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SECOND SEMI-ANNUAL 2012 GROUNDWATER MONITORING AND PRODUCT EXTRACTION REPORT

**EMERYBAY CONDO PHASE I PARKING GARAGE
6400 CHRISTIE AVENUE
EMERYVILLE, CALIFORNIA**

Prepared for:

**EMERYBAY COMMERCIAL ASSOCIATION
EMERYVILLE, CA 94608**

November 2012

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GROUNDWATER MONITORING AND
PRODUCT EXTRACTION REPORT**

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EMERYVILLE, CALIFORNIA**

Prepared for:

**EMERYBAY COMMERCIAL ASSOCIATION
6475 CHRISTIE AVENUE, SUITE 550
EMERYVILLE, CA 94608**

Prepared by:

**STELLAR ENVIRONMENTAL SOLUTIONS, INC.
2198 SIXTH STREET
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November 12, 2012

Project No. 2007-65

November 12, 2012

Mr. Mark Detterman
Hazardous Materials Specialist
Alameda County Department of Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Second Semiannual 2012 Groundwater Monitoring & Product Extraction Report
EmeryBay Commercial Association Phase I Condo Parking Garage
6400 Christie Avenue, Emeryville, California

Dear Mr. Detterman:

Enclosed is the Stellar Environmental Solutions, Inc. report summarizing the site activities conducted in September 2012 at the referenced site. This report is being submitted on behalf of the owner and Responsible Party, Emerybay Commercial Association. The subject site activities included a product extraction event and the second semiannual 2012 groundwater monitoring event.

This report summarizes the 18th sampling event conducted at the site since 1988. The plume underlying the parking garage appears to still have the main residual contamination concentrated around wells MW-10, MW-12, MW-13 MW-14, and MW-15 and compared to the last several semi-annual monitoring events, appears to now be migrating to the south, possibly towards the dewatering activities located at the new development being constructed directly across 64th Street at 6340 Christie Avenue (RO0000057). In accordance with regulatory requirements, an electronic copy of this report has been uploaded to ACEH and to the State Water Resources Control Board's GeoTracker system.

We declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report are true and correct to the best of our knowledge. If you have any questions regarding this report, please contact us at (510) 644-3123.

Sincerely,



Richard S. Makdisi, P.G., R.E.A.
Principal Geochemist & President



Ms. Katherine Collins
Emerybay Commercial Assoc.



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1.0 INTRODUCTION

PROJECT BACKGROUND

The subject property, located at 6400 Christie Avenue in Emeryville, California, is owned by the Emerybay Commercial Association, for which Stellar Environmental Solutions, Inc. (Stellar Environmental) provides environmental consulting services. The site has undergone fuel tank-related investigations and remediation since 1988 (by Stellar Environmental since 2007). All known environmental documents for the subject property are listed in the References and Bibliography section (Section 7.0) of this report. Previous remediation and investigation activities are outlined in the final subsection of this chapter.

SITE AND VICINITY DESCRIPTION

The site is located at 6400 Christie Avenue in Emeryville, California (Figure 1). The project site slopes to the south and is developed with an open ground-floor parking area and apartment complex known as the Bridgewater Apartments. The area of monitoring and product extraction is primarily located in the northeastern portion of the parking garage. Figure 2 is a site plan. The site is bordered to the east by the Archstone Condos and parking garage, to the north by 65th Street, beyond Christie Avenue and to the west by the Bay Center Offices, and to the south by 64th Street with the currently under construction apartments located at 6340 Christie Avenue. The surrounding area is developed with the Emeryville Public Market, apartment complexes, offices, and retail stores and restaurants.

PREVIOUS INVESTIGATIONS

Historical groundwater well analytical results are presented in Appendix A, and are discussed in detail in Section 5.0 of this report.

The subject property parcel was developed as early as 1958 with the Garrett Motor Freight Station, associated with Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day Emery Bay Phase I Condo complex and parking garage. The building remained on the property until 1986, when it was demolished to build the present-day structures. Twelve underground fuel storage tanks (UFSTs) containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels in 1987, at which time soil and groundwater contamination was discovered.



Image courtesy of the U.S. Geological Survey



SITE LOCATION ON AERIAL PHOTO

**6400 Christie Ave.
Emeryville, CA**

By: MJC

NOVEMBER 2012

Figure 1



2007-565-01



LEGEND

--- Subject property boundary

Image © 2008 TerraMetrics

© 2007 Google



SITE PLAN AND ADJACENT LAND USE

6400 Christie Ave.
Emeryville, CA

By: MJC

NOVEMBER 2012

Figure 2

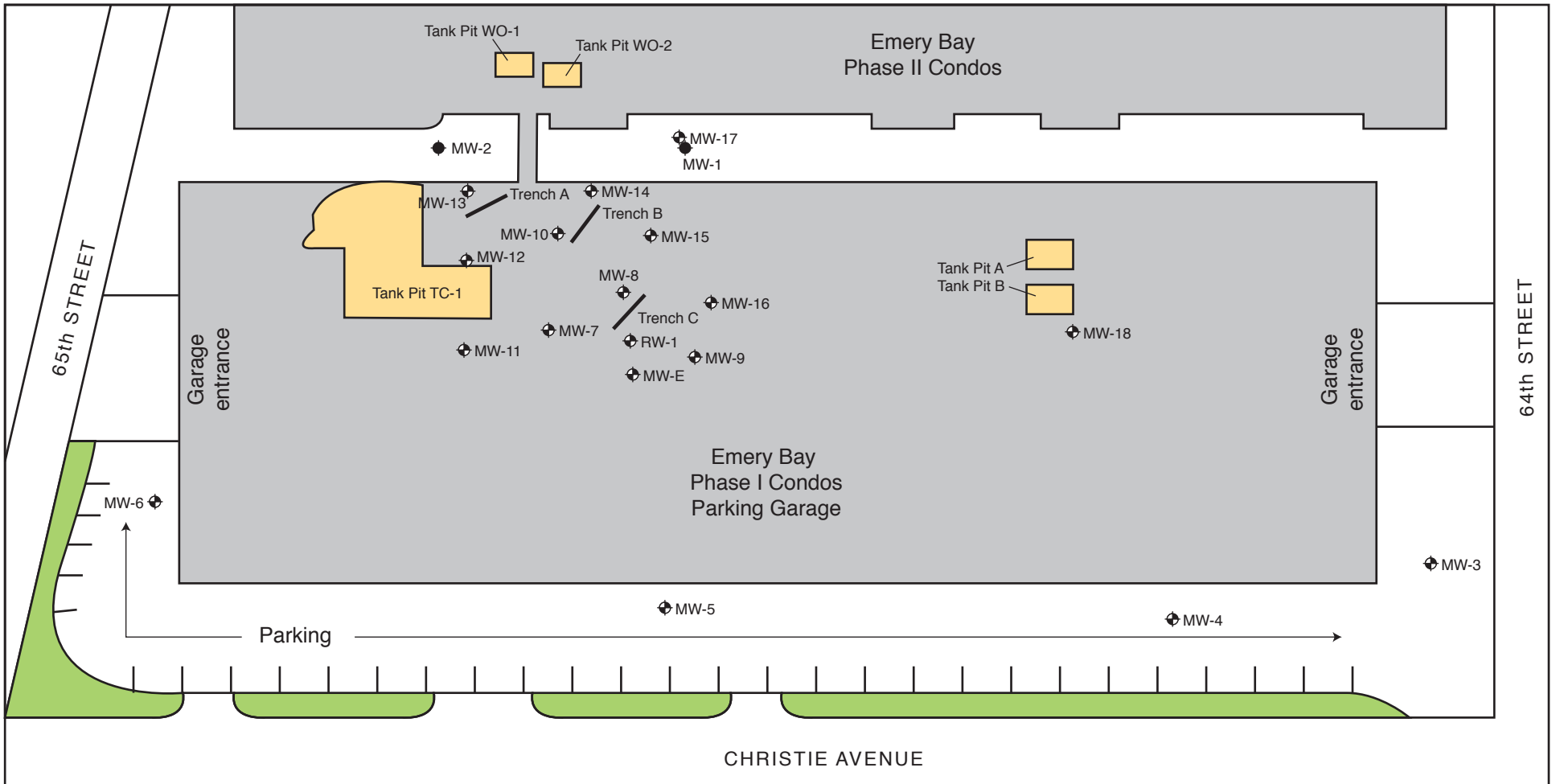


2007-65-07

The subsurface contamination originated from the trucking terminal that was operated by the Garrett Freight Line and Delta Lines, and existed at the site of the apartment complex before its development in the late 1980s. Site investigations identified a total of 12 UFSTs in three areas of the trucking terminal. These UFST areas were referred to as: 1) Tank Pits A and B (each containing one 10,000-gallon diesel tank); 2) Tank Pit TC-1 (four 12,000-gallon diesel tanks, two 10,000-gallon diesel tanks, and one 6,000-gallon gasoline tank); and 3) Tank Pit WO-1 and WO-2 (one 6,000-gallon tank, one 4,000-gallon tank, and one 1,000-gallon tank). Nine UFSTs were located beneath the current footprint of the Bridgewater complex, while three were beneath the adjacent Phase II Condo complex to the east. Figure 2 shows the historical locations where the tanks were removed.

To remediate the hydrocarbon contamination beneath the garage area of the Bridgewater complex, a light non-aqueous phase liquid (LNAPL) groundwater pump-and-treat system was installed by Groundwater Technology, Inc. (GTI) in 1989. The system extracted approximately one million gallons of groundwater, yielding approximately 100 gallons of LNAPL from recovery well RW-1 from July 1990 to March 1991. Three monitoring wells had previously been installed in 1985. GTI installed (and repaired) several more monitoring wells between 1987 and 1990, for a total of seven monitoring wells and one extraction well by 1990. The system and groundwater monitoring wells were designed and monitored as a condition for discharge permits granted by the East Bay Municipal Utility District (EBMUD) and the Bay Area Air Quality Management District (BAAQMD). The first groundwater monitoring event for MW-1 through MW-6 occurred in December 1988. The second monitoring event, which also included MW-E and RW-1, was conducted in March 1989. Subsequently, the groundwater extraction system operated by GTI was closed in late 1990 when corrosion and other mechanical problems caused the system to fail. Recovery of LNAPL continued manually on RW-1 until 1991, and a third groundwater sampling event occurred in February 1991. In 1994, the GTI recovery system was abandoned. Appendix A contains the historical analytical results. Figure 3 shows the locations of the monitoring wells and extraction trenches.

No groundwater monitoring events had occurred at the site between 1991 and 2004, when PES Environmental, Inc. (PES) was retained to evaluate and implement remediation of the residual contamination at the TC-1 (former location of seven UFSTs) complex area. (Note: Harding Lawson Associates conducted soil and groundwater sampling on the Phase II Apartment complex area during this time, but not for the purpose of product extraction or remediation.) In 2004, PES installed an additional 10 groundwater monitoring wells (monitoring wells MW-1 and MW-2 were either abandoned or paved over with asphalt during construction), bringing the current total to 17 monitoring wells and one extraction well in the Bridgewater parking garage.



LEGEND

- ◆ Monitoring well
- ◆ Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping

0 60
SCALE: 1/2" = 60 FEET



MONITORING WELL AND TRENCH LOCATIONS
6400 Christie Ave., Emeryville, CA

Figure 3

by: MJC

NOVEMBER 2012

The first groundwater monitoring event for the current wells was conducted in March 2004, and the second event conducted in December 2006. A previous Stellar Environmental report (Stellar Environmental, 2007) fully discusses previous site remediation and investigations, site geology and hydrogeology, and residual site contamination. Tabular summaries of historical groundwater well water elevations and analytical results are included in Appendices D and A, respectively.

