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**ANNUAL GROUNDWATER MONITORING REPORT**

**Sixth Sampling Event, December 2014**

**For the Site Located at:**

**2145 35TH Avenue**

**Oakland, California 94601**

**Prepared for:**

**Salisbury Avenue Associates LLC**

**PO Box 27428**

**Oakland CA 94602-0925**

**Prepared by:**

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**December 12, 2014**

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## 1.0 Introduction

This annual groundwater monitoring report is for the former gasoline service station located at 2145 35<sup>th</sup> Avenue, Oakland, California (Figure 1). This is the sixth sampling event since the four monitoring wells were installed in July 2012. For background information about the subject site and an update of the activities performed through 2013, review the November 2013 submitted report on the offsite subsurface investigation titled “Soil and Groundwater Investigation” and the updated conceptual site model.

In the fourth, fifth and sixth monitoring events, the following was implemented:

- Eliminated the full suite analysis of Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method 8270sim due to the fact that only Naphthalene was detected. The remaining PAHs were non-detected in past analysis. Resumed the analysis of Naphthalene by using EPA Method 8260B.
- Lead was not detected in any of the wells. Maximum Nickel concentration to date was detected below the drinking water MCL of 100 µg/l. Nickel was detected in the initial three sampling events at 6.6 µg/l, 9.7 µg/l, and 8.7 µg/l, in Monitoring well MW-4. No other contaminant was detected in monitoring well MW-4. It appears that Nickel at this site is not related to the fuel leak and may be naturally occurring. Therefore, we discontinued the analysis for metals in the monitoring wells at this site.

## 2.0 Groundwater Sampling Activities

The wells were purged and sampled on December 04, 2014. EEC Engineer, Sami Malaeb, performed the well purging and sampling. The well sampling logs are presented in Appendix A. The depth to water in the wells was measured and recorded after removing the well caps and letting the wells stabilize for approximately 15 minutes. Subsequently, each well was purged of at least three casing volumes and until conductivity, temperature, and pH stabilized. The well purge water was transferred to a 55-gallon, DOT-approved, steel drum. The drum was temporarily stored onsite pending transport and disposal to a licensed facility.

After purging the wells, groundwater samples were collected by using disposable bailers. The water samples were discharged directly into laboratory cleaned 40-millileter volatile organic analysis (VOA) vials with HCL preservative to prevent loss of any volatile constituents. The vials were filled slowly and in such a manner that the meniscus extended above the top of the VOA vial. After the vials were filled and capped, they were inverted to ensure there is no headspace or entrapped air bubbles. The groundwater VOAs were labeled and placed in a cooler chilled to approximately 4°C. Equipment wash and rinse water were transferred to a 55-gallon storage

drum. The drum was sealed with a steel lid and labeled. All containers, VOAs and amber jars were obtained from the laboratory and filled with water from the bailer for the analyses.

The water samples were placed on ice, in an ice cooler, accompanied by a completed chain of custody. The samples were sent to Curtis & Tompkins Laboratory in Berkeley and analyzed for the following:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA Method 8015B;
- Total Petroleum Hydrocarbons as Stoddard Solvent (TPHss) by EPA Method 8015B;
- Total Petroleum Hydrocarbons as Diesel (TPH-D) by EPA Method 8015B;
- Total Recoverable Petroleum Hydrocarbons (TRPH) as Motor Oil and Hydraulic Oil , EPA Method 8015;
- Volatile Organics by the GC/MS EPA Method 8260B, MTBE, BTEX, and Naphthalene (no other chlorinated organic compounds were considered for analysis because all previous results from sampling the boreholes did not detect chlorinated solvents).

### **3.0 Groundwater Elevations and Flow Direction**

The groundwater flow direction and gradient were calculated based on the depth to groundwater from top of casing in each well and the surveyed top of casing elevations. The well data are presented in the attached Table 1. The calculated groundwater flow direction was to the south/southeast at a gradient of 1.60% (Figure 2).

### **4.0 Groundwater Samples Laboratory Results**

The laboratory report is included in Appendix B. Tables 2 through 4 summarize the analytical results. Laboratory analyses of groundwater samples collected from the monitoring wells indicated the following:

- Floating product or sheen was not observed in any of the wells.
- Similar to the previous sampling events, all the analyzed petroleum hydrocarbons were either non-detected or non-significant in monitoring wells MW-1, MW-3, and MW-4 (Table 2).
- Consistent with the previous sampling events, the most petroleum hydrocarbon impact was detected in monitoring well MW-2, downgradient from the former sources onsite; USTs, piping, and fuel dispenser (Table 2).
- Only TPH-G at concentration of 54 µg/l was detected in MW-3. No other contaminants were detected in MW-3 (Table 2).

- Benzene and Naphthalene were detected only in MW-2. Benzene was detected at 53 µg/l and Naphthalene was detected at 30 µg/l (Table 2).
- None of the analyzed contaminants in the groundwater at this site exceeded its limit for Groundwater Screening Levels, Low-Threat Underground Storage Tank Case Closure Policy, Appendix 3, Figure A.

## 5.0 Waste Management

A total of one (1) purge water drum was generated from the purging and sampling activities onsite. The drum is stored onsite pending profiling and disposal.

## 6.0 Conclusions and Recommendations

Based on the analytical findings EEC presents the following conclusions and recommendations:

### Conclusions

- It appears that the petroleum hydrocarbon plume is stable and limited to the area downgradient from the sources onsite, and within ~100 feet. BTEX, MTBE, and Naphthalene were not detected in Monitoring Wells MW-1, MW-3, and MW-4 in this sampling event and prior two sampling events.

### Recommendations

- Since the monitoring wells at this site have been sampled for six events to date and the analytical data indicate stable and limited plume, EEC recommends no further groundwater sampling at this site.

Thank you for your cooperation. If you have any questions, please call at (925) 858-9608 or email Sami Malaeb at [s.malaeb@comcast.net](mailto:s.malaeb@comcast.net).

All engineering information, conclusions, and recommendations contained in this report have been prepared by a California Professional Engineer.



Sami Malaeb, P.E., QSP/QSD  
Project Manager

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

A handwritten signature in black ink, appearing to read 'Peter Robertson', is written in a cursive style.

Salisbury Avenue Associates LLC  
Peter Robertson  
Property Owner

# TABLES

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<i>TABLE 1</i>	WELL DATA AND GROUNDWATER ELEVATIONS
<i>TABLE 2</i>	SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES COLLECTED FROM THE MONITORING WELLS –PETROLEUM HYDROCARBONS-BTEX AND MTBE
<i>TABLE 3</i>	SUMMARY OF CHEMICAL ANALYSES OF GROUNDWATER SAMPLES COLLECTED FROM THE MONITORING WELLS –POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)
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TABLE 1  
WELL DATA AND GROUNDWATER ELEVATIONS  
2145 35<sup>th</sup> Avenue  
Oakland, California

DATE	WELL INFORMATION	MW-1	MW-2	MW-3	MW-4
07/18/2012	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	10.13	10.92	11.01	10.85
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	84.08	83.51	83.60	84.06
12/06/2012	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	7.98	10.40	10.40	9.25
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	86.23	84.03	84.21	85.66
03/21/2013	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	9.88	10.77	10.83	10.66
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	84.33	83.66	83.78	84.25
06/21/2013	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	10.09	10.87	10.95	10.84
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	84.12	83.56	83.66	84.07
12/10/2013	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	9.84	10.70	10.79	10.64
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	84.37	83.73	83.82	84.27
12/04/2014	Casing Diameter (in)	2	4	4	2
	Total Well Depth (ft)	18	16	18	18
	Depth to Water (ft)	8.11	9.82	9.98	9.40
	Top of Casing Elevation	94.21	94.43	94.61	94.91
	Top of Water Elevation	86.10	84.61	84.63	85.51



**TABLE 2**  
**SUMMARY OF CHEMICAL ANALYSES**  
**GROUNWATER SAMPLES COLLECTED FROM THE MONITORING WELLS**  
**PETROLEUM HYDROCARBONS, BTEX, and MTBE**  
**2145 35<sup>th</sup> Avenue, Oakland, California**

