dichloroethane-d4 | 106 | 73-136 |
| Toluene-d8 | 102 | 80-120 |
| Bromofluorobenzene | 101 | 80-120 |

RPD= Relative Percent Difference

Data File: \\gcmsserver\DD\chem\MSVOA08.i\090617\HI619TVH.D



Date : 06-SEP-2017 20:10

Client ID:

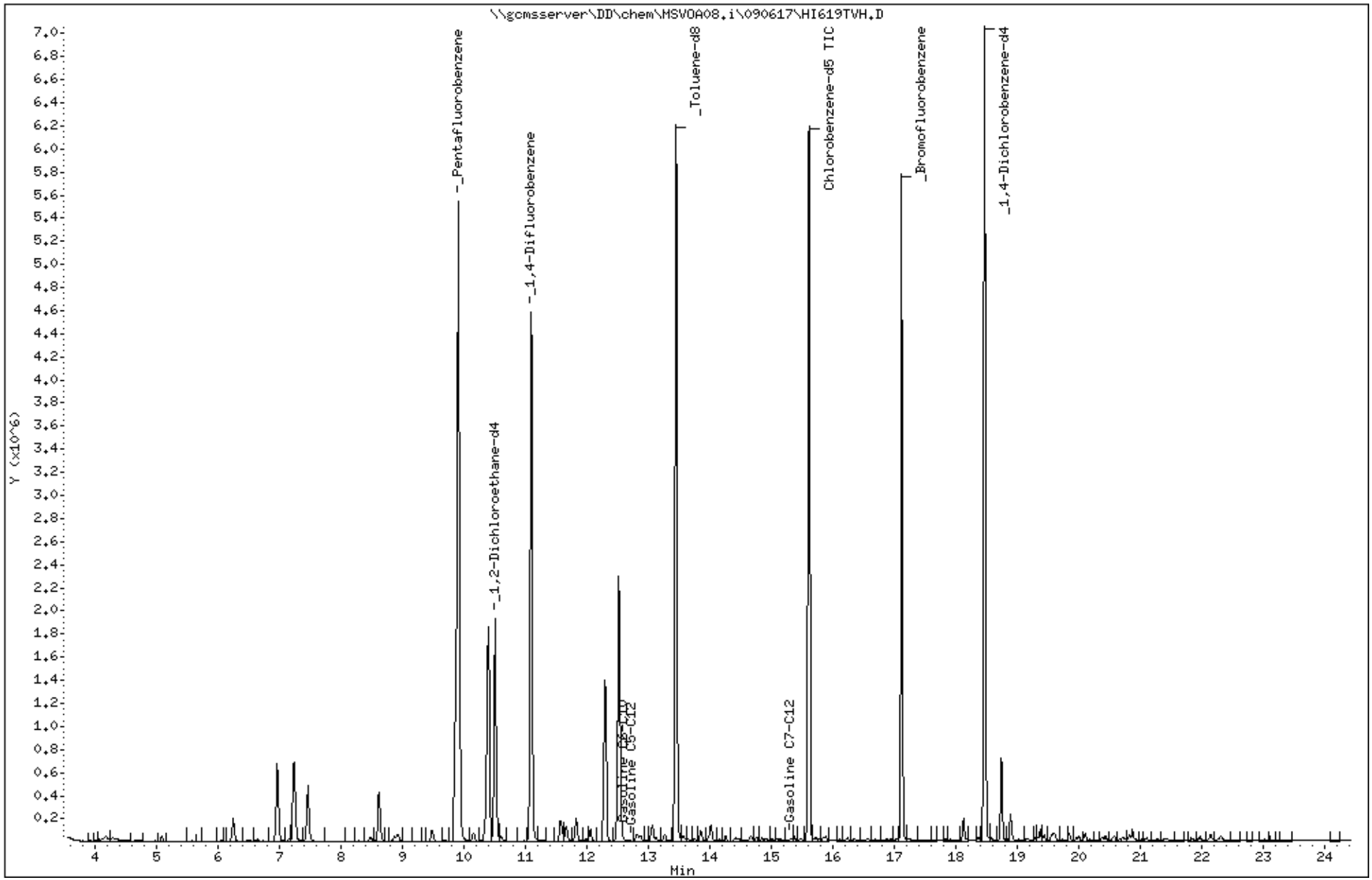
Instrument: MSVOA08.i

Sample Info: S,292068-003

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA08.i\090517\HI523TVH.D



Date : 05-SEP-2017 22:56

Client ID:

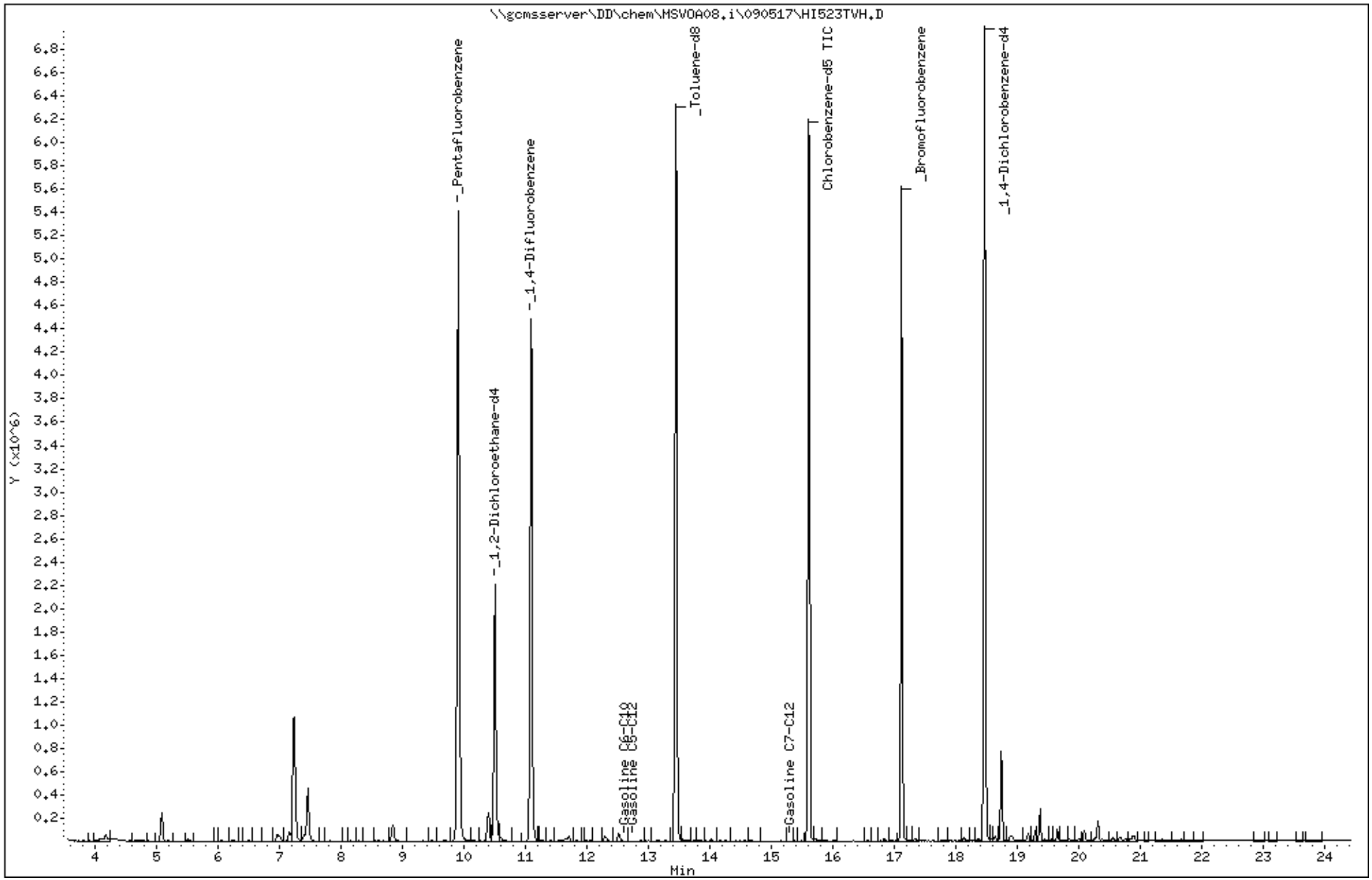
Instrument: MSVOA08.i

Sample Info: S,292068-004

Operator: VOC

Column phase:

Column diameter: 2.00



Data File: \\gcmsserver\DD\chem\MSVOA08.i\090517\HI504TVH.D



Date : 05-SEP-2017 12:26

Client ID:

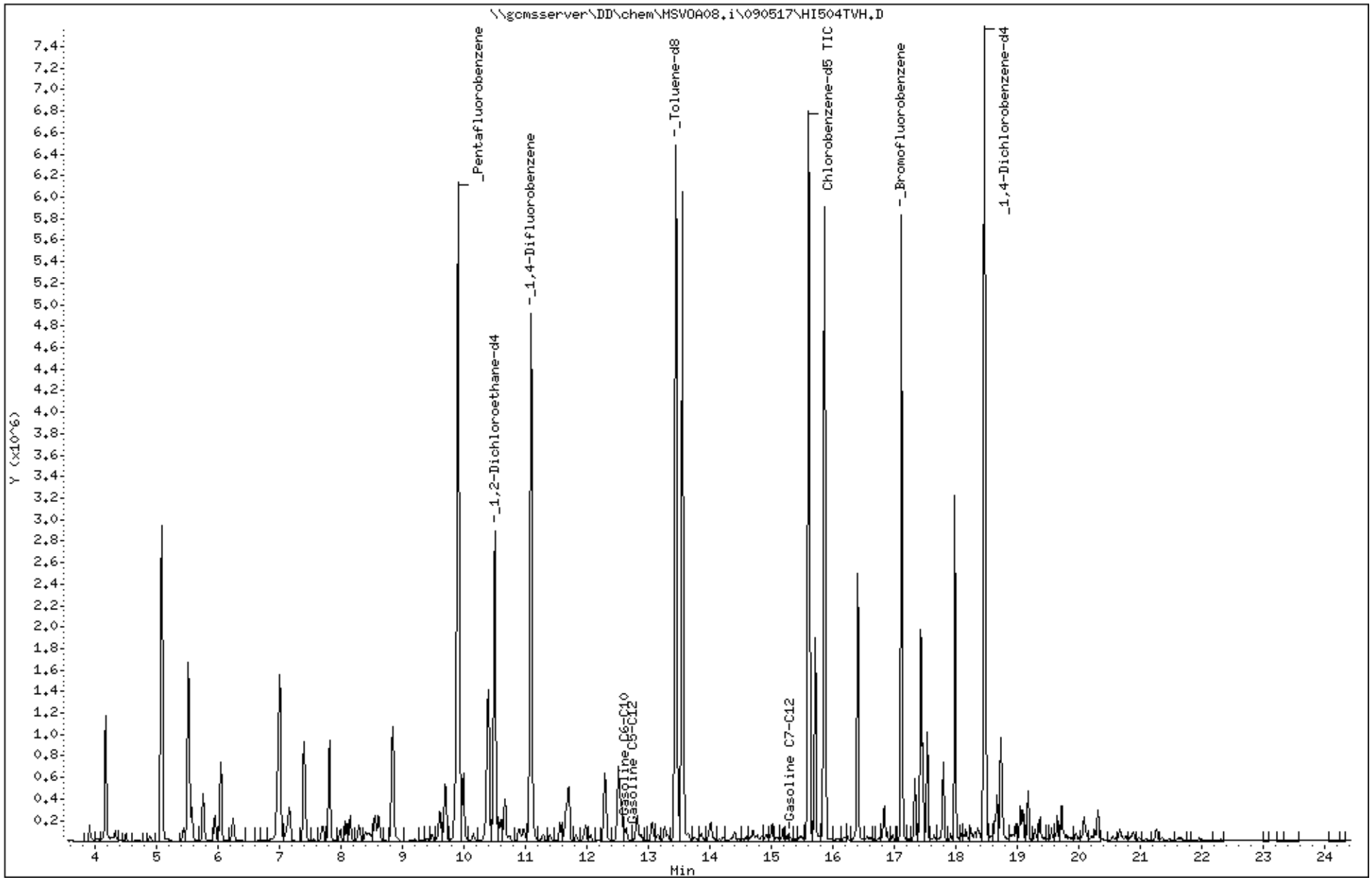
Instrument: MSVOA08.i

Sample Info: CCV/BS,QC899466,251278,S33918,.008/100

Operator: VOC

Column phase:

Column diameter: 2.00



# Appendix D

Laboratory Report for Waste Profiling and

Non-Hazardous Waste Manifest

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

**Laboratory Job Number 287604**
**ANALYTICAL REPORT**

| | |
|---|---|
| SOMA Environmental Engineering Inc. | Project : 5081 |
| 6620 Owens Dr. | Location : 2844 Mountain Blvd., Oakland |
| Pleasanton, CA 94588 | Level : II |

| Sample ID | Lab ID |
|---|---|
| COMP-1 | 287604-001 |

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: Tracy Babjar Date: 04/11/2017

Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226 Ext 13107

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

# CASE NARRATIVE

| | |
|---|---|
| Laboratory number: | **287604** |
| Client: | **SOMA Environmental Engineering Inc.** |
| Project: | **5081** |
| Location: | **2844 Mountain Blvd., Oakland** |
| Request Date: | **04/03/17** |
| Samples Received: | **04/03/17** |

This data package contains sample and QC results for one carbon sample, requested for the above referenced project on 04/03/17. 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):**
Low surrogate recovery was observed for trifluorotoluene in COMP-1 (lab # 287604-001). No other analytical problems were encountered.