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by Stellar Environmental in the current semi-annual monitoring period:

- LNAPL passive product extraction from Trenches A and C, and active product extraction on select groundwater monitoring wells, trench sump wells, and recovery well RW-1
- Gauging of water levels in site wells to determine groundwater flow direction
- Sampling of site wells for contaminant analysis
- Evaluation of hydrochemical and groundwater elevation trends in the context of plume stability and case closure assessment

REGULATORY OVERSIGHT

Alameda County Department of Environmental Health (ACEH) is the lead regulatory agency for the case, acting as a Local Oversight Program for the Regional Water Quality Control Board (Water Board). There are currently no ACEH or Water Board cleanup orders for the site; however, all site work has been conducted under the oversight of ACEH. ACEH assigned the site to its fuel leak case system (RO #2799), and the case officer is currently Mr. Mark Detterman (who replaced Ms. Barbara Jakub of ACEH in mid 2010). In a November 2008 meeting with the Responsible Party (represented by Ms. Sarah Irving), Stellar Environmental (represented by Ms. Teal Glass and Mr. Richard Makdisi), and ACEH (represented by Ms. Jakub and Ms. Donna Drogas), it was agreed that quarterly sampling could be reduced to a semiannual schedule with the stipulation that an indoor air and preferential pathway study be completed. Stellar Environmental submitted a letter on November 24, 2008 to ACEH documenting the change in sampling frequency. The Indoor Air Survey and Preferential Pathway Report (Stellar Environmental, 2009b) were submitted to ACEH on April 6, 2009. Stellar Environmental conducted an additional indoor air survey in the ground floor office area on March 22, 2010. The results were presented in a separate report, which was submitted to ACEH on April 6, 2010 (Stellar Environmental, 2010).

The case has been assigned No. SLT2005561 in the Water Board's GeoTracker system. Electronic uploads of required data/reports are submitted to both GeoTracker and ACEH.

2.0 PHYSICAL SETTING

The following evaluation of the physical setting of the site—including topography, drainage, and geologic and hydrogeologic conditions—is based on previous (1986 through 2006) site investigations conducted by others, and site inspections and subsurface data collection by Stellar Environmental in 2007 and 2008.

TOPOGRAPHY AND DRAINAGE

The mean elevation of the property is about 13 feet above mean sea level, and the general topographic gradient in the vicinity of the property is to the southwest, although the regional gradient is to the west-southwest.

The nearest receiving water body is San Francisco Bay, located approximately 700 feet to the west of the subject property. East of the site lies the Oakland Hills, which rise to an elevation of approximately 1,000 feet and are situated 2.5 miles east of the subject property. The subject property is not listed within a 100- or 500-year flood zone.

Storm drains from the roof collect storm runoff for discharge onto the asphalt-paved parking lots. Drainage collected in storm sewers from the parking lot and from Christie, 64th, and 65th Streets discharges into San Francisco Bay. Stellar Environmental noted several storm drains, in the parking lot area and on the surrounding streets.

GEOLOGY

The subject property area is underlain with material mapped “Qhbm,” designated early pleistocene alluvium, that is moderately consolidated, deeply weathered, poorly sorted, irregularly interbedded clay, silt, sand, and gravel. A geotechnical survey conducted in 1985 revealed that the upper 15 to 20 feet of soil consists of a combination of fill and soft bay sediment. The upper 1 to 2 feet of soil is generally pavement and imported fill. This is underlain by approximately 20 feet of firm soil consisting of primarily dense, silty sand with intermittent layers of silty and sandy clay. Stiff to very stiff clay lies a depth of approximately 40 feet and extends to the depth of the borings, approximately 101.5 feet (Geomatrix, 1988).

The closest major fault, the Hayward Fault, is located about 3 miles east of the property. While the site is located in a seismically active area, it is not within an Alquist-Priolo Special Studies active

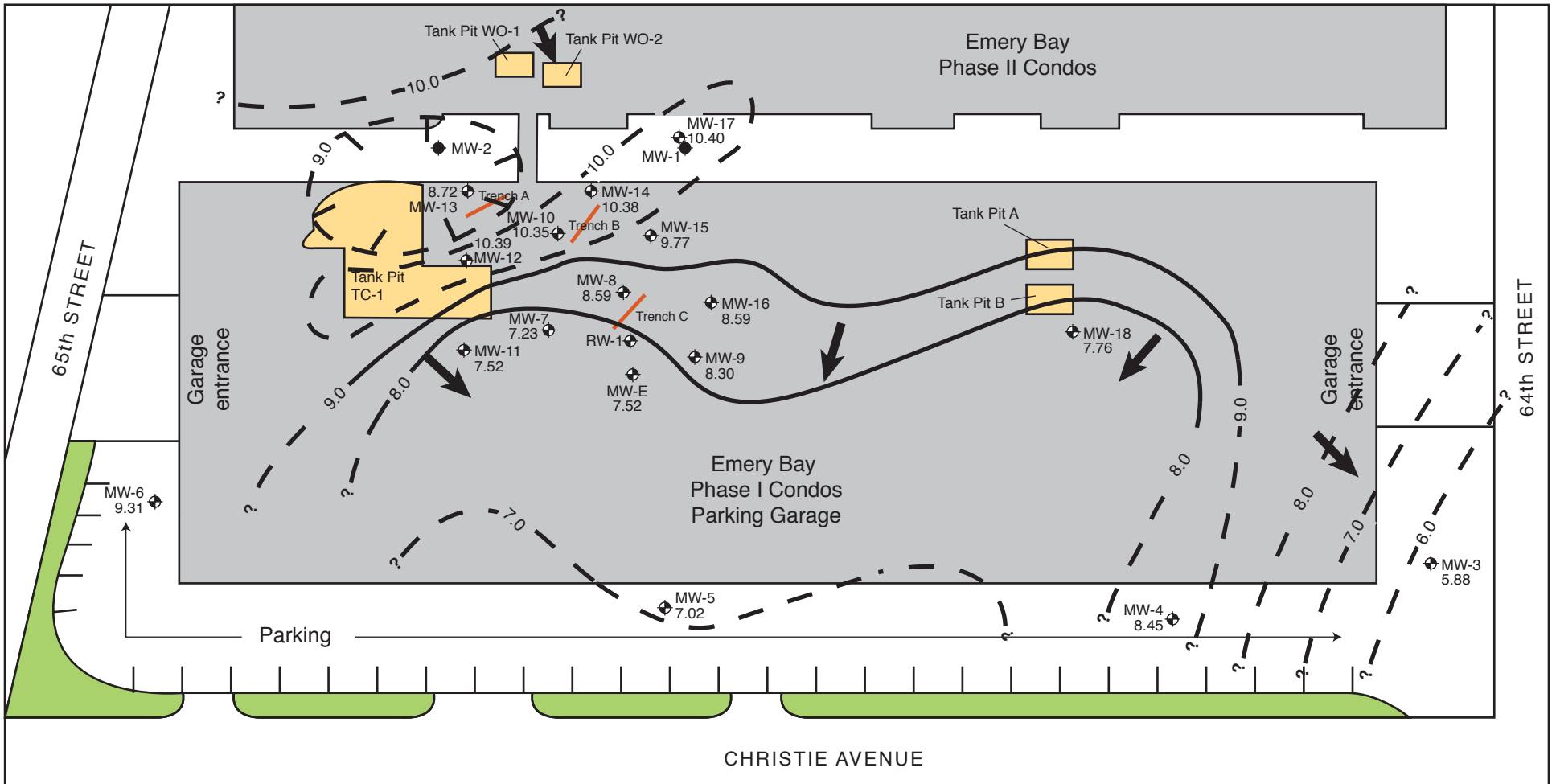
fault zone, the legislatively defined zone of restricted land use 200 feet around an active fault due to the high probability of ground rupture.

GROUNDWATER HYDROLOGY

Regulatory agency records indicate that the direction of shallow groundwater flow in the site vicinity is to the west-northwest, toward San Francisco Bay. However, water levels and flow direction in this area are influenced by tidal patterns, natural topography modifications and the historical LNAPL, resulting in a relatively slow moving and stable plume pattern.

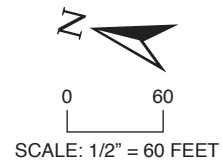
The groundwater gradient measured during the September 2012 monitoring event ranged from the southwest on the northern portion of the site, to the west on the central portion of the site. Floating product in well MW-13 is affecting the groundwater elevation in that area creating a local northeasterly component towards that well. In addition, the southern portion of the site may currently be influenced by dewatering activities occurring across 64th Street at the recently initiated construction at 6340 Christie Avenue. According to current and historical water level data obtained from onsite monitoring wells, depth to groundwater ranges from approximately 6 to 11 feet below ground surface (bgs). Groundwater elevations during the March 2012 event ranged from 5.88 to 10.40 feet above mean sea level. The average groundwater gradient was 0.003 foot/foot.

Figure 4 is a groundwater elevation map from the recent groundwater-monitoring event (activities discussed in Section 4.0).



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- Inferred direction of groundwater flow
- Groundwater elevation contour in feet amsl
- Extrapolated groundwater elevation contour



2007-65-60



GROUNDWATER ELEVATION MAP – September 28, 2012
6400 Christie Ave., Emeryville, CA

Figure 4
 by: MJC NOVEMBER 2012

3.0 SEPTEMBER 2012 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

This section presents the groundwater sampling and analytical methods for the most recent event. Table 1 summarizes monitoring well construction and groundwater monitoring data. Groundwater analytical results are summarized in Section 4.0.

SAMPLING METHODS AND ACTIVITIES

Activities for this event include:

- Measuring static water levels in all 18 wells
- Collecting post-purge groundwater samples from the 18 wells for laboratory analysis of the following contaminants:
 - benzene, toluene, ethyl benzene, and xylenes (BTEX)
 - methyl tertiary-butyl ether (MTBE)
 - total petroleum hydrocarbons as gasoline (TPHg)
 - total petroleum hydrocarbons as diesel (TPHd)

The site monitoring well sampling locations are shown on Figure 3. Well construction information and water level data are summarized in Table 1. Appendix B contains the groundwater monitoring field records.

CURRENT MONITORING EVENT

Blaine Tech Services conducted groundwater monitoring well level measurements, purging, sampling, and field analyses on September 27, 2012 under the supervision of Stellar Environmental personnel. Groundwater sampling was conducted in accordance with State of California guidelines for sampling dissolved analytes in groundwater associated with leaking UFSTs. As the first task of the monitoring event, static water levels and free product levels were measured in the 18 wells using an electric water level indicator. The depth of free product was recorded, and the water level was adjusted to reflect the groundwater elevation.

Table 1
September 27, 2012
Groundwater Monitoring Well Construction and Groundwater Elevation Data
6400 Christie Avenue, Emeryville, California

Well	Well Depth (feet bgs)	Screened Interval	Top of Well Casing Elevation ^(a)	Depth to Free Product (TOC)	Thickness of Free Product (feet)	Groundwater Elevation (September 27, 2012)
MW-3	25	5 to 20	16.65	NM	NM	5.88
MW-4	25	5 to 20	16.29	NP	NP	8.45
MW-5	25	5 to 20	16.72	NP	NP	7.02
MW-6	25	5 to 20	16.82	NP	NP	9.31
MW-7	20	5 to 20	17.73	NP	NP	7.23
MW-8	16	5 to 16	17.84	9.01	0.28	8.59
MW-9	20	5 to 20	17.84	NP	NP	8.30
MW-10	20	5 to 20	17.83	7.75	0.14	10.35
MW-11	20	5 to 20	17.76	NP	NP	7.52
MW-12	20	5 to 20	17.83	NP	NP	10.39
MW-13	20	5 to 20	17.66	9.02	1.07	8.12
MW-14	20	5 to 20	17.60	7.61	0.10	10.38
MW-15	20	5 to 20	17.80	NM	NM	9.77
MW-16	20	5 to 20	17.74	NP	NP	8.59
MW-17	20	5 to 20	18.17	NP	NP	10.40
MW-18	20	5 to 20	16.35	NP	NP	7.76
MW-E	47	7 to 40	17.47	NP	NP	7.52
RW-1	30	unknown	16.70	NP	NP	NM
TA-E	11-13	6-8 to 11-13	17.20	NM	NM	NM
TA-M	11-13	6-8 to 11-13	17.21	NM	NM	NM
TA-W	11-13	6-8 to 11-13	17.28	NM	NM	NM
TB-E	11-13	6-8 to 11-13	17.24	NM	NM	NM
TB-M	11-13	6-8 to 11-13	17.30	NM	NM	NM
TB-W	11-13	6-8 to 11-13	17.33	NM	NM	NM
TC-E	11-13	6-8 to 11-13	17.07	NM	NM	NM
TC-M	11-13	6-8 to 11-13	17.37	NM	NM	NM
TC-W	11-13	6-8 to 11-13	17.32	NM	NM	NM

Notes:

^(a) Relative to mean sea level.