Sample ID	Date Sampled	TPH-G <sup>(1)</sup> (µg/l) <sup>(2)</sup>	TPH-ss <sup>(3)</sup> (µg/l)	TPH-D <sup>(4)</sup> (µg/l)	TPH as Motor Oil (µg/l)	TPH as Hydraulic Oil (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl benzene (µg/l)	Total Xylenes (µg/l)	MTBE <sup>(5)</sup> (µg/l)	Naphthalene (µg/l)
MW-1	07/09/2012	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/06/2012	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	03/21/2013	<50	<50	<49	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	06/21/2013	<50	<50	100 (Y) <sup>(6)</sup>	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/10/2013	<50	<50	<49	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/04/2014	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
MW-2	07/09/2012	3,800	3,900 (Y)	1,200 (Y)	<300	660 (Y)	82	42	350	189.4	<0.5	44
	12/06/2012	5,000	3,300 (Y)	2,300	<300	1,500 (Y)	92	42	460	179.6	<0.5	62
	03/21/2013	4,500	3,000	1,800 Y	<290	1,000(Y)	77	31	230	115.4	<1.7	25
	06/21/2013	4,300	2,900	1,700 (Y)	<290	1,100 (Y)	50	24	210	96	<1.7	21
	12/10/2013	3,300	2,300 (Y)	1,500 (Y)	<290	710 (Y)	40	21	140	63	<1.7	6.7
	12/04/2014	4,600	3,200 (Y)	3,900	<300	1,300 (Y)	53	24	200	75.2	<1.7	30
MW-3	07/09/2012	85Y	86Y	180 (Y)	<300	<300	0.8	<0.5	<0.5	<1.0	<0.5	<2.0
	12/06/2012	1,200	800Y	2,000	<300	1,600 (Y)	36	0.8	9.2	1.1	<0.5	120
	03/21/2013	130 (Y)	91Y	140 (Y)	<290	<290	1.8	<0.5	<0.5	<1.0	<0.5	<2.0
	06/21/2013	<50	<50	210 (Y)	<290	340 (Y)	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/10/2013	<50	<50	54 (Y)	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/04/2014	54 (Y)	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
MW-4	07/09/2012	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/06/2012	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	03/21/2013	<50	<50	<49	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	06/21/2013	<50	<50	76 (Y)	<290	<290	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/10/2013	<50	<50	<51	<310	<310	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
	12/04/2014	<50	<50	<50	<300	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<2.0
Groundwater Screening Levels, Low-Threat Underground Storage Tank Case Closure Policy, Appendix 3, Figure A <sup>(7)</sup>		NA <sup>(7)</sup>	NA	NA	NA	NA	100	NA	NA	NA	NA	NA

TPH-G<sup>(1)</sup> = Total petroleum hydrocarbons as gasoline by EPA Method 8015B  
(µg/l)<sup>(2)</sup> = Microgram per liter  
TPH-ss<sup>(3)</sup> = Total petroleum hydrocarbons as Stoddard solvent by EPA Method 8015B

TPH-D <sup>(4)</sup> = Total petroleum hydrocarbons as diesel by EPA Method 8015B

MTBE <sup>(5)</sup> = Methyl Tertiary Butyl Ether

(Y) <sup>(6)</sup> = Sample exhibits chromatographic pattern which does not resemble standard;

NA <sup>(7)</sup> = Not Applicable

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TABLE 3  
SUMMARY OF CHEMICAL ANALYSES  
GROUNDWATER SAMPLES COLLECTED FROM THE MONITORING WELLS  
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)  
2145 35<sup>th</sup> Avenue  
Oakland, California

Sample ID	Date Sampled	Naphthalene (µg/l) <sup>(1)</sup>	Acenaphthylene (µg/l)	Acenaphthene (µg/l)	Fluorene (µg/l)	Phenanthrene (µg/l)	Anthracene (µg/l)	Fluoranthene (µg/l)	Pyrene (µg/l)	Benzo (a) Anthracene (µg/l)	Chrysene (µg/l)	Benzo (b) Fluoranthene (µg/l)	Benzo (k) Fluoranthene (µg/l)	Benzo (a) pyrene (µg/l)	Indeno (1,2,3-cd) pyrene (µg/l)	Dibenz (a,h) Anthracene (µg/l)	Benzo (g,h,i) Perylene (µg/l)
MW-1	07/09/2012	<2.0	N/A <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/06/2012	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	03/21/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	06/21/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/10/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12/04/2014	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-2	07/09/2012	44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/06/2012	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	03/21/2013	27	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
	06/21/2013	21	N/A*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/10/2013	6.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/04/2014	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	07/09/2012	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/06/2012	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	03/21/2013	0.6	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
	06/21/2013	<2.0	N/A*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/10/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/04/2014	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-4	07/09/2012	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/06/2012	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	03/21/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	06/21/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/10/2013	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/04/2014	<2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater Screening Levels, non-drinking water resource (Final Groundwater Screening Level) <sup>(3)</sup>		8.2	30	23	3.9	4.6	0.73	8.0	2.0	0.027	0.35	0.056	0.40	0.014	0.056	0.25	0.10

\*Stopped analyzing for full suite PAHs due to the fact only Naphthalene was detected in previous sampling and analysis.

( $\mu\text{g/l}$ ) <sup>(1)</sup> = Microgram per liter

N/A <sup>(2)</sup> = Not applicable or not analyzed for.

<sup>(3)</sup> = Tier 1 Environmental Screening Levels (ESLs), Groundwater Screening Levels, Groundwater is not Current or Potential Source of Drinking Water (Table F-1b), Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Prepared by: California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, California 94612, Interim Final (Revised May 2013).

**Bold** = Concentration presented in bold where such a value is at or exceeds one of the environmental screening levels (ESLs) listed

TABLE 4  
SUMMARY OF CHEMICAL ANALYSES  
GROUNWATER SAMPLES COLLECTED FROM THE MONITORING WELLS  
LUFT FIVE METALS  
2145 35<sup>th</sup> Avenue  
Oakland, California

Sample ID	Date Sampled	Cadmium (Cd) (µg/l) <sup>(1)</sup>	Chromium (Cr) (µg/l)	Lead (Pb) (µg/l)	Nickel (Ni) (µg/l)	Zinc (Zn) (µg/l)
MW-1	07/09/2012	<5.0	<5.0	<5.0	<5.0	<20
	12/06/2012	<5.0	<5.0	<5.0	7.6	<20
	03/21/2013	N/A <sup>(2)</sup>	N/A	<5.0	5.5	NA
	06/21/2013*	N/A	N/A	N/A	N/A	N/A
MW-2	07/09/2012	<5.0	<5.0	<5.0	<5.0	<20
	12/06/2012	<5.0	<5.0	<5.0	<5.0	<20
	03/21/2013	N/A	N/A	<5.0	<5.0	NA
	06/21/2013*	N/A	N/A	N/A	N/A	N/A
MW-3	07/09/2012	<5.0	<5.0	<5.0	<5.0	<20
	12/06/2012	<5.0	<5.0	<5.0	6.1	<20
	03/21/2013	N/A	N/A	<5.0	5.1	NA
	06/21/2013*	N/A	N/A	N/A	N/A	N/A
MW-4	07/09/2012	<5.0	<5.0	<5.0	6.6	<20
	12/06/2012	<5.0	<5.0	<5.0	9.7	<20
	03/21/2013	N/A	N/A	<5.0	8.7	NA
	06/21/2013*	N/A	N/A	N/A	N/A	N/A
Groundwater Screening Levels, drinking water Toxicity <sup>(3)</sup>		5.0	50	15	100	5,000

\*Stopped analyzing for LUFT 5 metals due to non-detected to non-significant levels in the water.

(µg/l) <sup>(1)</sup> = Microgram per liter

N/A <sup>(2)</sup> = Not applicable or not analyzed for the indicated compound Tier 1 Environmental Screening Levels (ESLs), Groundwater (3)

(3) = Screening Levels, Groundwater is Current or Potential Source of Drinking Water

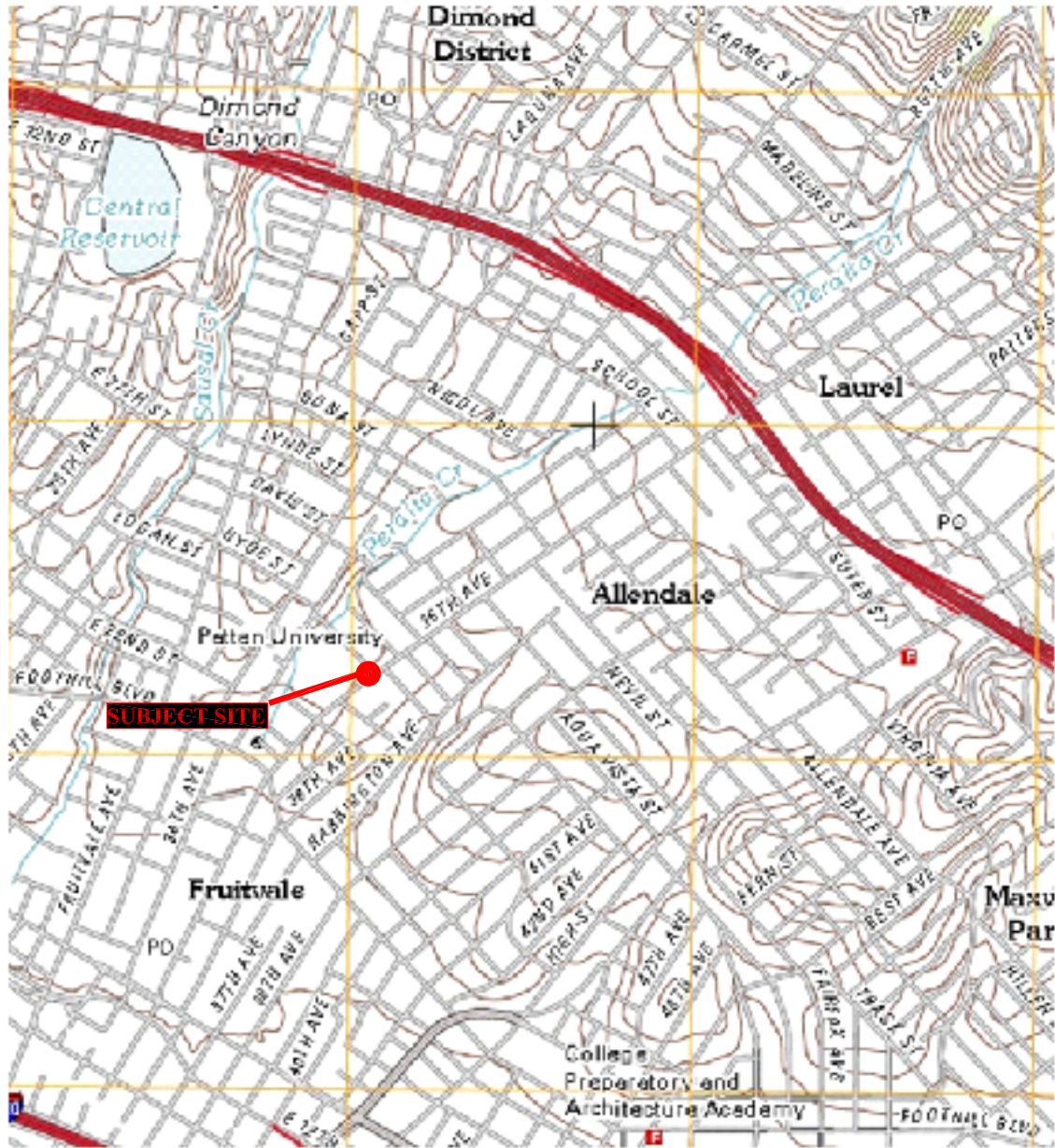
(Table F-3), Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Prepared by: California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, California 94612, Interim Final (Revised May 2013).