**Metals (EPA 6010B):**
No analytical problems were encountered.

# CHAIN OF CUSTODY



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

LOGIN # 287604

**Sampler: Davoud Bazrpash**

**Project No: 5081**

**Report To: Joyce Bobek**

**Project Name: 2844 Mountain Blvd., Oakland**

**Company :** SOMA Environmental

**Turnaround Time: Standard**

**Telephone:** 925-734-6400

**Fax:** 925-734-6401

| Lab No. | Sample ID. | Sampling Date Time | Matrix: Soil | Water | Waste | Miscellar | # of Containers | Preservative: HCL | $H_2SO_4$ | $HNO_3$ | ICE | | Analyses: TPH-g and TPH-d EPA 8015 | BTEX, MtBE 8260B | Lead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | COMP-1 | 4/3/17 9:55 | | | | * | 2 - 8OZ jars | | | | * | | * | * | * |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

**Notes:** **EDF OUTPUT REQUIRED**
**Miscellaneous- Granular Activated Carbon**

| RELINQUISHED BY: | RECEIVED BY: |
|---|---|
| 4/3/17 10:30 DATE/TIME | 4/3/17 10:30 DATE/TIME |
| DATE/TIME | DATE/TIME |
| DATE/TIME | DATE/TIME |

# COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 287604 Date Received 4/3/17 Number of coolers 0
Client SOMA ENV. Project 2844 MOUNTAIN BLVD. OAKLAND

Date Opened 4/3/17 By (print) KPC (sign) KPC
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labeled ↓ By (print) ↓ (sign) ↓

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

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

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

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

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

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☐ IR Gun# _____

☐ Samples received on ice directly from the field. Cooling process had begun

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

COMMENTS

_____

_____

_____

_____

_____

_____

Curtis & Tompkins, Ltd.

# Detections Summary for 287604

Results for any subcontracted analyses are not included in this summary.

Client : SOMA Environmental Engineering Inc.
Project : 5081
Location : 2844 Mountain Blvd., Oakland

Client Sample ID : COMP-1 Laboratory Sample ID : 287604-001

| Analyte | Result | Flags | RL | Units | Basis | IDF | Method | Prep Method |
|---|---|---|---|---|---|---|---|---|
| Diesel C10-C24 | 1,700 | Y | 50 | mg/Kg | As Recd | 1.000 | EPA 8015B | EPA 3540 |
| MTBE | 12,000 | | 500 | ug/Kg | As Recd | 100.0 | EPA 8260B | EPA 5030B |

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

# Total Volatile Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Field ID: | COMP-1 | Batch#: | 246224 |
| Units: | mg/Kg | Sampled: | 04/03/17 |
| Basis: | as received | Received: | 04/03/17 |
| Diln Fac: | 1.000 | Analyzed: | 04/03/17 |

Type: SAMPLE Matrix: Miscell.
Lab ID: 287604-001

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 0.93 |

| Surrogate | %REC | Limits |
|---|---|---|
| Bromofluorobenzene (FID) | 84 | 70-138 |

Type: BLANK Matrix: Soil
Lab ID: QC879747

| Analyte | Result | RL |
|---|---|---|
| Gasoline C7-C12 | ND | 1.0 |

| Surrogate | %REC | Limits |
|---|---|---|
| Bromofluorobenzene (FID) | 101 | 70-138 |

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

## Total Volatile Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Type: | LCS | Diln Fac: | 1.000 |
| Lab ID: | QC879744 | Batch#: | 246224 |
| Matrix: | Soil | Analyzed: | 04/03/17 |
| Units: | mg/Kg | | |

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| Gasoline C7-C12 | 1.000 | 1.002 | 100 | 80-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Bromofluorobenzene (FID) | 103 | 70-138 |

Curtis & Tompkins, Ltd.