^(b) Depth to groundwater and/or of free product could not be determined because free product density would not allow a clear delineation.

bgs = below ground surface

TOC = below top of casing

NP = no free product in well)

NM = depth to groundwater and/or free product could not be determined due to the presence of tar

MW-3 through MW-6 and MW-E are 2-inch PVC. MW-7 through MW-18 are ¾-inch PVC. RW-1 is 10-inch steel.

Approximately 50 gallons of purge water and equipment decontamination rinse water from the current groundwater sampling event was placed in the onsite 1,100 gallon above ground storage tank (AST) located in a locked fenced area on the northeast corner of the property. In addition, approximately 1,050 gallons of water and 0.423 gallons of product were removed/purged from select wells during the active product removal; 0.1 gallon was removed by passive product removal.

On October 5, 2012, Evergreen Oil, Inc. vacuumed and transported the water to its recycling facility under manifest number 009438220 (EPA ID No. CAL000374146). Appendix F contains copies of the manifest and recycling certificate.

4.0 REGULATORY CONSIDERATIONS, ANALYTICAL RESULTS, AND DISCUSSION OF FINDINGS

This section presents the analytical results of the most recent monitoring event and summarizes the relevant regulatory considerations. Appendix C contains the certified analytical laboratory report and chain-of-custody record.

REGULATORY CONSIDERATIONS

As specified in the East Bay Plain Groundwater beneficial Use Evaluation Report by the San Francisco Bay Region Water Board (Water Board, 1999), all groundwater is considered a potential source of drinking water unless otherwise indicated by the Water Board, and is assumed to ultimately discharge to a surface water body and potentially impact aquatic organisms. The subject property is listed as occurring within Zone B, designated as groundwater that is unlikely to be used as a drinking water resource. The basin is shallow in this area, with depths of less than 300 feet. Groundwater in this area is used for backyard irrigation, industrial supply, and commercial irrigation. There is a low likelihood that this water will be used as a public water supply in the near future.

The Water Board publishes Environmental Screening Levels (ESLs) for residential and commercial/industrial properties where groundwater is/is not a likely drinking water resource. As stipulated in the ESL document (Water Board, 2008), ESLs are not cleanup criteria; rather, they are conservative screening-level criteria designed to be protective of both drinking water resources and aquatic environments. The groundwater ESLs are composed of one or more components—including ceiling value, human toxicity, indoor air impacts, and aquatic life protection. Exceedance of ESLs suggests that additional remediation and/or investigation (e.g., monitoring plume stability to demonstrate no risk to sensitive receptors where drinking water is not threatened) may be warranted. Because the subject property is a residential property where groundwater is not a likely drinking water resource, the contaminant levels at the site will be compared to the ESLs for these criteria.

Contaminants detected above the ESLs during this sampling event include gasoline, diesel, benzene, toluene, ethylbenzene, and total xylenes. In general, concentrations of gasoline and diesel in groundwater have increased, particularly in the 12 wells around former tank pit TC-1 as compared to both the previous semi-annual event in March 2012 and the same semi-annual event in 2011 last year. Concentrations in the downgradient wells WM-4 and MW-5 have not changed significantly.

GROUNDWATER SAMPLE RESULTS

Table 2 and Figure 5 summarize the contaminant analytical results of the current monitoring event samples.

Table 2
Groundwater Sample Analytical Results – September 27, 2012
6400 Christie Avenue, Emeryville, California

Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	380	7,200	18	14	6	25.2	< 2.0
MW-4	<50	350	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-5	<50	4,100	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-6	<50	2,200	0.85	<0.5	<0.5	<0.5	< 2.0
MW-7	1,700	10,000	660	35	32	137	<2.0
MW-8	73,000	24,000	18,000	520	2,300	670	<2.0
MW-9	130	10,000	7.2	< 0.5	53	0.92	<2.0
MW-10	6,600	13,000	1,800	89	130	46	<2.0
MW-11	4,100	5,200	1,500	33	< 0.5	18	<2.0
MW-12	10,000	2,300	4,600	160	210	85	<2.0
MW-13	60,000	7,200,000	22,000	580	2,100	1,700	<2.0
MW-14	31,000	9,900	4,800	2,400	740	2,450	<2.0
MW-15	28,000	3,500	12,000	300	380	297	<2.0
MW-16	84	7,700	17	1.5	0.57	0.69	<2.0
MW-17	4,800	1,400	1,300	45	100	41	<2.0
MW-18	160	11,000	5.1	<0.5	5.7	0.6	<2.0
MW-E	7,800	8,300	5,500	190	430	431	<2.0
RW-1	790	980	150	9.6	5.5	12.6	<2.0
ESLs ^(a)	100 / 210	100 / 210	1.0 / 46	40 / 130	30 / 43	20 / 100	5.0 / 1,800

Notes:

^(a) Water Board Environmental Screening Levels for residential sites where groundwater *is/is not* a drinking water resource (Water Board, 2008).

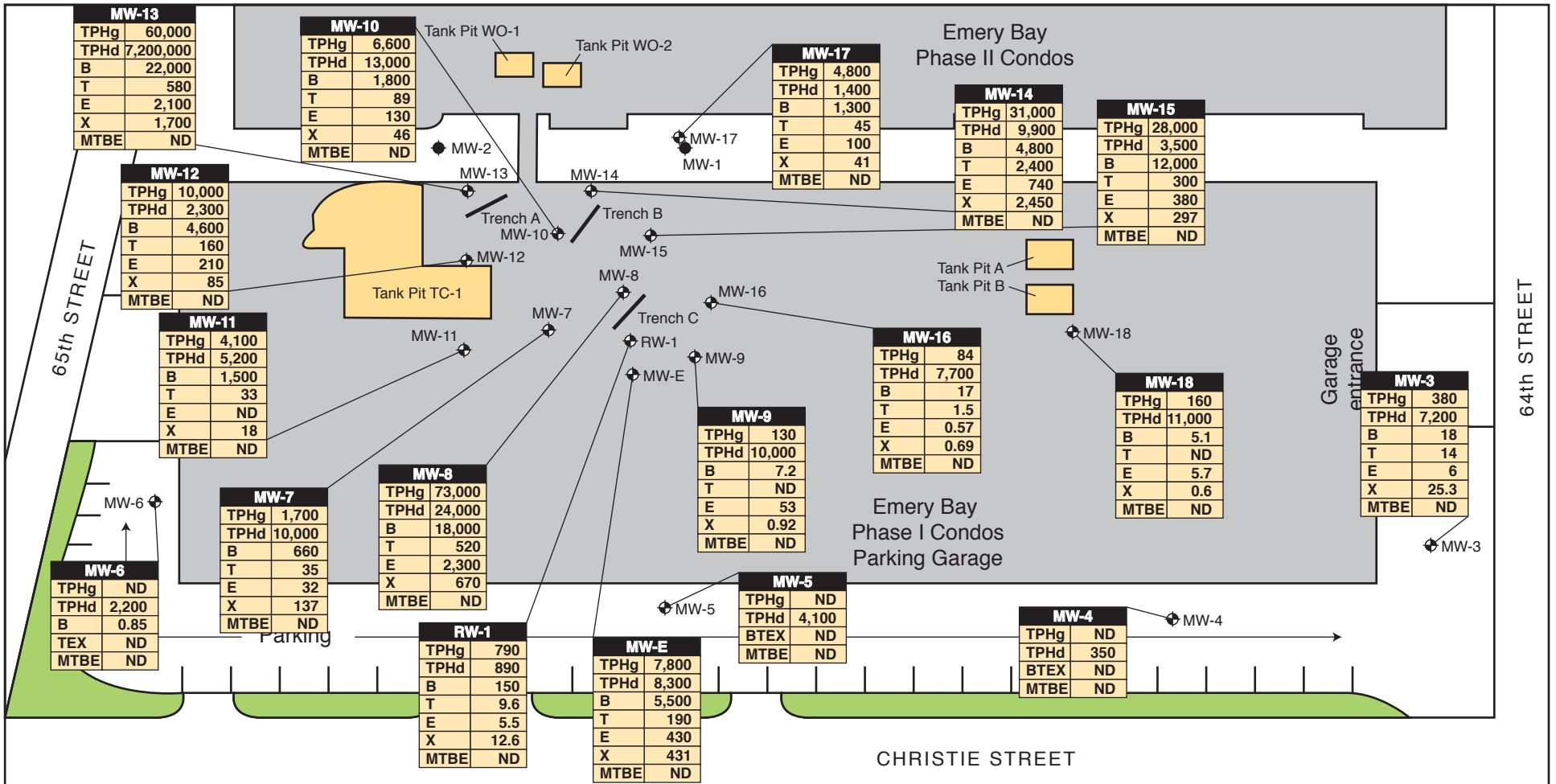
MTBE = methyl tertiary-butyl ether

TPHd = total petroleum hydrocarbons – diesel range (equivalent to total extractable hydrocarbons – diesel range)

TPHg = total petroleum hydrocarbons – gasoline range (equivalent to total volatile hydrocarbons – gasoline range)

All concentrations are expressed in micrograms per liter (µg/L), equivalent to parts per billion (ppb).

Results listed in **bold-face type** are at or above the ESLs where groundwater *is not* a drinking water resource.



LEGEND

- ◆ Monitoring well
 - ◆ Monitoring well (presumed abandoned)
 - Trench location
 - Historical tank pit area
 - Landscaping
- TPHg = Total petroleum hydrocarbons as gasoline
 TPHd = Total petroleum hydrocarbons as diesel
 B = Benzene
 T = Toluene
 E = Ethylbenzene
 X = Total xylenes
 ND = Below the laboratory detection limit
 MTBE = Methyl Tertiary Butyl Ether
- All concentrations in micrograms per liter (µg/L)



GROUNDWATER MONITORING WELL ANALYTICAL RESULTS

6400 Christie Ave., Emeryville, CA

Figure 5

by: MJC

NOVEMBER 2012

Hydrocarbon Contaminants

During the September 2012 sampling event, several wells had reported hydrocarbon concentrations greatly in excess of the Water Board ESLs. However, hydrocarbon concentrations in wells can be significantly affected by the purging of accumulated hydrocarbons product, so large swings in concentration (both reductions and increases) could be seen due to this occurrence.