# FIGURES

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*FIGURE 1* SITE LOCATION

*FIGURE 2* WELL LOCATIONS AND GROUNDWATER FLOW DIRECTIONS AND GRADIENT



**SUBJECT SITE**

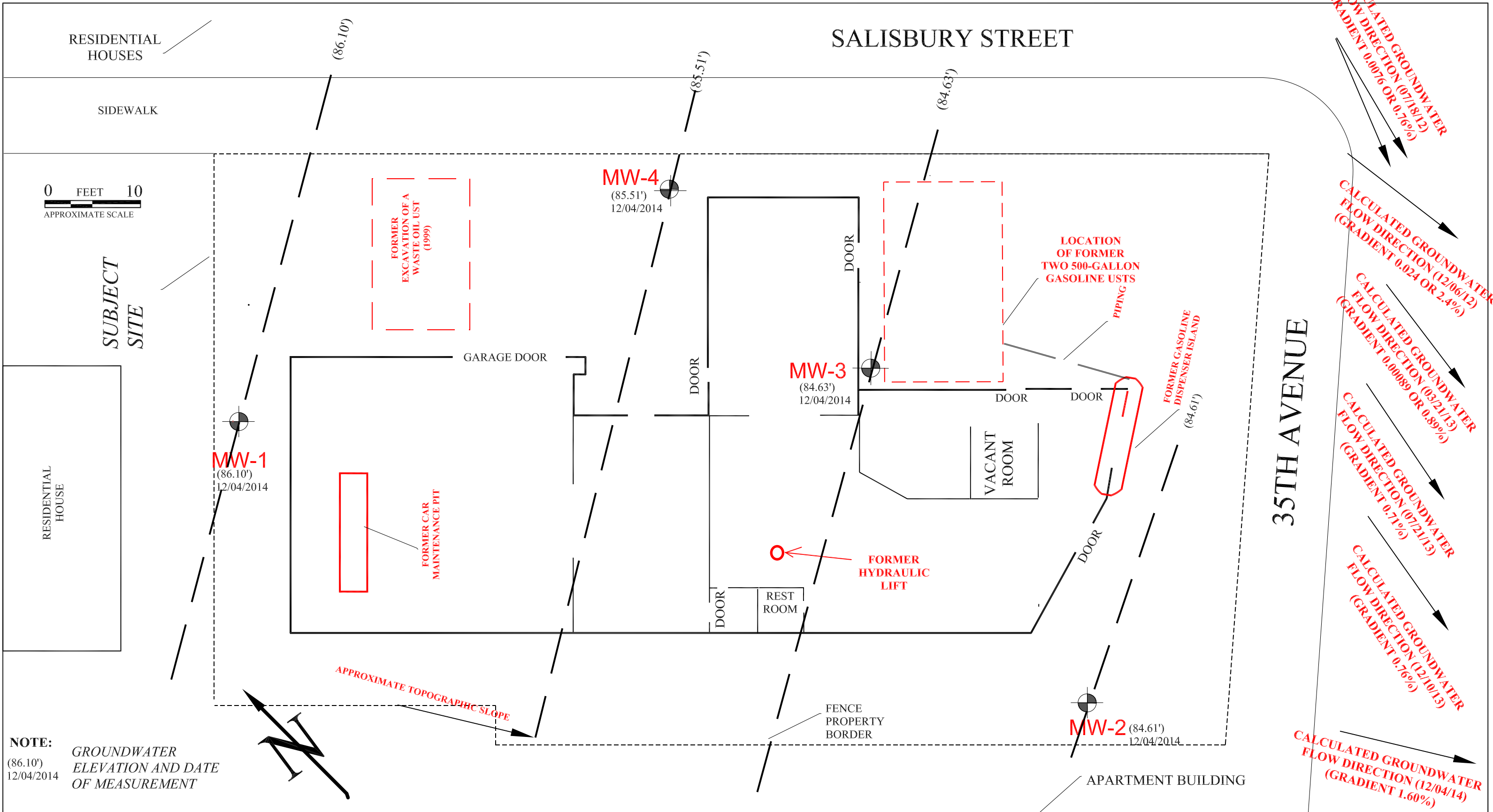
SCALE 1:24 000



1485 BAYSHORE BOULEVARD, SUITE 374  
SAN FRANCISCO, CA 94124

SITE LOCATION  
2145 35TH AVENUE  
OAKLAND, CA 94601

FIGURE 1  
DECEMBER  
2014



1485 BAYSHORE BOULEVARD, SUITE 374  
 SAN FRANCISCO, CA 94124

WELL LOCATIONS AND  
 GROUNDWATER FLOW DIRECTION AND GRADIENT  
 2145 35TH AVENUE, OAKLAND, CALIFORNIA

FIGURE 2  
 DECEMBER 2014



## APPENDIX A WELL PURGING AND SAMPLING LOGS

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## WELL SAMPLING LOG

Project No. : \_\_\_\_\_  
 Project Name: SALISBURY  
 Location: 2145 35th Avenue  
 Oakland, CA 94601

Well ID: MW-1  
 Sampled by: RFC S.M.  
 Date: 12/04/2014

Well Diameter:	<u>2"</u>
Total Well Depth:	<u>17.70'</u>
Depth to Water:	<u>8.11'</u>
Water Column:	<u>9.59'</u>
Calculated Purge:	<u>4.70 galls</u>
Actual Purge:	<u>4.80 g</u>
Free Product:	<u>NO</u>
Product Sheen:	<u>NO</u>

Purge Volume Calculations	
for Three Casing Volume Purge	
Volume Per One Foot of Well:	<u>0.163 Gallons</u>
$\pi r^2 \times 1$	
Volume of One Casing:	<u>1.56</u>
Volume of Three Casings:	<u>4.70 galls</u>

Purge Method: purge and sample  
 Did Well go dry? NO

Sampling Method: From Bailor  
 Sample Time: \_\_\_\_\_

**Post Purge Depth to Water (DTW)**

Time	DTW
<del>10:30 a.m.</del>	
<del>10:37 a.m.</del>	
<u>10:51 a.m.</u>	<u>8.15</u>

**Analyze for:**


Time	Conductivity	Temperature	pH	Salinity	Volume Purged
<u>10:30 a.m.</u>	<u>470</u>	<u>24.7 °C</u>	<u>6.89</u>		<u>1.5 galls</u>
<u>10:37 a.m.</u>	<u>496</u>	<u>21.6 °C</u>	<u>7.12</u>		<u>2.25 galls</u>
<u>10:41 a.m.</u>	<u>500</u>	<u>20.4 °C</u>	<u>7.15</u>		<u>3.0 galls</u>
<u>10:45 a.m.</u>	<u>500</u>	<u>20.0 °C</u>	<u>7.16</u>		<u>4.0 galls</u>
<u>10:49 a.m.</u>	<u>500</u>	<u>20.0 °C</u>	<u>7.22</u>		<u>4.5 galls</u>
<u>500 10:50 a.m.</u>	<u>506</u>	<u>20.0 °C</u>	<u>7.24</u>		<u>4.80 galls</u>

Comments: \_\_\_\_\_

## WELL SAMPLING LOG

Project No. : \_\_\_\_\_  
 Project Name: SALESBURY  
 Location: 2145 35th Avenue  
 Oakland, CA 94601

Well ID: MW-2  
 Sampled by: EFC J.M.  
 Date: 12/04/2014

Well Diameter:	<u>4"</u>
Total Well Depth:	<u>15.4'</u>
Depth to Water:	<u>9.82</u>
Water Column:	<u>5.58'</u>
Calculated Purge:	<u>2.114 10.93</u>
Actual Purge:	<u>11.00 gallons</u>
Free Product:	<u>NO</u>
Product Sheen:	<u>NO</u>

Purge Volume Calculations	
for Three Casing Volume Purge	
Volume Per One Foot of Well:	<u>0.653 gallons</u>
$\pi r^2 \times 1$	
Volume of One Casing:	<u>3.64</u>
Volume of Three Casings:	<u>10.93</u>

Purge Method: Purge and Sample  
 Did Well go dry? NO

Sampling Method: From bailer  
 Sample Time: 2:40 p.m.