Batch QC Report

## Total Volatile Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Field ID: | ZZZZZZZZZZ | Diln Fac: | 1.000 |
| MSS Lab ID: | 287591-001 | Batch#: | 246224 |
| Matrix: | Soil | Sampled: | 03/28/17 |
| Units: | mg/Kg | Received: | 03/31/17 |
| Basis: | as received | | |

Type: MS Analyzed: 04/03/17
Lab ID: QC879745

| Analyte | MSS Result | Spiked | Result | %REC | Limits |
|---|---|---|---|---|---|
| Gasoline C7-C12 | 0.1051 | 10.31 | 7.914 | 76 | 49-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| Bromofluorobenzene (FID) | 100 | 70-138 |

Type: MSD Analyzed: 04/04/17
Lab ID: QC879746

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| Gasoline C7-C12 | 9.901 | 7.927 | 79 | 49-120 | 4 | 32 |

| Surrogate | %REC | Limits |
|---|---|---|
| Bromofluorobenzene (FID) | 103 | 70-138 |

RPD= Relative Percent Difference

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# Total Extractable Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3540 |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Field ID: | COMP-1 | Batch#: | 246337 |
| Matrix: | Miscell. | Sampled: | 04/03/17 |
| Units: | mg/Kg | Received: | 04/03/17 |
| Basis: | as received | Prepared: | 04/05/17 |
| Diln Fac: | 1.000 | Analyzed: | 04/06/17 |

Type: SAMPLE Lab ID: 287604-001

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | 1,700 Y | 50 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 100 | 58-136 |

Type: BLANK Lab ID: QC880204

| Analyte | Result | RL |
|---|---|---|
| Diesel C10-C24 | ND | 25 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 93 | 58-136 |

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

## Total Extractable Hydrocarbons

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3540 |
| Project#: | 5081 | Analysis: | EPA 8015B |
| Matrix: | Miscell. | Batch#: | 246337 |
| Units: | mg/Kg | Prepared: | 04/05/17 |
| Diln Fac: | 1.000 | Analyzed: | 04/06/17 |

Type: BS Lab ID: QC880205

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| Diesel C10-C24 | 1,250 | 1,128 | 90 | 56-135 |

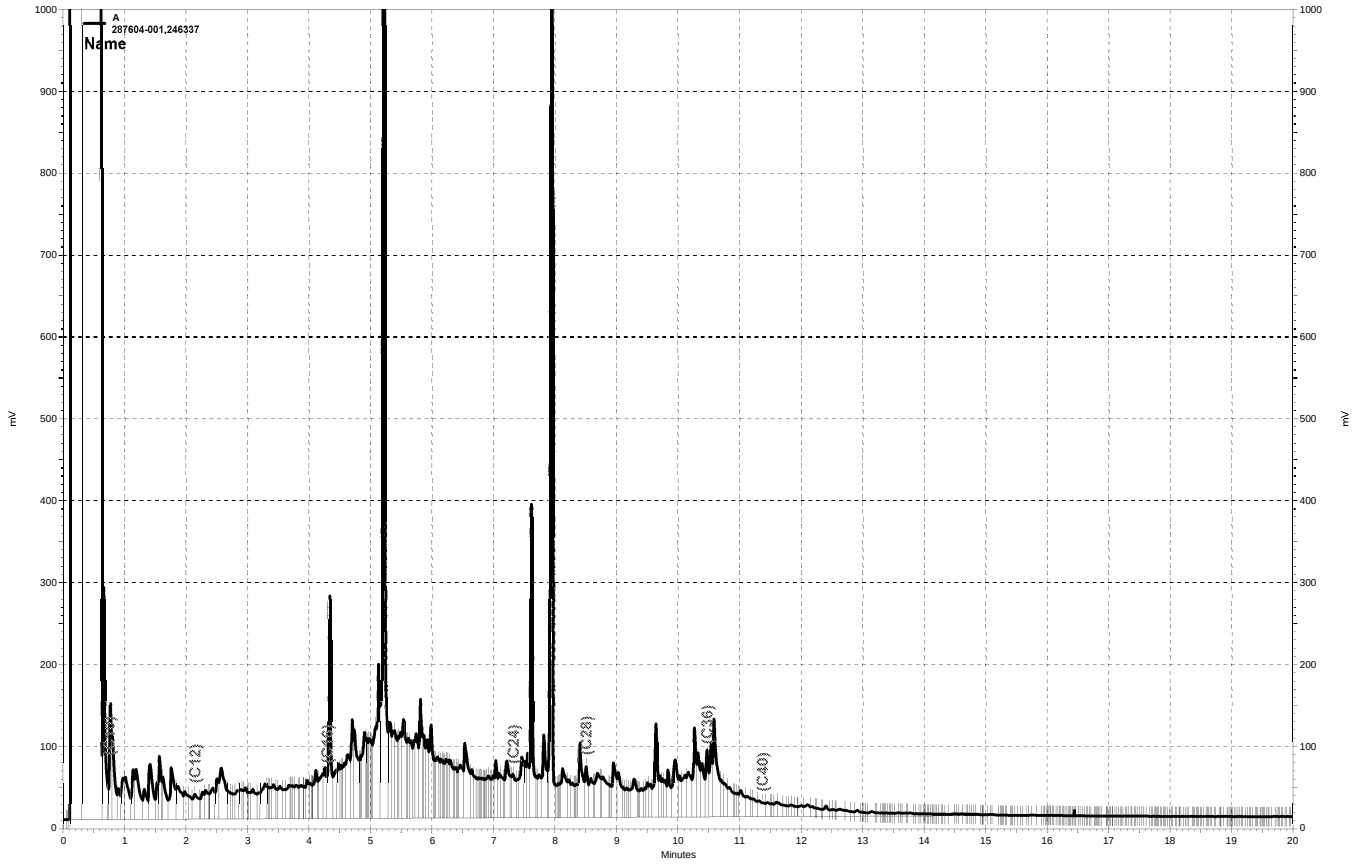
| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 102 | 58-136 |