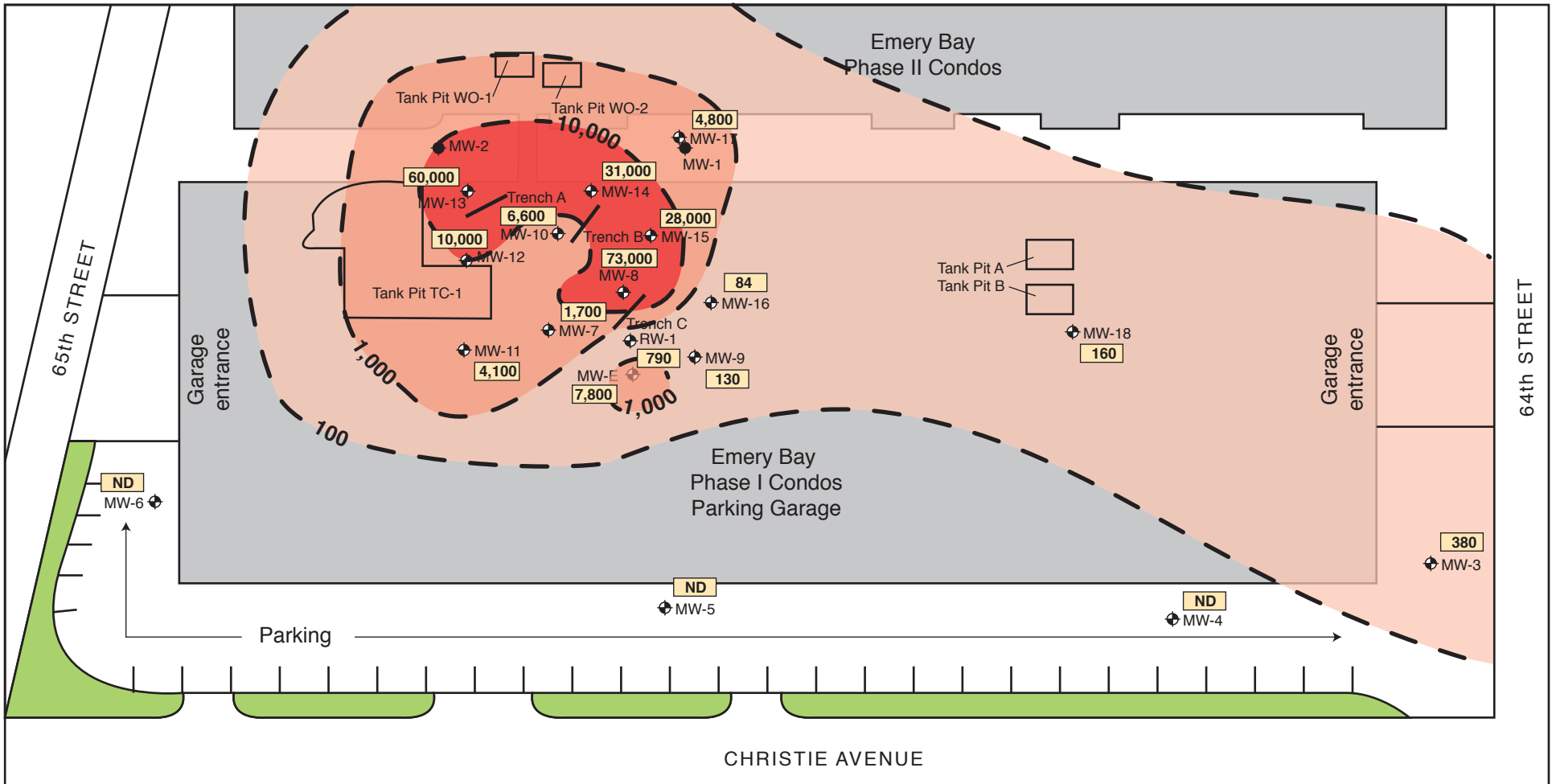
Figure 6 shows an isoconcentration contour map of TPHg concentrations in groundwater based on the September 2012 monitoring well analytical results. Increases in September 2012 compared to the September 2011 monitoring event were observed in wells MW-6, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-18, MW-E and RW-1. This represents thirteen wells exhibiting an increase as compared to seven wells for the September 2011 sampling event. The remaining wells either remained approximately the same (MW-3 and MW-7) or exhibited a decrease (MW-4, MW-5 and MW-16).

Gasoline was detected above the ESL in all site wells where groundwater is not a likely drinking water resource (210 micrograms per liter [$\mu\text{g/L}$]) except for wells MW-4, MW-5 and MW-6 (below detection limit) and MW-9, MW-16 and MW-18 (below the ESL).

Diesel was detected in all site wells above the ESL of 210 $\mu\text{g/L}$ (where groundwater is not a likely drinking water resource), but showed a decrease in concentration in five of the 18 wells sampled as compared to nine of 18 wells in the September 2011 sampling event.

The highest concentrations of TVHg (73,000 $\mu\text{g/L}$) and TEHd (7,200,000 $\mu\text{g/L}$) observed during this event were in wells MW-8 and MW-13 respectively. The current period concentration of TEHd in well MW-13 represents an historic high, and is the second consecutive monitoring event with a significant increase in TEHd concentration. The increase may be the result of the difficulties associated with sampling and analyzing water from a well with persistent LNAPL. While not as significant in percent reduction as the difference observed in well MW-13, monitoring wells MW-3, MW-4, MW-5, MW-11 and MW-16 showed decreased hydrocarbon concentrations in September 2012 as compared to September 2011. The concentrations in wells MW-6, MW-7 and MW-14 while above the September 2011 values, were below their historic maxima.

Figure 7 is an isoconcentration contour map of TPHd concentrations in groundwater based on the September 2012 monitoring well analytical results.



LEGEND

- ⊕ Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- 130 Total petroleum hydrocarbons as gasoline concentration in micrograms per liter (µg/L)
- Historical tank pit area
- ▬ Landscaping
- 100- Gasoline isoconcentration contour

0 60
SCALE: 1/2" = 60 FEET

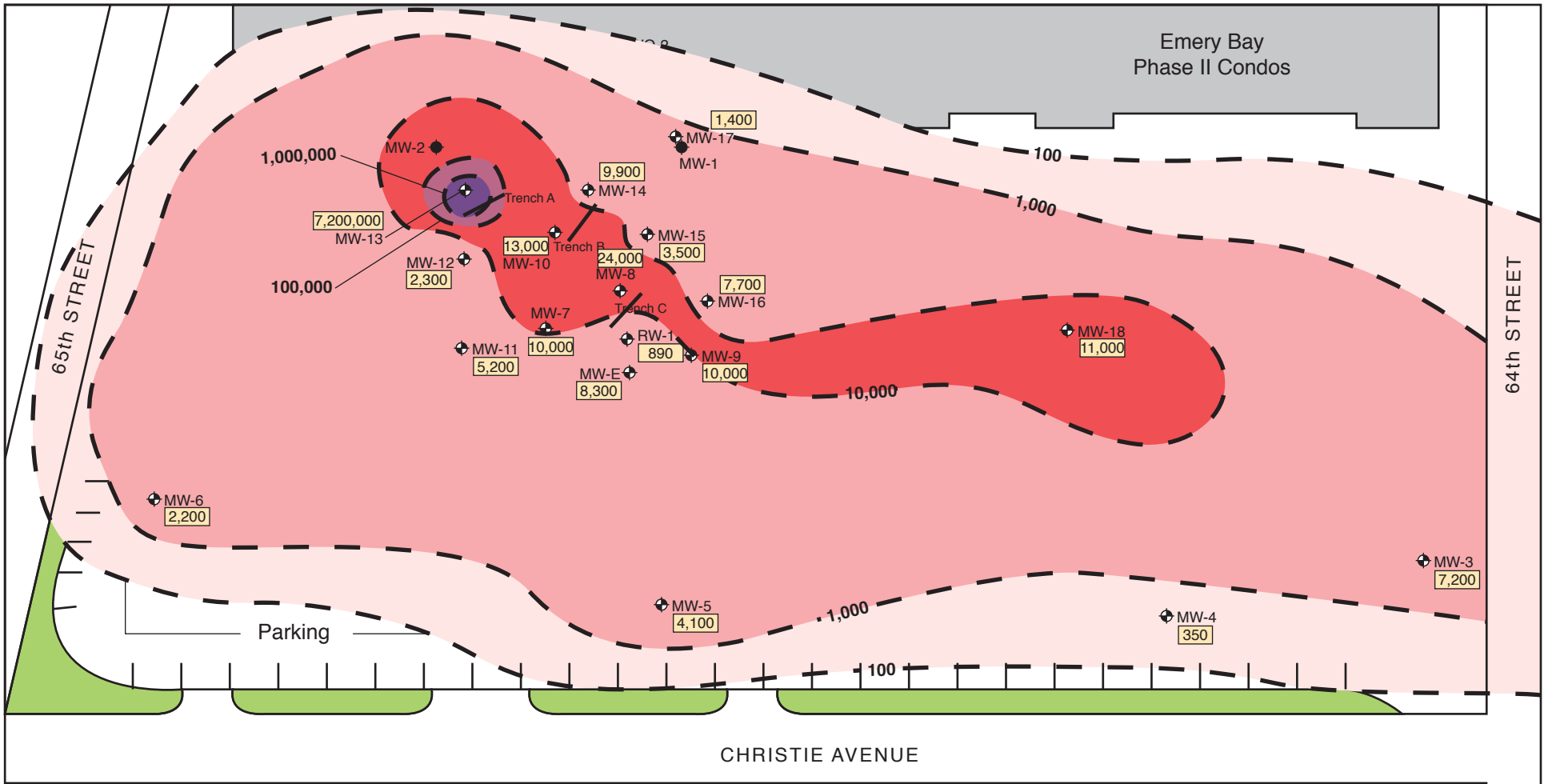


TOTAL PETROLEUM HYDROCARBON PLUME AS GASOLINE
6400 Christie Ave., Emeryville, CA

Figure 6

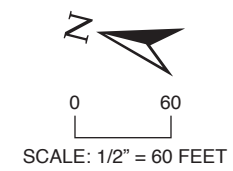
by: MJC

NOVEMBER 2012



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- Diesel concentration contour
- 350 Total petroleum hydrocarbons as diesel concentration in micrograms per liter (µg/L)



TOTAL PETROLEUM HYDROCARBON PLUME AS DIESEL
6400 Christie Ave., Emeryville, CA

Figure 7

by: MJC

NOVEMBER 2012

Figure 8 depicts historical groundwater analytical trends for TPHd in downgradient wells MW-5 and MW-6. Figure 9 depicts historical groundwater analytical trends for TPHd in source wells MW-11 and MW-12. Figure 10 depicts historical groundwater analytical trends for TPHd in crossgradient wells MW-3 and MW-18.

With the exception of monitoring wells MW-3, MW-4, MW-5, MW-6, MW-9 and MW-16, all onsite monitoring wells exceeded the ESL for benzene of 46 µg/L where groundwater is not a drinking water resource. At the same time, an increase in benzene was observed in wells MW-3, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-15, MW-17, MW-18, EW-1 and RW-1. Benzene concentrations decreased in wells MW-6, MW-7 and MW-14.

Toluene was detected at or above the ESL of 130 µg/L in monitoring wells MW-8, MW-12, MW-13, MW-14, MW-15 and MW-E. Except for wells MW-4, MW-5 and MW-6, Toluene was detected in the remainder of the site wells but at levels below the ESL.

Ethylbenzene was detected above the 43-µg/L ESL (where groundwater is not a likely drinking water resource) in monitoring wells MW-8, MW-9, MW-10, MW-12, MW-13, MW-14, MW-15 and MW-E. Ethylbenzene was also detected in MW-3, MW-7, MW-16, MW-18, and RW-1 but at levels below the ESL.

Total xylene concentrations in monitoring wells MW-7, MW-8, MW-13, MW-14, MW-15 and MW-E were above the 100-µg/L ESL where groundwater is not a likely drinking water resource. Total xylenes were also detected in MW-3, MW-9, MW-10, MW-11, MW-13, MW-16, MW-17, MW-18 and RW-1 but below the ESL.

MTBE was not detected in any of the monitoring wells. This result can be compared to the September 2011 sampling event when MTBE was detected in well MW-3 but below the ESL.

Quality Control Sample Analytical Results

Laboratory quality control (QC) samples (e.g., method blanks, matrix spikes, surrogate spikes, etc.) were analyzed by the laboratory in accordance with the requirements of each analytical method. All laboratory QC sample results and sample holding times were within the acceptance limits of the methods (Appendix C).