**Post Purge Depth to Water (DTW)**

Time	DTW
<u>2:42 p.m.</u>	<u>10.90'</u>

**Analyze for:**


Time	Conductivity <sup>MS</sup>	Temperature	pH	Salinity	Volume Purged
<u>2:04 p.m.</u>	<u>866</u>	<u>20.6°C</u>	<u>6.74</u>		<u>1.9 gallons</u>
<u>2:15 p.m.</u>	<u>882</u>	<u>20.8°C</u>	<u>6.86</u>		<u>5 gallons</u>
<u>2:25 p.m.</u>	<u>865</u>	<u>20.8°C</u>	<u>6.88</u>		<u>7.2 gallons</u>
<u>2:30 p.m.</u>	<u>867</u>	<u>20.8°C</u>	<u>6.91</u>		<u>9.0 gallons</u>
<u>2:35 p.m.</u>	<u>858</u>	<u>20.8°C</u>	<u>6.94</u>		<u>10.0 gallons</u>
<u>2:40 p.m.</u>	<u>858</u>	<u>20.8°C</u>	<u>6.94</u>		<u>11.0 galls</u>
<u>Sample</u>					

Comments: \_\_\_\_\_

# WELL SAMPLING LOG

Project No. : \_\_\_\_\_  
 Project Name: SALISBURY  
 Location: 2145 35th Avenue  
 Oakland, CA 94601

Well ID: MW-3  
 Sampled by: REC S.M.  
 Date: 12/04/2014

Well Diameter:	4"
Total Well Depth:	17.68
Depth to Water:	9.98'
Water Column:	7.70
Calculated Purge:	15.08
Actual Purge:	
Free Product:	No
Product Sheen:	No

Purge Volume Calculations	
for Three Casing Volume Purge	
Volume Per One Foot of Well:	0.653 GALLONS
$\pi r^2 \times 1$	
Volume of One Casing:	5.028
Volume of Three Casings:	15.08

Purge Method: Purge and sample  
 Did Well go dry? \_\_\_\_\_

Sampling Method: from bailer  
 Sample Time: \_\_\_\_\_

**Post Purge Depth to Water (DTW)**

Time	DTW
1:25 pm	10.80'

**Analyze for:**


Time	Conductivity $\mu S$	Temperature	pH	Salinity	Volume Purged
12:31 P.M.	480	21.1°C	6.50		1.99 gal
12:40 P.M.	496	20.6°C	6.56		5 gallons
12:58 P.M.	475	20.3°C	6.56		10.9 gallons
1:07 P.M.	471	20.3°C	6.56		13 gallons
1:15	468	20.4°C	6.55		14.9 gal
1:25 P.M.	465	20.2°C	6.75		15.25 gal
1:40					

Comments: \_\_\_\_\_

# WELL SAMPLING LOG

Project No. : \_\_\_\_\_  
 Project Name: SALISBURY  
 Location: 2145 35th Avenue  
 Oakland, CA 94601

Well ID: MW-4  
 Sampled by: FEC S.M.  
 Date: 12/04/14

Well Diameter:	<u>2"</u>
Total Well Depth:	<u>17.72</u>
Depth to Water:	<u>9.40'</u>
Water Column:	<u>8.32'</u>
Calculated Purge:	<u>4.07</u>
Actual Purge:	<u>4.25</u>
Free Product:	<u>NO</u>
Product Sheen:	<u>NO</u>

Purge Volume Calculations	
for Three Casing Volume Purge	
Volume Per One Foot of Well:	<u>0.163</u>
$\pi r^2 \times 1$	
Volume of One Casing:	<u>1.34 gallons</u>
Volume of Three Casings:	<u>4.07 gallons</u>

Purge Method: Purge and Sample  
 Did Well go dry? NO

Sampling Method: From bailer  
 Sample Time: \_\_\_\_\_

**Post Purge Depth to Water (DTW)**

Time	DTW
<del>11:40 a.m.</del>	
<u>12:12 p.m.</u>	<u>9.50'</u>

**Analyze for:**


Time	Conductivity	Temperature	pH	Salinity	Volume Purged
<u>11:40 a.m.</u>	<u>556</u>	<u>21.1°C</u>	<u>6.87</u>		<u>1.9 gallon</u>
<u>11:44 a.m.</u>	<u>557</u>	<u>21.2°C</u>	<u>6.97</u>		<u>1.5 gallon</u>
<u>11:47 a.m.</u>	<u>558</u>	<u>20.9°C</u>	<u>7.04</u>		<u>2.5 gallon</u>
<u>11:50 a.m.</u>	<u>556</u>	<u>21.0°C</u>	<u>7.05</u>		<u>4.0 gallon</u>
<u>12:00 p.m.</u>	<u>558</u>	<u>21.0°C</u>	<u>7.02</u>		<u>4.25 gallon</u>
<u>Suplex</u>					

Comments: \_\_\_\_\_

## APPENDIX B LABORATORY REPORT

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





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

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

Laboratory Job Number 263016  
ANALYTICAL REPORT

Eagle Env. Construction  
3150 Hilltop Road  
Richmond, CA 94806

Project : SALISBURY PROJECT  
Location : Salisbury Project  
Level : II

<u>Sample ID</u>	<u>Lab ID</u>
MW-1	263016-001
MW-2	263016-002
MW-3	263016-003
MW-4	263016-004

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: \_\_\_\_\_

Isabelle Choy  
Project Manager  
isabelle.choy@ctberk.com

Date: 12/12/2014

CA ELAP# 2896, NELAP# 4044-001



### CASE NARRATIVE

Laboratory number: 263016  
Client: Eagle Env. Construction  
Project: SALISBURY PROJECT  
Location: Salisbury Project  
Request Date: 12/04/14  
Samples Received: 12/04/14

This data package contains sample and QC results for four water samples, requested for the above referenced project on 12/04/14. The samples were received on ice and intact, directly from the field.

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

No analytical problems were encountered.

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

No analytical problems were encountered.

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

No analytical problems were encountered.



# CHAIN OF CUSTODY

Geotracker Global ID: 70619778840



2323 Fifth Street  
Berkeley, CA 94710

Phone (510) 486-0900  
Fax (510) 486-0532

Page 2 of 2  
Chain of Custody # \_\_\_\_\_

C&T LOGIN # 263016

Project No: \_\_\_\_\_ Sampler: EAGLE ENVIRONMENTAL CONSTRUCTION (EFC)  
 Project Name: SALISBURY PROJECT Report To: SAMI MALDER  
 Project P. O. No: 2145 35th Ave, Oakland Company: EAGLE ENVIRONMENTAL CONSTRUCTION (EFC)  
 EDD Format: \_\_\_\_\_ Report Level  II  III  IV Telephone: (921) 858-9828  
 Turnaround Time:  RUSH  Standard Email: S.MALDER@COMCAST.NET

Lab No.	Sample ID.	SAMPLING		MATRIX		# of Containers	CHEMICAL PRESERVATIVE						
		Date Collected	Time Collected	Water	Solid		HCl	H2SO4	HNO3	NaOH	None		
4	MW-4	12/04/14	12:15p	x		3	x						
	MW-4	"	"	x		3	x						
	MW-4	"	"	x		2						x	

ANALYTICAL REQUEST											
x											
	x										
		x									

TPH-G, TPH-SS by 8015  
 BTEX; MTBE; Naphthalene by 2260B  
 TPH-D; TPH-motor oil; TPH-Hydraulic Oil by 8015

Notes: \_\_\_\_\_

**SAMPLE RECEIPT**

Intact  
 Cold  
 On Ice  
 Ambient

**RELINQUISHED BY:**  
Sam Malder 12/4/14  
 DATE: \_\_\_\_\_ TIME: 16:17  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

**RECEIVED BY:**  
Pet Lamy 12/4/14  
 DATE: \_\_\_\_\_ TIME: 16:17  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 263016 Date Received 12/14/14 Number of coolers 1
Client Eagle Environmental Project Salisbury Project

Date Opened 12/14 By (print) SL (sign) [Signature]
Date Logged in 12/14 By (print) [Signature] (sign) [Signature]

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 X 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)

- X Bubble Wrap X Foam blocks X Bags None
Cloth material Cardboard Styrofoam Paper towels

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

Type of ice used: X Wet Blue/Gel None Temp(°C) 6°

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

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

8. Were Method 5035 sampling containers present? YES (NO)
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are there any missing / extra samples? YES (NO)

11. Are samples in the appropriate containers for indicated tests? YES NO

12. Are sample labels present, in good condition and complete? YES NO

13. Do the sample labels agree with custody papers? YES NO

14. Was sufficient amount of sample sent for tests requested? YES NO

15. Are the samples appropriately preserved? YES NO N/A

16. Did you check preservatives for all bottles for each sample? YES NO N/A

17. Did you document your preservative check? YES NO N/A

18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A

19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A

20. Are bubbles > 6mm absent in VOA samples? YES NO N/A

21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Blank lines for handwritten comments.