Type: BSD Lab ID: QC880206

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| Diesel C10-C24 | 1,250 | 1,041 | 83 | 56-135 | 8 | 20 |

| Surrogate | %REC | Limits |
|---|---|---|
| o-Terphenyl | 96 | 58-136 |

RPD= Relative Percent Difference

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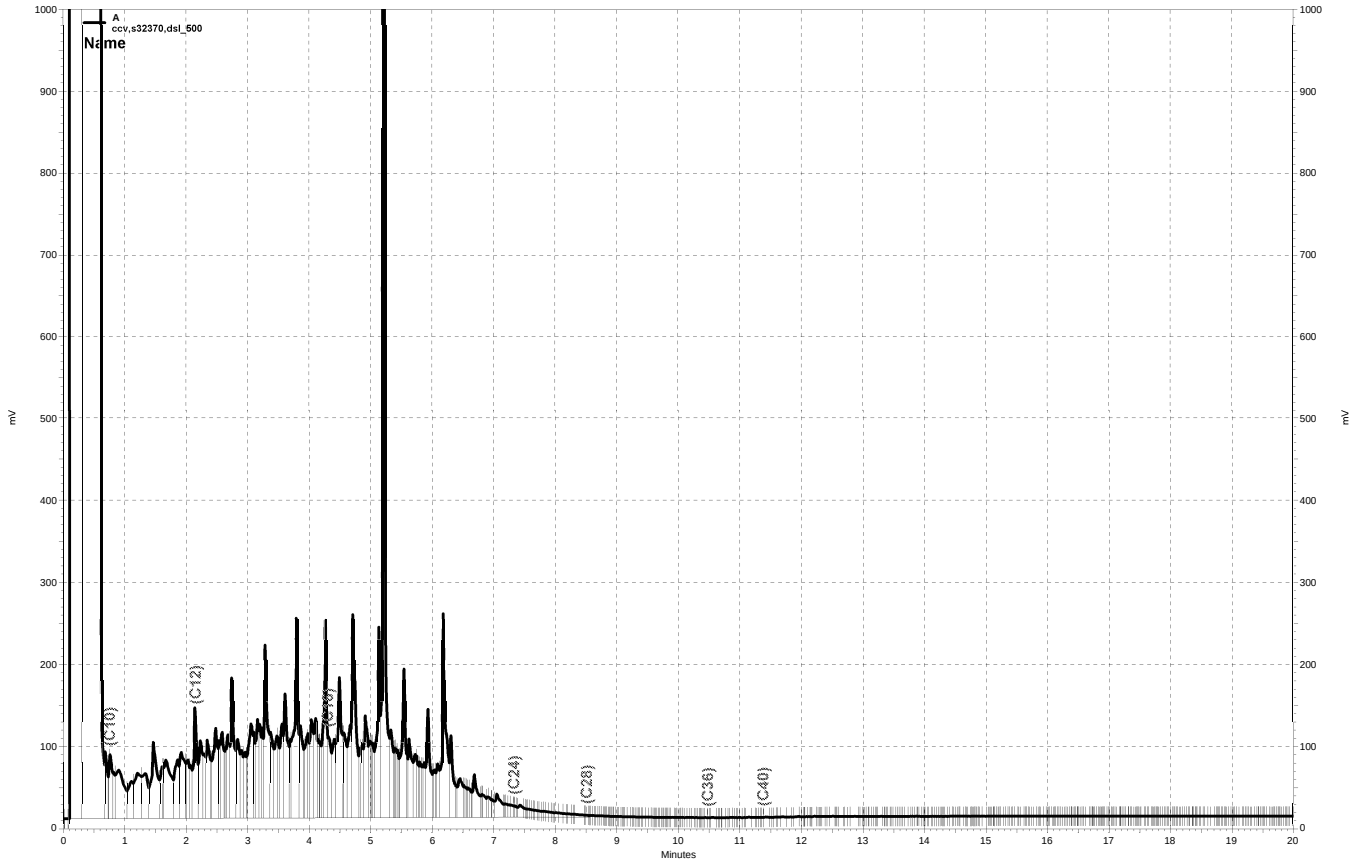