Figure 8
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Downgradient Wells MW-5 and MW-6
February 1991 - September 2012

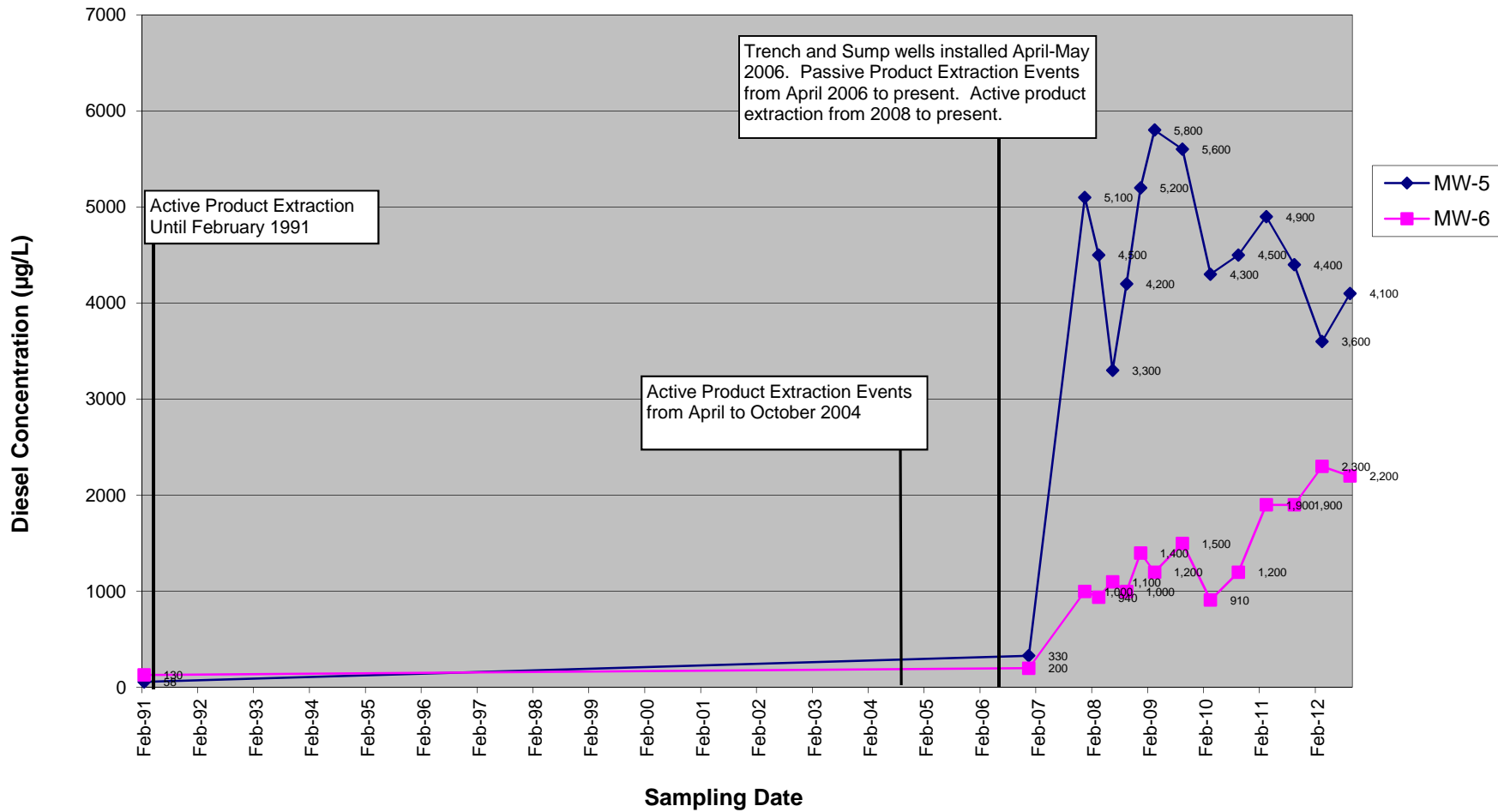


Figure 9
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Source Wells MW-11 and MW-12
December 2006 - September 2012

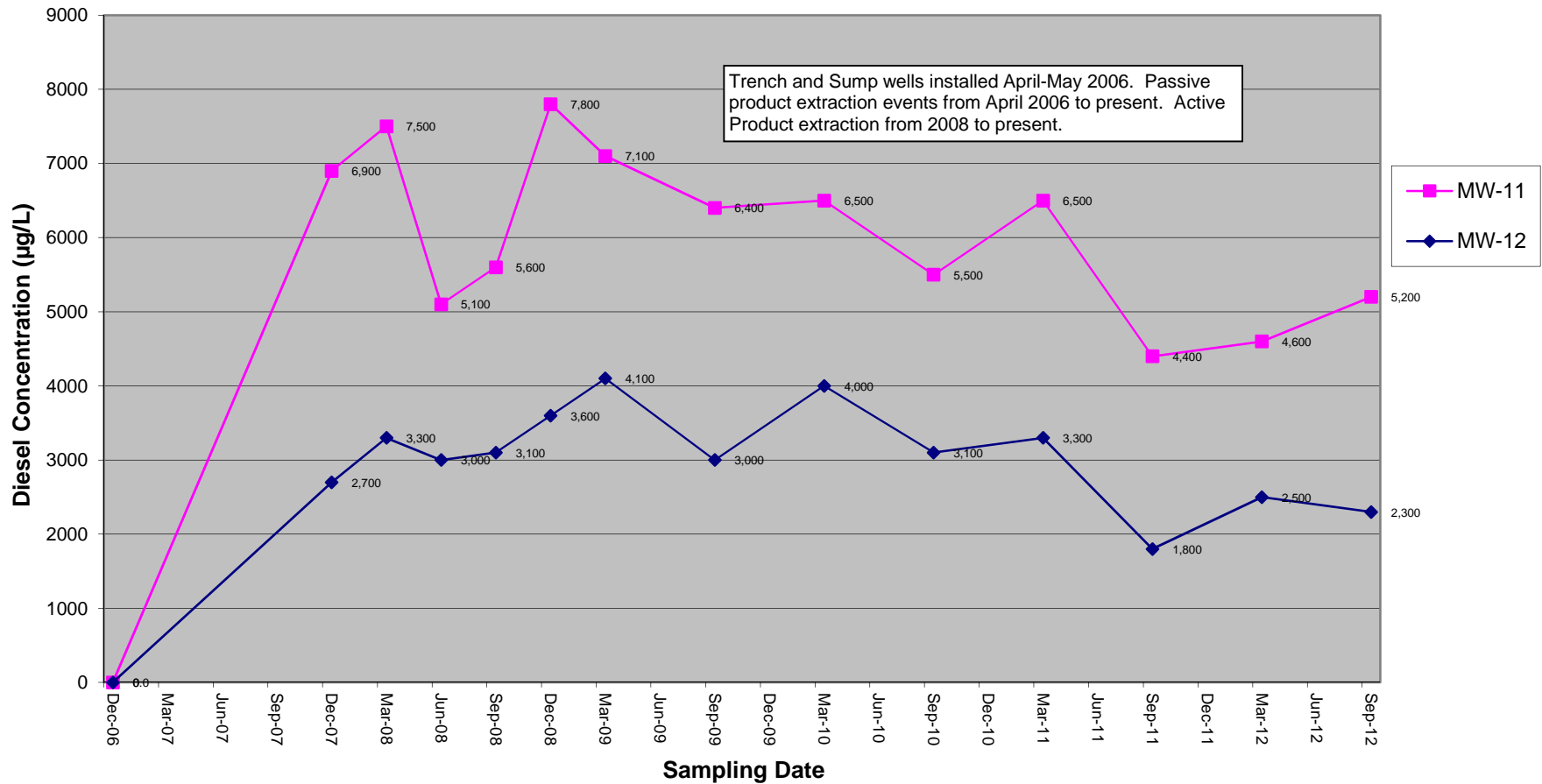
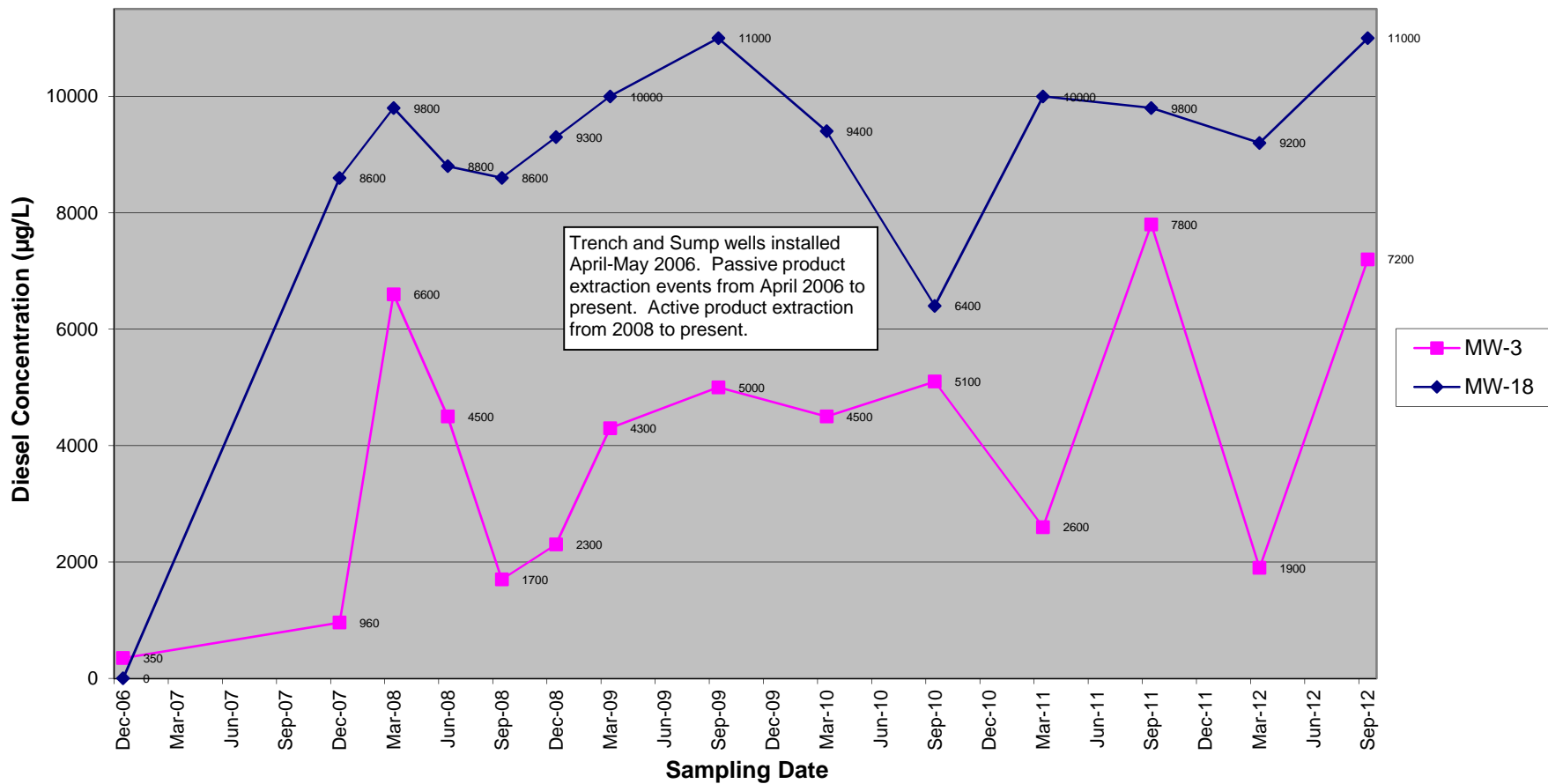


Figure 10
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Crossgradient Wells MW-3 and MW-18
December 2006 - September 2012



5.0 FREE-PHASE HYDROCARBON PRODUCT REMEDICATION SYSTEM

This section describes the historical extraction of the free product from the Emery Bay Phase I Condo parking garage, the construction details of the current LNAPL remediation system located on the northeastern portion of the garage, and the most recent product removal activities conducted on September 25 and 26, 2012 (immediately prior to the sampling event on March 27). Appendix E summarizes historical product removal.