## Detections Summary for 263016

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

 Client : Eagle Env. Construction  
 Project : SALISBURY PROJECT  
 Location : Salisbury Project

Client Sample ID : MW-1                      Laboratory Sample ID :                      263016-001

No Detections

Client Sample ID : MW-2                      Laboratory Sample ID :                      263016-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	4,600		50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Stoddard Solvent C7-C12	3,200	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Diesel C10-C24	3,900		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Hydraulic Fluid, C12-40	1,300	Y	300	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Benzene	53		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
Toluene	24		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
Ethylbenzene	200		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
m,p-Xylenes	70		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
o-Xylene	5.2		1.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B
Naphthalene	30		6.7	ug/L	As Recd	3.333	EPA 8260B	EPA 5030B

Client Sample ID : MW-3                      Laboratory Sample ID :                      263016-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	54	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B

Client Sample ID : MW-4                      Laboratory Sample ID :                      263016-004

No Detections

Y = Sample exhibits chromatographic pattern which does not resemble standard





## Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC768458	Batch#:	218149
Matrix:	Water	Analyzed:	12/05/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	973.5	97	80-120

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



**Batch QC Report**

<b>Total Volatile Hydrocarbons</b>			
Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8015B
Field ID:	MW-1	Diln Fac:	1.000
MSS Lab ID:	263016-001	Batch#:	218149
Matrix:	Water	Sampled:	12/04/14
Units:	ug/L	Received:	12/04/14

Type: MS Analyzed: 12/05/14  
 Lab ID: QC768460

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	37.76	2,000	1,944	95	74-120

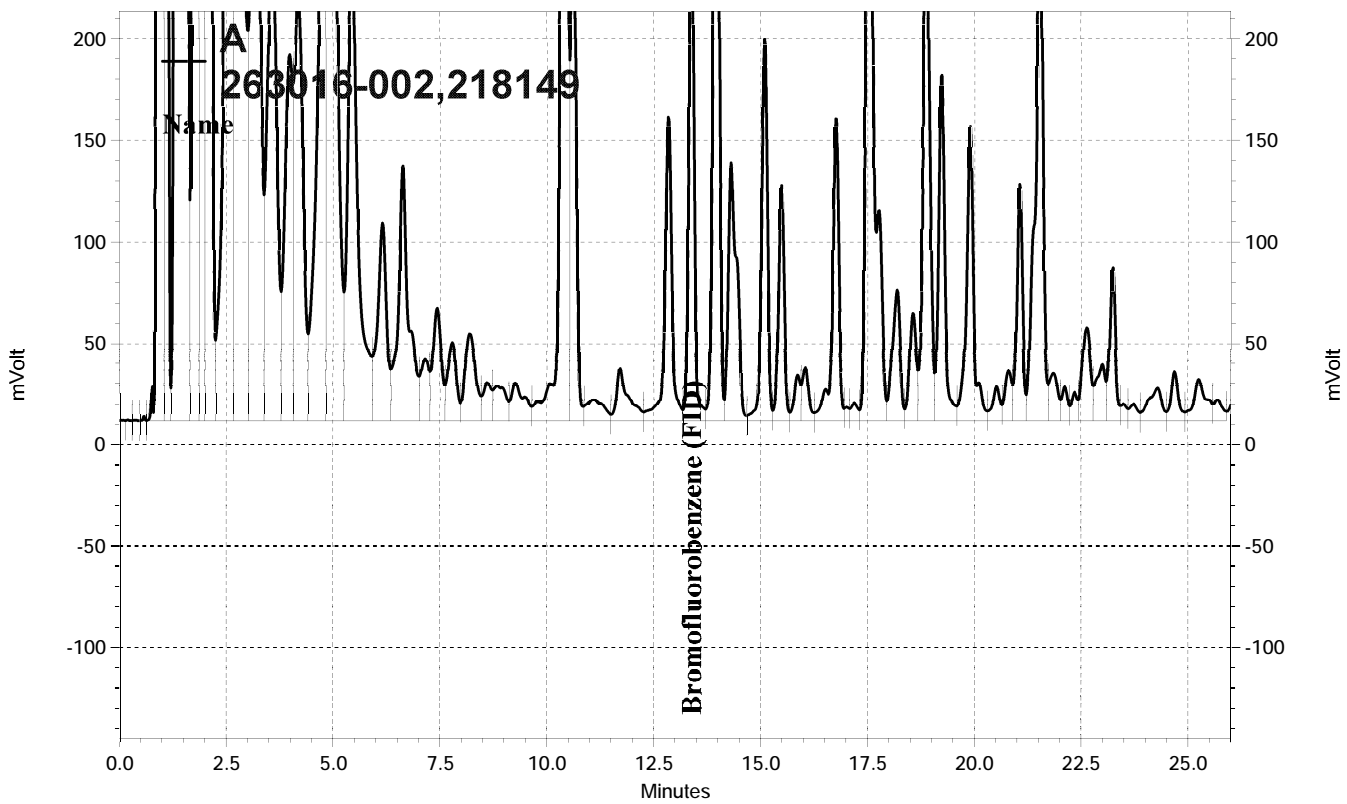
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	77-128

Type: MSD Analyzed: 12/06/14  
 Lab ID: QC768461

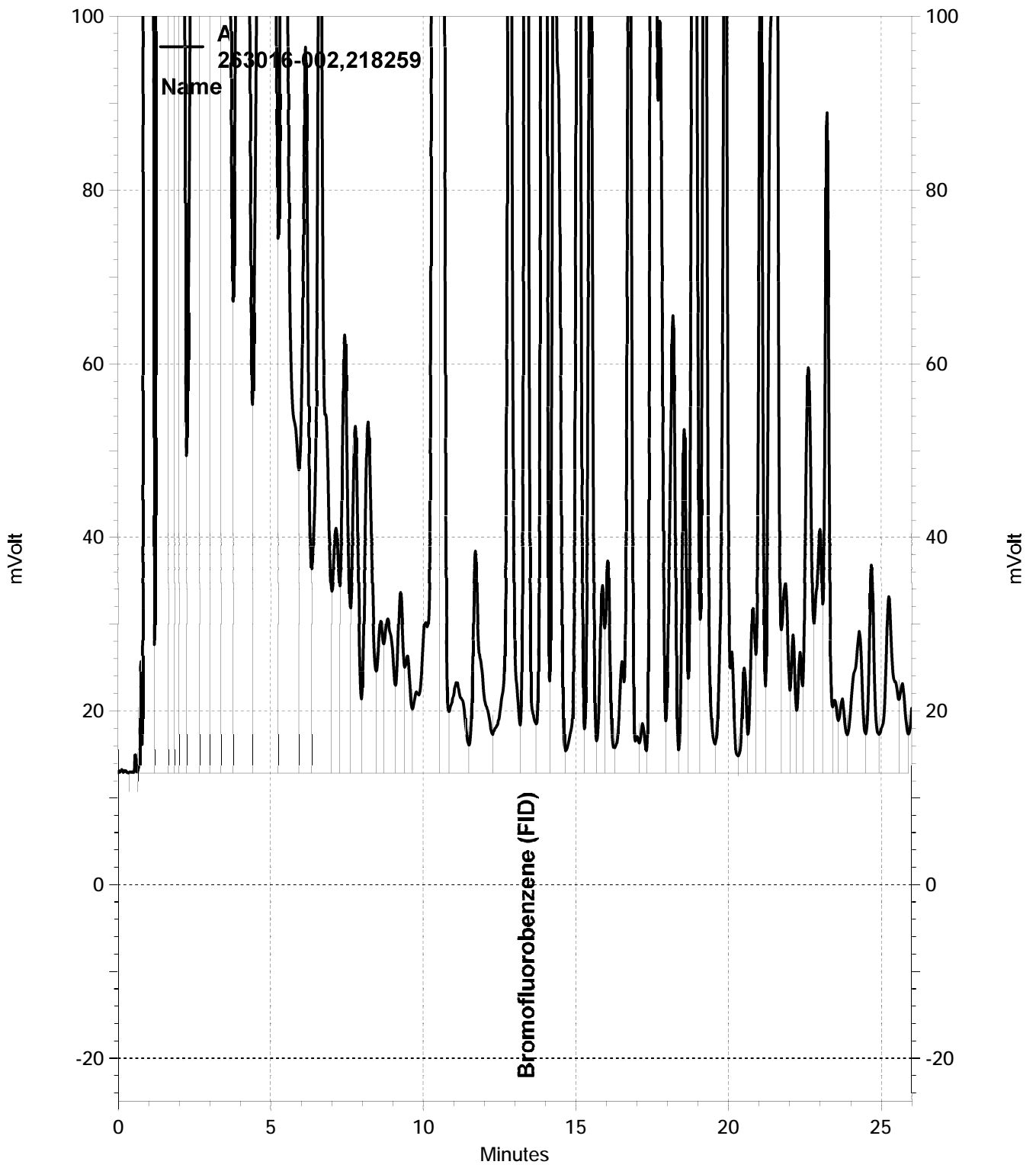
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,887	92	74-120	3	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	77-128