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Curtis & Tompkins, Ltd.

# Purgeable Aromatics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | COMP-1 | Diln Fac: | 100.0 |
| Lab ID: | 287604-001 | Batch#: | 246265 |
| Matrix: | Miscell. | Sampled: | 04/03/17 |
| Units: | ug/Kg | Received: | 04/03/17 |
| Basis: | as received | Analyzed: | 04/04/17 |

| Analyte | Result | RL |
|---|---|---|
| MTBE | 12,000 | 500 |
| Benzene | ND | 500 |
| Toluene | ND | 500 |
| Ethylbenzene | ND | 500 |
| m,p-Xylenes | ND | 500 |
| o-Xylene | ND | 500 |

| Surrogate | %REC | Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 85 | 80-136 |
| Toluene-d8 | 99 | 80-120 |
| Bromofluorobenzene | 98 | 80-132 |
| Trifluorotoluene (MeOH) | 33 * | 56-129 |

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

Curtis & Tompkins, Ltd.

Batch QC Report

## Purgeable Aromatics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5035 |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Field ID: | ZZZZZZZZZZ | Batch#: | 246265 |
| MSS Lab ID: | 287630-007 | Sampled: | 04/03/17 |
| Matrix: | Soil | Received: | 04/03/17 |
| Units: | ug/Kg | Analyzed: | 04/04/17 |
| Basis: | as received | | |

Type: MS Diln Fac: 0.7899
Lab ID: QC879910

| Analyte | MSS Result | Spiked | Result | %REC | Limits |
|---|---|---|---|---|---|
| MTBE | <0.3607 | 39.49 | 33.26 | 84 | 67-124 |
| Benzene | <0.5197 | 39.49 | 38.51 | 98 | 68-123 |
| Toluene | <0.5693 | 39.49 | 38.01 | 96 | 64-120 |
| Ethylbenzene | <0.5317 | 39.49 | 37.77 | 96 | 60-120 |
| m,p-Xylenes | <1.028 | 78.99 | 77.33 | 98 | 57-120 |
| o-Xylene | <0.4436 | 39.49 | 36.77 | 93 | 57-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 83 | 80-136 |
| Toluene-d8 | 98 | 80-120 |
| Bromofluorobenzene | 91 | 80-132 |

Type: MSD Diln Fac: 0.7728
Lab ID: QC879911

| Analyte | Spiked | Result | %REC | Limits | RPD | Lim |
|---|---|---|---|---|---|---|
| MTBE | 38.64 | 36.43 | 94 | 67-124 | 11 | 29 |
| Benzene | 38.64 | 41.82 | 108 | 68-123 | 10 | 30 |
| Toluene | 38.64 | 41.61 | 108 | 64-120 | 11 | 31 |
| Ethylbenzene | 38.64 | 41.30 | 107 | 60-120 | 11 | 39 |
| m,p-Xylenes | 77.28 | 84.86 | 110 | 57-120 | 11 | 37 |
| o-Xylene | 38.64 | 40.06 | 104 | 57-120 | 11 | 36 |

| Surrogate | %REC | Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 84 | 80-136 |
| Toluene-d8 | 99 | 80-120 |
| Bromofluorobenzene | 92 | 80-132 |

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

## Purgeable Aromatics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Type: | BLANK | Diln Fac: | 1.000 |
| Lab ID: | QC879912 | Batch#: | 246265 |
| Matrix: | Soil | Analyzed: | 04/04/17 |
| Units: | ug/Kg | | |

| Analyte | Result | RL |
|---|---|---|
| MTBE | ND | 5.0 |
| Benzene | ND | 5.0 |
| Toluene | ND | 5.0 |
| Ethylbenzene | ND | 5.0 |
| m,p-Xylenes | ND | 5.0 |
| o-Xylene | ND | 5.0 |

| Surrogate | %REC | Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 84 | 80-136 |
| Toluene-d8 | 99 | 80-120 |
| Bromofluorobenzene | 95 | 80-132 |