LNAPL REMEDIATION SYSTEM CONSTRUCTION

In an attempt to maximize free product removal, PES constructed three trenches, each containing three sump wells, in the northeastern area of the Emery Bay Phase I Condo parking garage. Historically, this area has had the highest concentrations of contamination and accumulation of free product. The trenches (TA, TB, and TC) extend to depths of approximately 12.5 to 13 feet bgs, while the collection sumps (TA-W, TA-M, TA-E, TB-W, TB-M, TB-E, TC-W, TC-M, and TC-E) extend to approximately 11 to 13 feet bgs. The sumps were constructed using 10-inch-diameter schedule 40 polyvinyl chloride (PVC) casing. Blank casing was used from approximately 0.5 feet bgs to between 6 and 8 feet bgs. Slotted 0.06-inch PVC was used from between 6 and 8 feet bgs to 6 inches from the total depth of the trench. The trenches were then backfilled with high-porosity, high-permeability gravel designed to promote LNAPL migration (PES, 2007). Passive skimmers, manufactured by QED Environmental Systems (of Oakland, California) were then placed in each of the sumps in Trench A and in one of the sumps (TC-E) in Trench C.

The skimmers operate by floating on the surface of the water. Water and free product collect in a filtration reservoir, which allows water to pass through. A tube connected to the reservoir then filters the free product into a collection reservoir located below the water surface. The reservoir can be emptied by opening a valve located on the bottom of the cylindrical shaped reservoir. Each of these skimmers is attached to the sump lid by a rope, and can be removed and transferred to another sump as needed.

FREE PRODUCT EVIDENCE AND HISTORICAL EXTRACTION

As mentioned under the “Previous Investigations” subsection in Section 1.0, in approximately 1986, contaminated soil and groundwater were discovered during the removal of 12 UFSTs from the Emery Bay Phase I and Phase II parcels. To dewater the excavation during the Phase I and Phase II Condo construction, a groundwater extraction and remediation system was installed by GTI in 1988. Approximately 1 million gallons of water yielding 100 gallons of hydrocarbon product was removed from RW-1 during its operation (PES, 2007). However, corrosion and other mechanical problems caused the system to fail in 1991, and it was decommissioned in 1994. In February 2008, Stellar Environmental removed all of the old parts of the system from the well vault.

In 2004, PES began manual extraction on RW-1, and was reported to have removed approximately 48 gallons of LNAPL (PES, 2004a)—although it is unclear whether the removed material was pure product or product mixed with water. To accelerate free product removal, PES constructed a new LNAPL hydrocarbon remediation system (described below) between April and May 2004 (PES, 2007). Several extraction events were conducted by PES from May 2004 through March 2007; the extraction events yielded a total of approximately 51 gallons of LNAPL. No extraction events were conducted by PES in 2005; approximately 50 gallons of hydrocarbons was removed in 2006; and approximately 0.6 gallon of hydrocarbons was removed by PES between January and November 2007. In November and December 2007, after Stellar Environmental was retained for the project, the skimmer system yielded 2.82 gallons. Figure 11 graphs the comparison of free product extraction on a yearly basis. But in general, due to the variations in the measurement methodologies over time the difference in free-floating product recovery may be attributed as much to the different methods of estimation of the recovered volumes as other factors.

No historical product extraction reports were provided to Stellar Environmental by the previous owner or by PES. Therefore, there is little to no information on how active product extraction occurred during 2004 and 2006. Based on better defined recovery in 2008 through 2012, the volume of free product indicated to have been recovered during 2004 and 2006 appears unrealistically high, suggesting that free-phase product mixed with water was reported as free-phase product recovery.

SEPTEMBER 2012 PRODUCT REMOVAL EVENT

Historical yield from the trench recovery system has been unproductive and inconsistent, with the 1-liter passive skimmer collection reservoirs not filling up completely, or filling up with water rather than product. The highest hydrocarbon product yield has likely occurred from active pumping on recovery well RW-1 or at various other wells. Table 3 shows the allocation of free product removed

Figure 11
Total Free Product Extracted Per Year
6400 Christie Avenue, Emeryville, CA

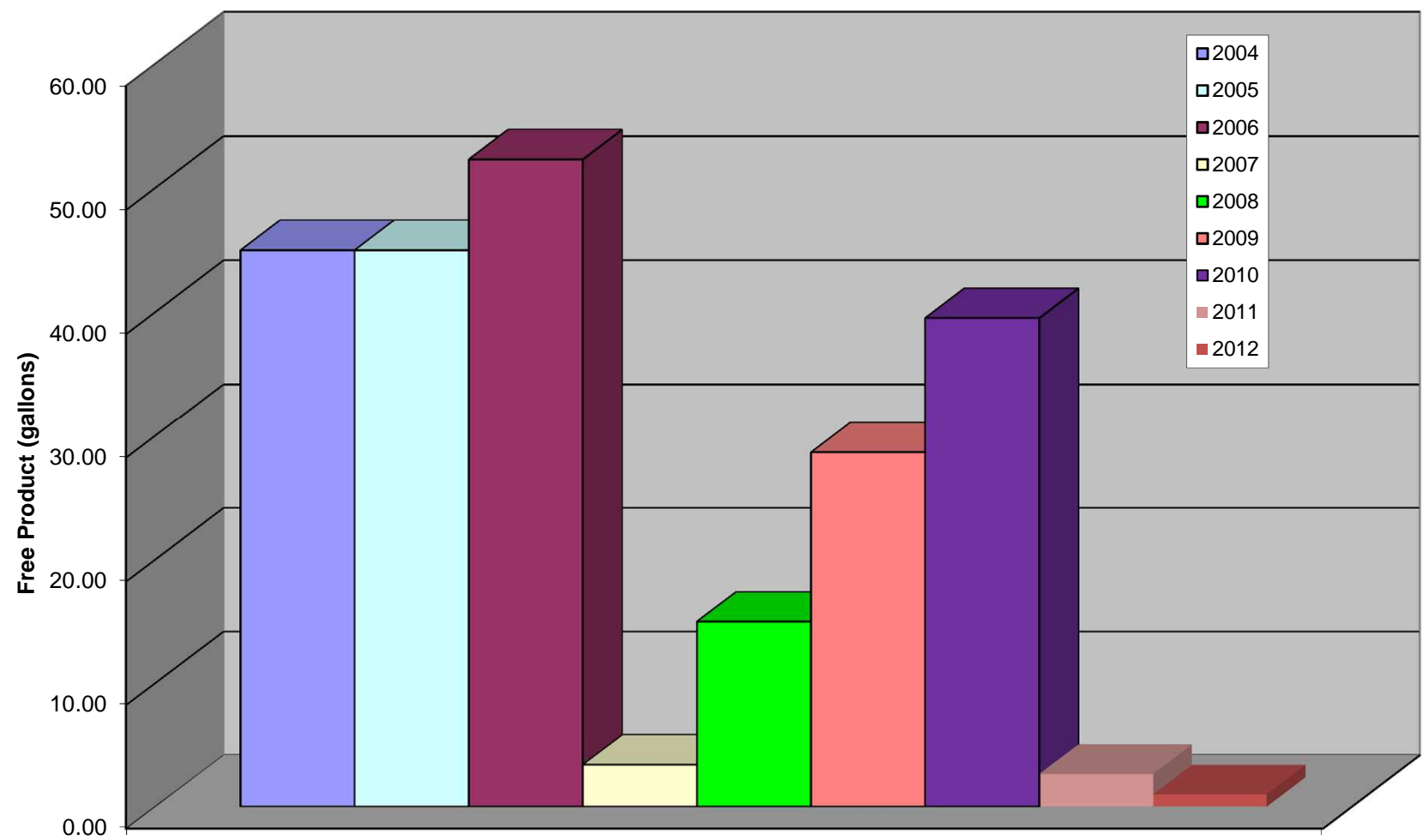


Table 3
Passive Skimmer Product Extraction in Trenches– September 25 and 26, 2012
6400 Christie Avenue, Emeryville, California

Trench ID	Number of Skimmers in Well	Total Product Removed (gallons)
TA-E	2	0.0
TA-M	2	0.0
TA-W	2	0.0
TB-E	0	NM
TB-M	0	NM
TB-W	0	NM
TC-E	1	0.0
TC-M	0	NM
TC-W	0	NM
Total Product Removed		0.0

Note:

NM = Not measured. No skimmer installed in the well.

from the collection skimmers in Trenches A and C. Only trace amounts of product was observed in the skimmers for the current monitoring period.

Stellar Environmental conducted both passive and active product removal events during the 2 days prior (September 25 and 26) to the groundwater sampling event (September 27) to determine the recharge rate of free product in wells. A total of approximately 1,050 gallons of groundwater yielding approximately 0.423 gallons (Table 4) of free product were removed during the September 2012 active product removal event.

Table 4
Active Product Extraction – September 25 and 26, 2012
6400 Christie Avenue, Emeryville, California

Well	Total Gallons of Product Removed	Well	Total Gallons of Product Removed
MW-3	0	MW-17	0
MW-4	0	MW-18	0
MW-5	0	MW-E	0.015
MW-6	0	RW-1	0.06
MW-7	0	TA-E	0.045
MW-8	0.03	TA-M	0.08
MW-9	0	TA-W	0.09
MW-10	0.023	TB-E	0
MW-11	0	TB-M	0
MW-12	0	TB-W	0
MW-13	0.08	TC-E	0
MW-14	0	TC-M	0
MW-15	0	TC-W	0
MW-16	0		
Total			0.423

Notes:

NP = not purged

Product removal estimates are based on the total amount of free product measured in the purge drum after pumping each well

The removal activities can be summarized as follows:

- On September 25-26, 2012 Stellar Environmental removed 300 gallons of groundwater and 0.17 gallons of product from TA-W and TA-M combined. The skimmers were also filled with water with little or no free product. The skimmer in TA-E contained only water and an additional 150 gallons of groundwater and 0.045 gallons of product were removed actively. Stellar Environmental removed 50 gallons of water each from TB-E, TB-M and TB-W but no measurable free product. On trench well TC-E, 50 gallons were removed actively. Only

water was present in the skimmer in this well. Stellar Environmental removed 50 gallons of water from TC-M and 30 gallons of water TC-W but no measureable product. 100 gallons of water with 0.06 gallons of free product were removed actively from recovery well RW-1.

- On September 25-26, 2012, a total of approximately 0.423 gallons of petroleum product was removed along with the 1,050 gallons of liquid that was pumped from all of the monitoring wells and former extraction wells. The petroleum product was estimated based on free-product accumulation in the extraction drum after pumping each well. Nearly all petroleum product removal was realized from the individual product purging of the site wells prior to the sampling event than was recovered from the “skimmers” (trace) designed for the product removal. Product removal was most pronounced at wells MW-8, MW-10, MW-13, MW-E and RW-1 and from trench wells TA-E, TA-M and TA-W.
- All of the purge water and free product extracted during these events was contained onsite in the 1,100-gallon AST located in the northeastern gated area of the garage. On October 5, 2012, Evergreen Oil vacuumed and transported the water to its recycling facility in Newark, California. The waste manifest and recycling certificate are included in Appendix F.