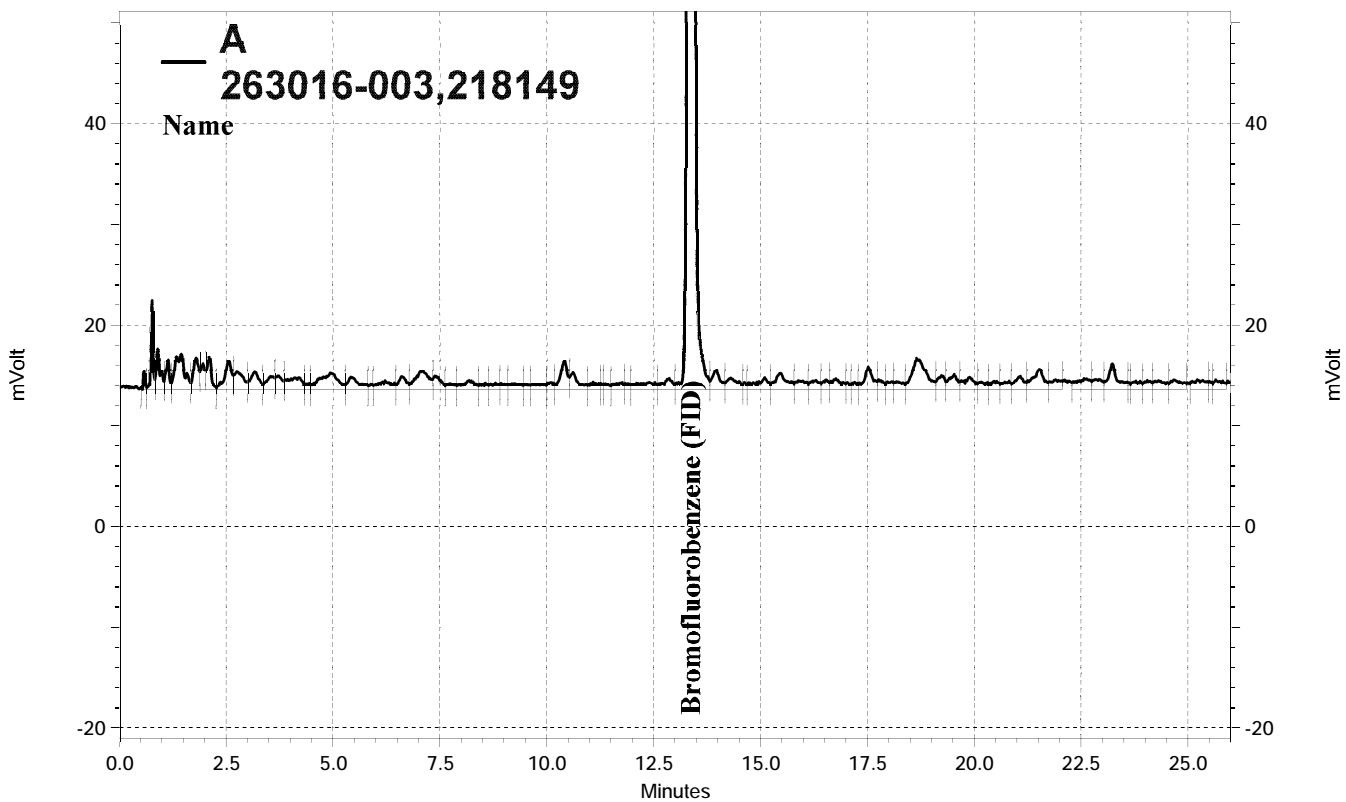
RPD= Relative Percent Difference



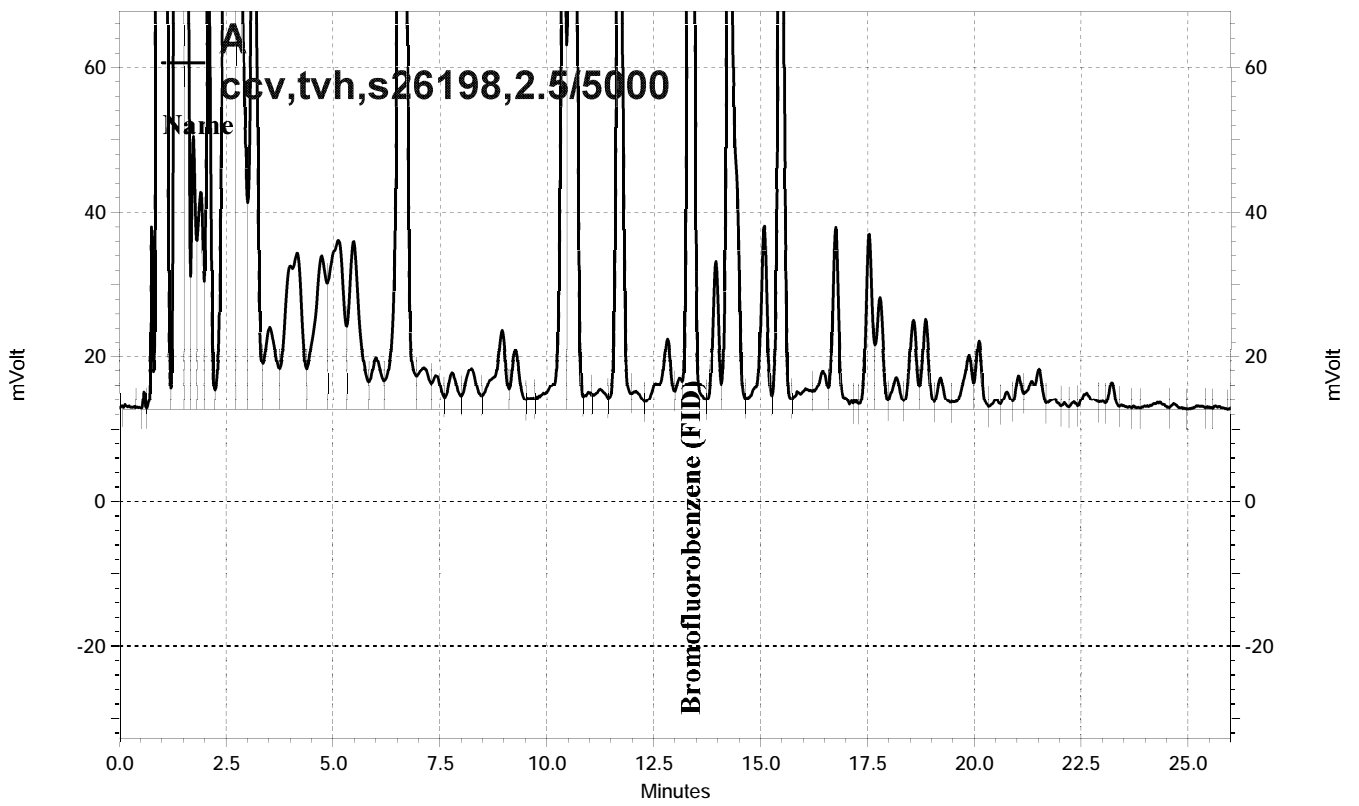
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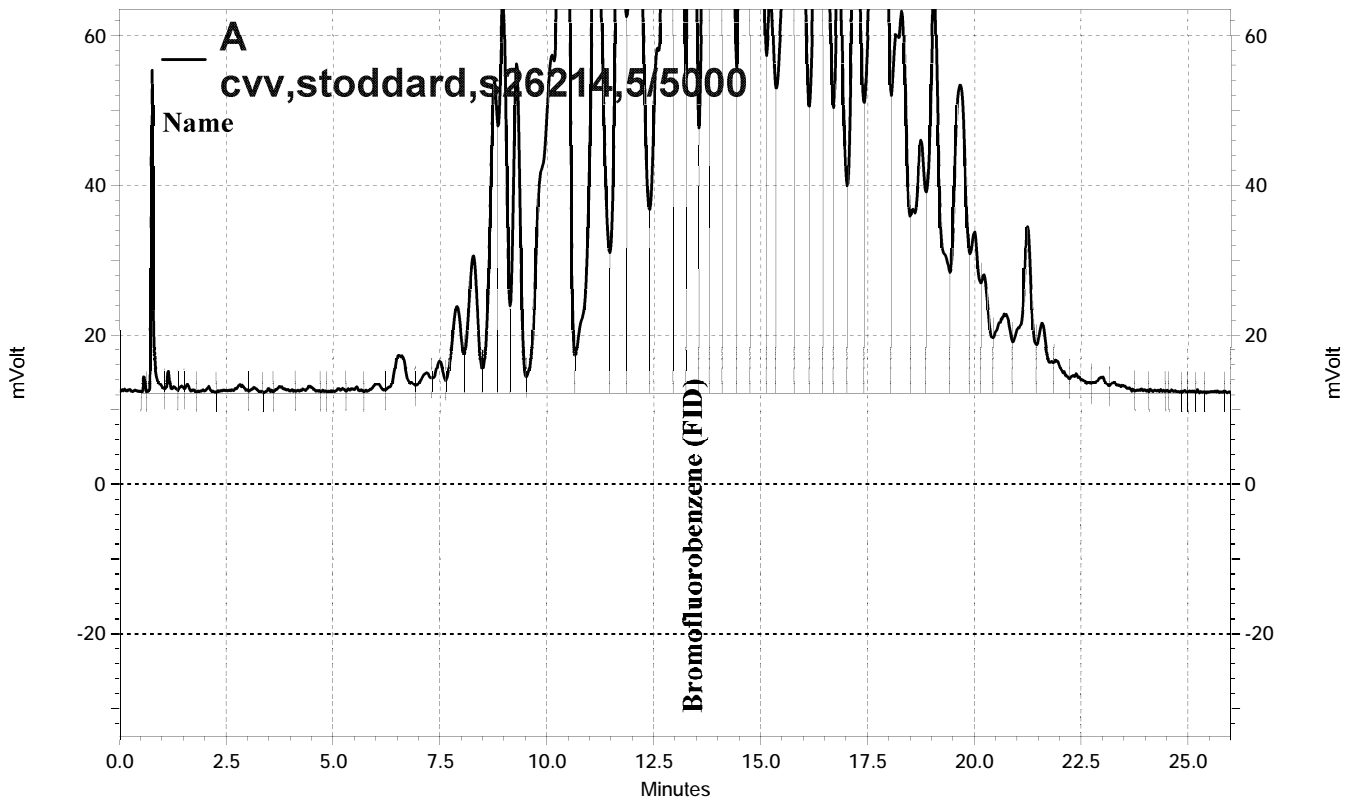
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## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 3520C
Project#:	SALISBURY PROJECT	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	218197
Units:	ug/L	Prepared:	12/08/14
Diln Fac:	1.000	Analyzed:	12/09/14