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

## Purgeable Aromatics by GC/MS

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 5030B |
| Project#: | 5081 | Analysis: | EPA 8260B |
| Type: | LCS | Diln Fac: | 1.000 |
| Lab ID: | QC879972 | Batch#: | 246265 |
| Matrix: | Soil | Analyzed: | 04/04/17 |
| Units: | ug/Kg | | |

| Analyte | Spiked | Result | %REC | Limits |
|---|---|---|---|---|
| MTBE | 25.00 | 23.48 | 94 | 68-123 |
| Benzene | 25.00 | 25.89 | 104 | 75-124 |
| Toluene | 25.00 | 26.15 | 105 | 77-120 |
| Ethylbenzene | 25.00 | 25.68 | 103 | 78-120 |
| m,p-Xylenes | 50.00 | 52.93 | 106 | 77-123 |
| o-Xylene | 25.00 | 25.17 | 101 | 75-120 |

| Surrogate | %REC | Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 | 83 | 80-136 |
| Toluene-d8 | 100 | 80-120 |
| Bromofluorobenzene | 94 | 80-132 |

Curtis & Tompkins, Ltd.

# Lead

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3050B |
| Project#: | 5081 | Analysis: | EPA 6010B |
| Analyte: | Lead | Batch#: | 246334 |
| Field ID: | COMP-1 | Sampled: | 04/03/17 |
| Units: | mg/Kg | Received: | 04/03/17 |
| Basis: | as received | Prepared: | 04/05/17 |
| Diln Fac: | 1.000 | Analyzed: | 04/05/17 |

| Type | Lab ID | Matrix | Result | RL |
|---|---|---|---|---|
| SAMPLE | 287604-001 | Miscell. | ND | 0.52 |
| BLANK | QC880192 | Soil | ND | 0.52 |

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

## Lead

| | | | |
|---|---|---|---|
| Lab #: | 287604 | Location: | 2844 Mountain Blvd., Oakland |
| Client: | SOMA Environmental Engineering Inc. | Prep: | EPA 3050B |
| Project#: | 5081 | Analysis: | EPA 6010B |
| Analyte: | Lead | Diln Fac: | 1.000 |
| Field ID: | ZZZZZZZZZZ | Batch#: | 246334 |
| MSS Lab ID: | 287630-007 | Sampled: | 04/03/17 |
| Matrix: | Soil | Received: | 04/03/17 |
| Units: | mg/Kg | Prepared: | 04/05/17 |
| Basis: | as received | | |

| Type | Lab ID | MSS Result | Spiked | Result | %REC | Limits | RPD | Lim | Analyzed |
|---|---|---|---|---|---|---|---|---|---|
| BS | QC880193 | | 49.50 | 51.48 | 104 | 80-120 | | | 04/05/17 |
| BSD | QC880194 | | 50.51 | 51.15 | 101 | 80-120 | 3 | 20 | 04/05/17 |
| MS | QC880195 | 4.013 | 46.73 | 44.35 | 86 | 50-131 | | | 04/06/17 |
| MSD | QC880196 | | 51.02 | 48.80 | 88 | 50-131 | 1 | 48 | 04/05/17 |

RPD= Relative Percent Difference

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No.

Manifest Document No.

2. Page 1 of 1

3. Generator's Name and Mailing Address: Desert Petroleum, 2544 Mountain Blvd, Oakland CA.

SCHA

4. Generator's Phone ( )

5. Transporter 1 Company Name: InStrat Inc

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone (707) 374-3834

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address

INSTRAT, INC.
1105 C AIRPORT RD.
RIO VISTA, CA 94571

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone (707) 374-3834

| 11. WASTE DESCRIPTION | 12. Containers No. | 12. Containers Type | 13. Total Quantity | 14. Unit Wt./Vol. |
|---|---|---|---|---|
| a. NON-HAZ PURGE WATER | 2 | Drum | 110 | Gal |
| b. Spent Carbon | 3 | Drum | 1,500 | lbs. |
| c. | | | | |
| d. | | | | |

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

**16. GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date: Month / Day / Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Jason Mabie | Signature | Date: Month 5 / Day 3 / Year 17

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month / Day / Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

InStrat Inc

Printed/Typed Name: Ruben Gonzalez | Signature | Date: Month 5 / Day 3 / Year 17

NON-HAZARDOUS WASTE