POTENTIAL CAUSES OF FREE PRODUCT VARIATIONS

As mentioned under the “Historical Free Product Extraction” subsection of this chapter, no product extraction was conducted by PES in 2005. Most of the free-product extraction was attributed to well RW-1 where approximately 50 gallons of free-floating product was apparently removed by active pumping in 2004. Other “Product” removal in 2006 was reported at a significant 52 gallons by PES; however, it was not achieved through collection from the trench hydrocarbon skimmers, but rather through active pumping; in addition, the “product” referred to by PES appears to actually have been a mixture of petroleum product and water, and on subsequent findings was clearly overwhelmingly water, not petroleum product. As previously indicated, the variations in the measurement methodologies of free-floating product recovery over time may be as much or more responsible for the significant variation in volume recovered as other factors. The PES report provided no documentation (e.g., manifests) of the removal of actual recovered petroleum product. The recovery by PES from the start of 2007 through October 2007 (when Stellar Environmental assumed environmental consulting activities) was limited to 0.6 gallon collected from the skimmers.

Thus, we conclude that the trench recovery system on its own has never been effective. In 2007, passive extraction of free product through trench well skimmers removed only 3.41 gallons. Stellar Environmental removed approximately 5.65 gallons of free product from these passive skimmers during the 2008 removal events. Approximately 14.99 gallons of product were removed by active pumping on wells during 2008, 28.65 gallons in 2009, 39.52 gallons in 2010, 2.65 gallons in 2011 and 0.798 in 2012 indicating that the active pumping of site wells is more effective at product

removal compared to the passive skimmer system, but varies substantially. Besides the methodology of volume estimating, differences in volumes of petroleum product recovered can be attributed to fluctuations in groundwater levels due to rainfall amounts, and in an overall removal of product as the active pumping process continues from year to year.

As demonstrated by the analytical data, although an increase in hydrocarbon concentrations was noted in many sites wells for the current period, active pumping has generally reduced hydrocarbon concentrations, and the perimeter, downgradient wells MW-4, MW-5 and MW-6 continue to show steady or decreasing hydrocarbon concentrations. The very high hydrocarbon concentrations detected in in well MW-13 is likely due to that sample containing LNAPL. This well is constructed with 1-inch diameter pvc, and produces very little water possibly due to the well sand pack being plugged.

IMPACT OF NEARBY CONSRUCTION DEWATERING SOUTH OF PROPERTY

For the first time since Stellar Environmental began monitoring in 2007 the stable equilibrium of the hydrocarbon plume has been compromised, apparently by construction dewatering activities occurring at 6430 Christie Avenue 100 feet to the south of the subject property. A significant change in the water levels with a draw to southwest was observed. This was corroborated with the concentration of TPH in wells located towards the southern portion of the site, particularly MW-18. Based on analytical data and on water level measurements in the site wells, the construction dewatering activities occurring at 6430 Christie Avenue to the south may be influencing groundwater flow direction beneath the subject site. The groundwater elevation in well MW-3 which is the southernmost well on site and within 100 feet of the new construction site across 64th Street, was 5.88 feet amsl for the current monitoring period which is the lowest level measured since 1989.

SOURCE AREA HYDROCARBON PRODUCT TREATMENT

Given the recent offsite influence of pulling the plume and changing the stable plume equilibrium, in-situ injection into border wells would be effective in mitigating a higher concentration of offsite migration. The use of surfactant amended, mobile extraction to enhance recovery of residual free phase LNAPL entrained within the vadose zone/smear zone should also prove effective in reestablishing a stable or reducing plume. The process employs the injection of a surfactant solution followed shortly thereafter with a vacuum extraction event such as the events conducted by Stellar Environmental at the site since 2007. The use of a surfactant can maximize the effective mass removal and minimize the total generated effluent for a typical recovery event. Additionally, tertiary bioremediation of remaining contaminant may be accelerated. The wells proposed for this in-situ injection would be MW-3, MW-8, MW-10, MW-13, and possible the extraction trench A. As these wells are not critical to defining the plume (as are the boundary wells) they would not be compromised as monitoring wells. The appropriate product to use is currently in review by Stellar Environmental.

6.0 SUMMARY, CONCLUSIONS, AND PROPOSED ACTIONS

FINDINGS AND CONCLUSIONS.

- The stable equilibrium of the hydrocarbon plume has been compromised for the first time since Stellar Environmental began monitoring in 2007 by construction dewatering activities occurring at 6340 Christie Avenue to the south of the subject property.
- An LNAPL groundwater pump-and-treat system was installed in 1989, but failed in 1991. Active pumping of free product began again in 2004, and a product extraction system consisting of passive product removal was installed in 2006. Groundwater monitoring events have been sporadically conducted since 1988; quarterly groundwater monitoring events were conducted for the first time in 2008. The quarterly sampling was reduced to a semiannual frequency in 2009.
- The site currently contains 17 monitoring wells, 1 recovery well, and 9 product extraction trench wells. The current monitoring is the 18th sampling event conducted since 1988.
- Site geological conditions consist of a combination of fill and soft bay sediment to between 15 and 20 feet bgs, covered by approximately 1 to 2 feet of pavement and imported fill. This is underlain by approximately 20 feet of firm soil consisting of primarily dense silty sand with intermittent layers of silty and sandy clay. Stiff to very stiff clay extends from a depth of approximately 40 feet to approximately 102 feet.
- The groundwater direction during this monitoring event was found to range from the southwest on the northern portion of the site to the west on the central portion of the site. LNAPL in wells in the northern portion of the site make well gauging difficult, and may be artificially influencing groundwater flow direction in that area. Local effects from dewatering activities associated with the construction site located at 6340 Christie Avenue appear to be influencing the groundwater in the central and southern portions of the subject site.
- Groundwater elevations during the March 2012 event ranged from 5.88 to 10.40 feet above mean sea level. The average groundwater gradient was 0.001 foot/foot.
- Current contaminants of concern include TPHg, TPHd, and BTEX. Current groundwater concentrations exceeded the ESLs for these contaminants. MTBE was not detected in any site wells during the current event.

- The highest concentrations of TVHg (73,000 µg/L) detected in well MW-8 and TEHd (7,200,000 µg/L) in MW-13, represents an increase in both constituents in those wells as compared to the previous sampling event. This is likely attributable to isolated LNAPL in the samples.
- Diesel was detected in all site wells above the ESL of 210 µg/L (where groundwater is not a likely drinking water resource), but showed a decrease in concentration in five of the 18 wells sampled as compared to nine of 18 wells in the September 2011 sampling event.
- Increases in TVHg concentrations in September 2012 compared to the September 2011 monitoring event were observed in wells MW-6, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-18, MW-E and RW-1. This represents thirteen wells exhibiting an increase as compared to seven wells for the September 2011 sampling event. The remaining wells either remained approximately the same (MW-3 and MW-7) or exhibited a decrease (MW-4, MW-5 and MW-16).
- With the exception of monitoring wells MW-3, MW-4, MW-5, MW-6, MW-9 and MW-16, all onsite monitoring wells exceeded the ESL for benzene of 46 µg/L where groundwater is not a drinking water resource. At the same time, an increase in benzene was observed in wells MW-3, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-15, MW-17, MW-18, EW-1 and RW-1. Benzene concentrations decreased in wells MW-6, MW-7 and MW-14.
- Toluene was detected at or above the ESL of 130 µg/L in monitoring wells MW-8, MW-12, MW-13, MW-14, MW-15 and MW-E. Except for wells MW-4, MW-5 and MW-6, Toluene was detected in the remainder of the site wells but at levels below the ESL.
- Ethylbenzene was detected above the 43-µg/L ESL (where groundwater is not a likely drinking water resource) in monitoring wells MW-8, MW-9, MW-10, MW-12, MW-13, MW-14, MW-15 and MW-E. Ethylbenzene was also detected in MW-3, MW-7, MW-16, MW-18, and RW-1 but at levels below the ESL.
- Total xylene concentrations in monitoring wells MW-7, MW-8, MW-13, MW-14, MW-15 and MW-E were above the 100-µg/L ESL where groundwater is not a likely drinking water resource. Total xylenes were also detected in MW-3, MW-9, MW-10, MW-11, MW-13, MW-16, MW-17, MW-18 and RW-1 but below the ESL.
- MTBE was not detected in any of the monitoring wells.
- Stellar Environmental conducted passive skimmer product removal from skimmers installed in the trench wells TA-W, TA-M, TA-E and TC-E during the September 2012 removal event. No measurable product was present in the skimmers which were filled with water and traces of product.

- Stellar Environmental also conducted active product removal on the trench wells, source area wells, recovery well, and select monitoring wells during the September 2012 event. A total of approximately 1,050 gallons of groundwater that included approximately 0.423 gallons of free-floating petroleum product from all the wells was removed with the estimate based on free-product accumulation in the extraction drum after pumping each well.
- The trench recovery system, where free product is designed to collect in 1-liter skimmers, is effective in removing small amounts of free product, but is not effective in decreasing the size of the plume overall. Although overall hydrocarbon concentrations trended up for the current monitoring event, active pumping from site wells over time appears to have an effect in controlling overall hydrocarbon concentrations, and is likely continuing to help prevent offsite migration.

RECOMMENDATIONS

- We recommend that ACHCSA converse with the engineering consultant for the new development being constructed at 6340 Christie Avenue (ACHCSA Case # RO0000057) regarding the effects that dewatering that site appears to be having on the subject property and the construction site itself, including the possibility of pulling contaminants into the construction dewatering zone.
- Injection of bioremediation compound additive into the wells MW-5, MW-9, MW-17 and MW-18 should be completed to mitigate against the offsite migration of the TPHd occurring, particularly to the south under the influence of the southern construction site work.
- Injection of surfactant enhanced additive into the wells with historical LNAPL (MW-3, MW-8, MW-10, MW-13 and possibly Trench A) should be conducted to enhance recovery as this emergent technology can be a cost-effective means of reducing LNAPL that complements the existing extraction events.
- Both active and passive free product removal events should be continued to ascertain their effectiveness in reducing the plume size over time. Active product removal and emptying of product skimmers is being conducted on a semiannual basis immediately prior to the sampling event.
- Groundwater monitoring should be continued on a semiannual basis to document contaminant concentrations over time.
- Electronic uploads to ACEH's ftp system and the State Water Board's GeoTracker system should be continued as required.

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8.0 LIMITATIONS

This report has been prepared for the exclusive use of Emerybay Commercial Association, their authorized representatives and assigns, and the regulatory agencies. No reliance on this report shall be made by anyone other than those for whom it was prepared.

The findings and conclusions presented in this report are based on a review of previous investigators' findings at the site, as well as previous site investigations conducted by SES. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this limited remedial investigation are qualified to perform such investigations and have accurately reported the information available, but cannot attest to the validity of that information. No warranty, expressed or implied, is made as to the findings, conclusions, and recommendations included in the report.

The findings of this report are valid as of the date of this report. Site conditions may change with the passage of time, natural processes, or human intervention, which can invalidate the findings and conclusions presented in this report. As such, this report should be considered a reflection of the current site conditions as based on the activities completed.