Type: BS Lab ID: QC768661

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,433	97	61-120

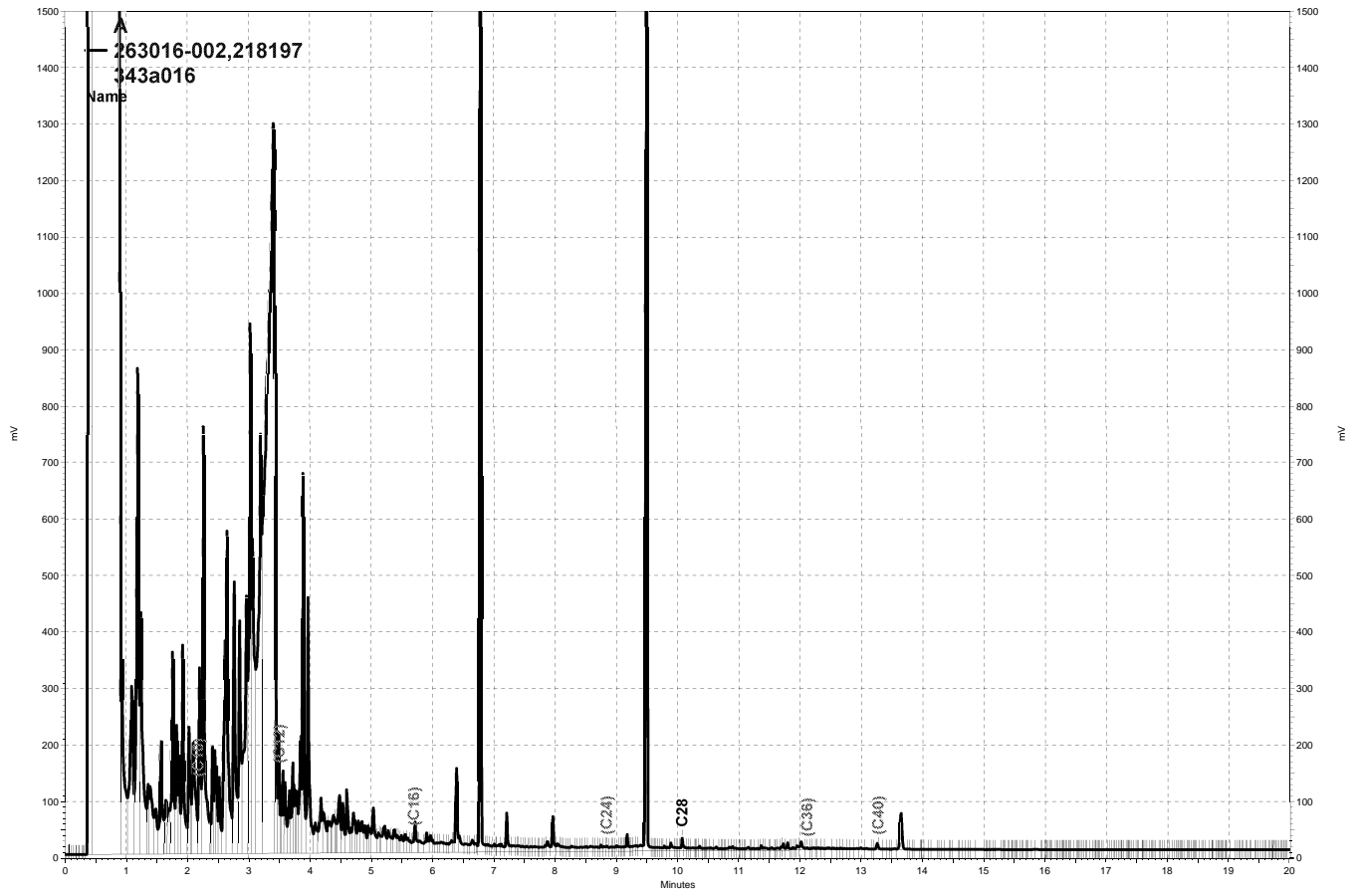
Surrogate	%REC	Limits
o-Terphenyl	94	66-129

Type: BSD Lab ID: QC768662

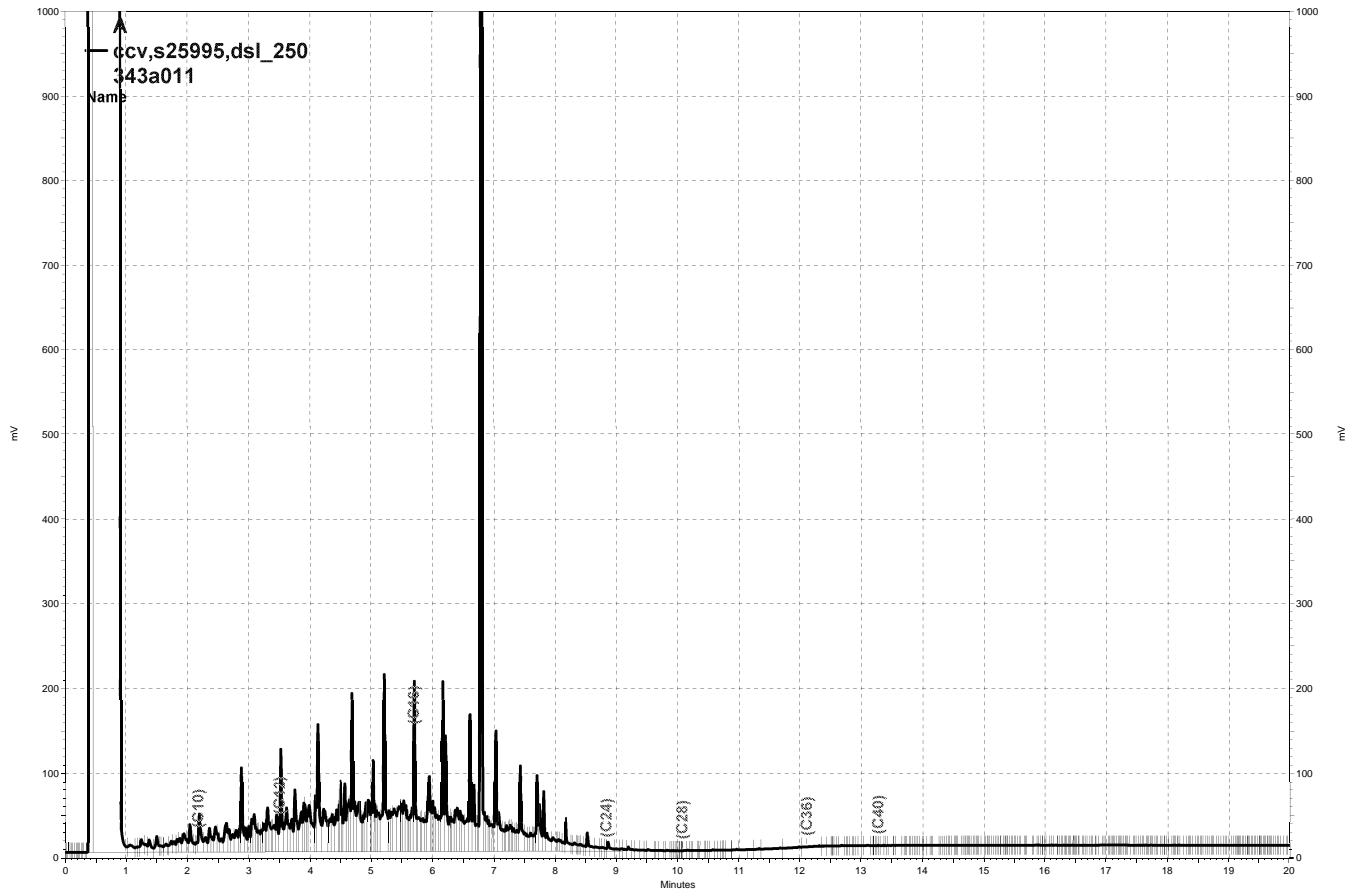
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,613	105	61-120	7	45

Surrogate	%REC	Limits
o-Terphenyl	107	66-129

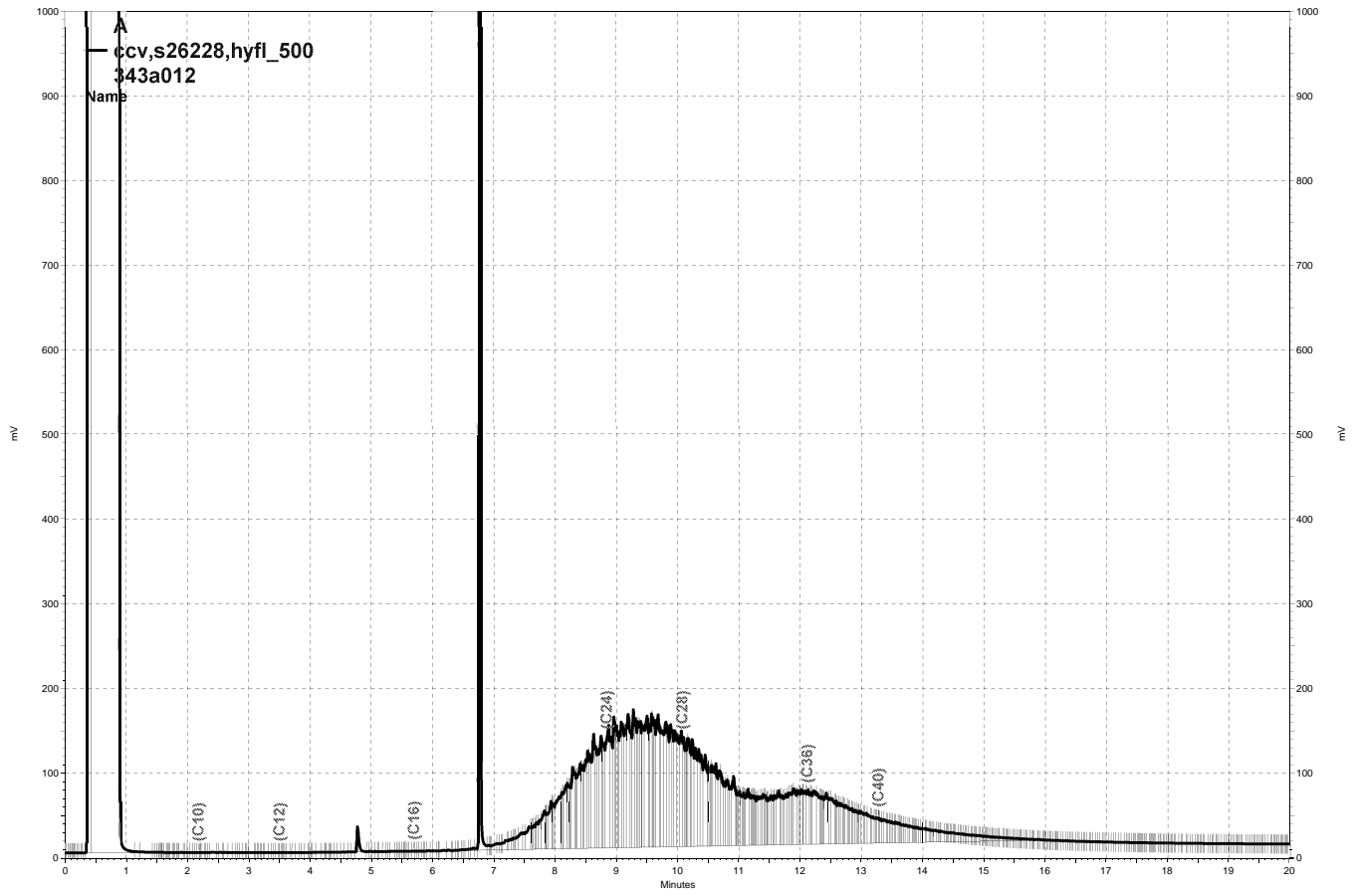
RPD= Relative Percent Difference



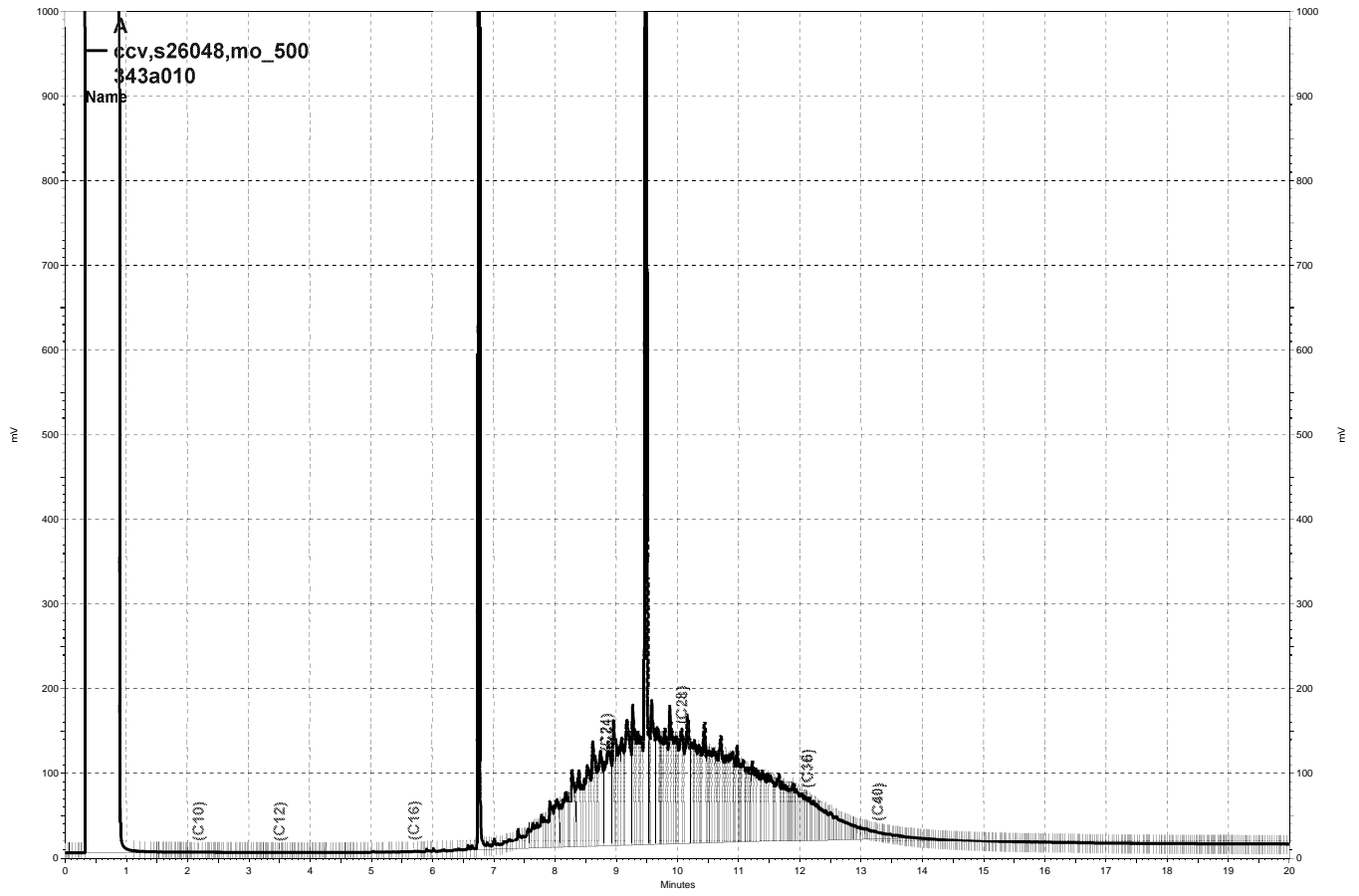
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**Purgeable Aromatics by GC/MS**

Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	218159
Lab ID:	263016-001	Sampled:	12/04/14
Matrix:	Water	Received:	12/04/14
Units:	ug/L	Analyzed:	12/06/14
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Naphthalene	ND	2.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	77-136
1,2-Dichloroethane-d4	97	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	218226
Lab ID:	263016-002	Sampled:	12/04/14
Matrix:	Water	Received:	12/04/14
Units:	ug/L	Analyzed:	12/09/14
Diln Fac:	3.333		

Analyte	Result	RL
MTBE	ND	1.7
Benzene	53	1.7
Toluene	24	1.7
Ethylbenzene	200	1.7
m,p-Xylenes	70	1.7
o-Xylene	5.2	1.7
Naphthalene	30	6.7

Surrogate	%REC	Limits
Dibromofluoromethane	104	77-136
1,2-Dichloroethane-d4	117	75-139
Toluene-d8	93	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Field ID:	MW-3	Batch#:	218159
Lab ID:	263016-003	Sampled:	12/04/14
Matrix:	Water	Received:	12/04/14
Units:	ug/L	Analyzed:	12/06/14
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Naphthalene	ND	2.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	77-136
1,2-Dichloroethane-d4	97	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected  
 RL= Reporting Limit



**Purgeable Aromatics by GC/MS**

Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	218159
Lab ID:	263016-004	Sampled:	12/04/14
Matrix:	Water	Received:	12/04/14
Units:	ug/L	Analyzed:	12/07/14
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Naphthalene	ND	2.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	77-136
1,2-Dichloroethane-d4	97	75-139
Toluene-d8	100	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected  
 RL= Reporting Limit



## Batch QC Report

Purgeable Aromatics by GC/MS			
Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC768497	Batch#:	218159
Matrix:	Water	Analyzed:	12/06/14
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Naphthalene	ND	2.0

Surrogate	%REC	Limits
Dibromofluoromethane	99	77-136
1,2-Dichloroethane-d4	95	75-139
Toluene-d8	98	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected  
 RL= Reporting Limit



## Batch QC Report

Purgeable Aromatics by GC/MS			
Lab #:	263016	Location:	Salisbury Project
Client:	Eagle Env. Construction	Prep:	EPA 5030B
Project#:	SALISBURY PROJECT	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC768765	Batch#:	218226
Matrix:	Water	Analyzed:	12/09/14
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Naphthalene	ND	2.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	77-136
1,2-Dichloroethane-d4	106	75-139
Toluene-d8	91	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected  
 RL= Reporting Limit