APPENDIX A

Historical Groundwater Well Analytical Results

TABLE A
Historical Groundwater Monitoring Well Groundwater Analytical Results
Petroleum and Aromatic Hydrocarbons (µg/L)
6400 Christie Avenue, Emeryville, California

MW-1									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	380	17,000	NA	8,600	940	250	570	NA
2	May-89	130	24,000	NA	16,000	2,100	300	1,200	NA
3	Feb-91	<10	22,000	NA	6,800	3,500	410	2,000	NA

Monitoring well abandoned - date unclear

MW-2									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	72	22	NA	<0.5	<0.5	<0.5	<0.5	NA
2	May-89	40	18	NA	<0.5	<0.5	<0.5	<0.5	NA
3	Feb-91	83	<10	NA	<0.3	<0.3	<0.3	<0.6	NA

Monitoring well abandoned - date unclear

MW-3									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	4,200	NA	77	1,400	140	560	NA
2	May-89	110	1,800	NA	64	250	61	110	NA
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	3,400	440	3,900	<0.5	<0.5	1.5	<1.0	9.7
5	Dec-06	350	280	230	<0.5	<0.5	<0.5	<0.5	2.0
6	Dec-07	960	150	NA	0.54	0.54	<0.5	<0.5	<2.0
7	Mar-08	6,600	450	NA	<0.5	<0.5	1.8	2.0	4.3
8	Jun-08	4,500	440	NA	<0.5	<0.5	4.0	2.0	9.5
9	Sep-08	1,700	280	NA	<0.5	<0.5	1.0	<0.5	<2.0
10	Dec-08	2,300	240	NA	<0.5	<0.5	1.1	<0.5	<2.0
11	Mar-09	4,300	260	NA	1.3	<0.5	1.8	0.5	2.9
12	Sep-09	5,000	300	NA	2.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	4,500	230	670	1.7	<0.5	1.0	<0.5	2.7
14	Sep-10	5,100	470	NA	<0.5	0.64	<0.5	1.6	2.9
15	Mar-11	2,600	540	NA	47	28	7.6	11.8	17
16	Sep-11	7,800	290	NA	13	1.5	<0.50	2.0	9.5
17	Mar-12	1,900	430	NA	3.3	<0.5	<0.5	2.5	2.7
18	Sep-12	7,200	380	NA	18	14	6.0	25.3	<2.0

MW-4									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	100	NA	2.0	1.0	<0.5	2.0	NA
2	May-89	60	18	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	<10	<10	NA	<0.3	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	50	<200	<0.5	<0.5	<0.5	<0.5	<1.0
6	Dec-07	710	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
7	Mar-08	680	57	NA	<0.5	<0.5	<0.5	<0.5	<2.0
8	Jun-08	620	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
9	Sep-08	440	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
10	Dec-08	730	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
11	Mar-09	940	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	660	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	680	<50	380	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-10	770	71	NA	<0.5	<0.5	<0.5	<0.5	<2.0
15	Mar-11	590	<50	NA	<0.5	<0.5	<0.5	<0.5	2.4
16	Sep-11	380	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
17	Mar-12	340	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
18	Sep-12	350	0	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-5									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	530	890	NA	<1.0	<1.0	1.0	3.0	NA
2	May-89	90	5.0	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	58	<10	NA	0.6	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	330	<25	<200	0.6	<0.5	<0.5	<0.5	<1.0
6	Dec-07	5,100	1.3	NA	1.3	<0.5	<0.5	1.23	<2.0
7	Mar-08	4,500	<50	NA	0.53	<0.5	<0.5	<0.5	<2.0
8	Jun-08	3,300	<50	NA	0.64	<0.5	<0.5	<0.5	<2.0
9	Sep-08	4,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
10	Dec-08	5,200	<50	NA	0.61	<0.5	<0.5	<0.5	<2.0
11	Mar-09	5,800	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	5,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	4,300	<50	5,400	4.9	<0.5	<0.5	<0.5	<2.0
14	Sep-10	4,500	<50	NA	0.58	<0.5	<0.5	<0.5	2.0
15	Mar-11	4,900	<50	NA	1.3	<0.5	<0.5	<0.5	5.9
16	Sep-11	4,400	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
17	Mar-12	3,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
18	Sep-12	4,100	0	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-6									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	52	NA	1.0	<0.5	<0.5	<0.5	NA
2	May-89	140	31	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	130	40	NA	0.8	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	200	43	<200	1.1	<0.5	<0.5	<0.5	<1.0
6	Dec-07	1,000	<50	NA	0.98	0.81	<0.5	0.5	<2.0
7	Mar-08	940	<50	NA	0.87	1.0	<0.5	<0.5	<2.0
8	Jun-08	1,100	56	NA	0.92	<0.5	<0.5	<0.5	2.9
9	Sep-08	1,000	<50	NA	0.91	<0.5	<0.5	<0.5	<2.0
10	Dec-08	1,400	<50	NA	1	<0.5	<0.5	<0.5	<2.0
11	Mar-09	1,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	1,500	<50	NA	0.79	<0.5	<0.5	<0.5	<2.0
13	Mar-10	910	<50	1,500	1.9	<0.5	<0.5	<0.5	<2.0
14	Sep-10	1,200	72	NA	1.0	<0.5	<0.5	<0.5	<2.0
15	Mar-11	1,900	<50	NA	1.3	<0.5	<0.5	<0.5	3.9
16	Sep-11	1,900	<50	NA	1.8	<0.5	<0.5	<0.5	<2.0
17	Mar-12	2,300	<50	NA	0.82	<0.5	<0.5	<0.5	<2.0
18	Sep-12	2,200	0	NA	0.85	<0.5	<0.5	<0.5	<2.0

MW-7									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,600	490	1,900	240	100	14	56	<2.5
2	Dec-06	420	<25	470	<0.5	<0.5	<0.5	<0.5	<1.0
3	Dec-07	6,300	3,100	NA	640	28	48	231	<10
4	Mar-08	7,000	360	NA	140	5.8	11	58	<2.0
5	Jun-08	5,400	1,700	NA	480	15	28	139	<2.0
6	Sep-08	9,400	1,200	NA	330	12	21	88	<2.0
7	Dec-08	8,700	2,200	NA	640	100	43	185	<4.0
8	Mar-09	8,700	1,700	NA	510	33	47	220	<10
9	Sep-09	6,800	620	NA	310	9.5	27	117	<10
10	Mar-10	8,700	330	6,800	68	2.2	10	31.6	<2.0
11	Sep-10	10,000	1,300	NA	580	54	35	163	<20
12	Mar-11	8,100	630	NA	160	5.3	14	65	<2.0
13	Sep-11	8,000	2,900	NA	900	46	51	284	<2.0
14	Mar-12	7,900	740	NA	220	150	14	140	<2.0
15	Sep-12	10,000	1,700	NA	660	35	32	137	<2.0

MW-8									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	140,000	51,000	56,000	19,000	720	2,400	3,300	<50
2	Dec-06	2,400	29,000	<380	13,000	<100	640	500	<200
3	Dec-07	5,900	30,000	NA	11,000	180	650	561	<100
4	Mar-08	21,000	47,000	NA	10,000	260	1,200	458	<2.0
5	Jun-08	7,300	27,000	NA	9,300	140	790	290	<2.0
6	Sep-08	13,000	35,000	NA	11,000	190	900	402	<100
7	Dec-08	7,600	19,000	NA	6,800	110	380	236	<50
8	Mar-09	10,000	22,000	NA	9,400	200	640	358	<50
9	Sep-09	9,200	26,000	NA	8,600	100	630	230	170
10	Mar-10	11,000	19,000	1,900	6,200	120	830	149	<2.0
11	Sep-10	7,600	7,800	NA	8,800	110	620	212	<100
12	Mar-11	8,800	19,000	NA	8,100	130	890	149	<2.0
13	Sep-11	18,000	13,000	NA	8,000	140	860	178	<2.0
14	Mar-12	9,800	380	NA	100	3	5.9	20	<2.0
15	Sep-12	24,000	73,000	NA	18,000	520	2,300	670	<2.0

MW-9									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,300	95	1,300	4.7	0.68	<0.5	<1.0	<0.5
2	Dec-06	<50	92	<200	2.8	<0.5	<0.5	<0.5	<1.0
3	Dec-07	8,400	84	NA	4.7	1.1	<0.5	1.9	<2.0
4	Mar-08	8,600	100	NA	4.1	1.1	<0.5	<0.5	2.0
5	Jun-08	5,900	98	NA	4.9	<0.5	<0.5	<0.5	2.3
6	Sep-08	9,300	130	NA	4.6	<0.5	<0.5	<0.5	<50
7	Dec-08	7,800	95	NA	4.0	0.54	<0.5	<0.5	<2.0
8	Mar-09	9,400	130	NA	4.6	<0.5	<0.5	<0.5	<2.0
9	Sep-09	8,200	98	NA	4.0	<0.5	<0.5	<0.5	<2.0
10	Mar-10	6,500	140	4,000	5.2	<0.5	<0.5	<0.5	<2.0
11	Sep-10	6,400	170	NA	4.8	0.77	<0.5	<0.5	<2.0
12	Mar-11	11,000	150	NA	5.9	0.61	<0.5	0.5	<2.0
13	Sep-11	9,400	62	NA	4.2	<0.5	<0.5	<0.5	<2.0
14	Mar-12	9,400	140	NA	6.2	0.61	<0.5	0.51	<2.0
15	Sep-12	10,000	130	NA	7.2	0	0.53	0.92	<2.0

MW-10									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	840,000	14,000	<100,000	4,000	77	200	120	<50
2	Dec-06	19,000	12,000	<4,000	4,600	42	90	52	<50
3	Dec-07	4,700	13,000	NA	5,300	96	42	86	<50
4	Mar-08	280,000	10,000	NA	2,600	50	37	58.7	22
5	Jun-08	4,800	10,000	NA	3,800	62	24	61	<2.0
6	Sep-08	4,700	1,200	NA	350	11	3.4	11	<2.0
7	Dec-08	3,200	2,900	NA	550	45	15	56	<2.0
8	Mar-09	6,200	8,200	NA	890	46	78	130	<2.0
9	Sep-09	6,100	1,400	NA	1,200	35	19	31	<2.0
10	Mar-10	3,900	7,800	960	1,200	46	34	56	54
11	Sep-10	3,500	3,400	NA	1,500	47	18	44	<4.0
12	Mar-11	4,500	3,700	NA	1,200	81	25	46.4	<2.0
13	Sep-11	3,800	4,600	NA	720	49	26	52.4	<2.0
14	Mar-12	3,500	2,400	NA	240	27	10	33.6	<2.0
15	Sep-12	13,000	6,600	NA	1,800	89	130	46	<2.0

MW-11									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	920	<200	26	4.5	1.8	5.4	<1.0
2	Dec-07	6,900	1,500	NA	320	44	53	140	<2.0
3	Mar-08	7,500	1,200	NA	120	7.6	10	24.9	3.0
4	Jun-08	5,100	2,000	NA	190	11	7.7	16.3	<2.0
5	Sep-08	5,600	2,200	NA	260	20	34	60	<2.0
6	Dec-08	7,800	2,100	NA	270	14	7.6	15.6	<2.0
7	Mar-09	7,100	1,400	NA	200	6.4	7.3	10.4	<2.0
8	Sep-09	6,400	1,900	NA	320	13	9.8	15.2	2.0
9	Mar-10	6,500	1,600	6,900	150	<0.5	3.9	12.8	2.9
10	Sep-10	5,500	1,300	NA	330	15	9.2	17.3	<2.0
11	Mar-11	6,500	3,400	NA	1300	22	9.6	19.9	<2.0
12	Sep-11	4,400	3,600	NA	1200	36	16	39.1	<2.0
13	Mar-12	4,600	5,700	NA	2100	27	12	16.7	<2.0
14	Sep-12	5,200	4,100	NA	1,500	33	<0.5	18	<2.0

MW-12									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	19,000	<200	9,100	51	<50	110	<100
2	Dec-07	2,700	17,000	NA	8,000	110	25	115	<40
3	Mar-08	3,300	33,000	NA	9,200	140	85	116	<2.0
4	Jun-08	3,000	17,000	NA	6,600	95	50	110	<2.0
5	Sep-08	3,100	14,000	NA	6,200	79	18	83	<10
6	Dec-08	3,600	19,000	NA	7,900	140	72	124	<50
7	Mar-09	4,100	14,000	NA	6,100	150	130	111	<40
8	Sep-09	3,000	1,900	NA	4,500	80	14	51	<40
9	Mar-10	4,000	15,000	1,900	6,200	110	73	101	<2.0
10	Sep-10	3,100	4,900	NA	5,900	97	47	73	<100
11	Mar-11	3,300	15,000	NA	7,900	180	200	127	<2.0
12	Sep-11	1,800	8,600	NA	2,700	85	31	63	<2.0
13	Mar-12	2,500	17,000	NA	6,300	160	180	124	<2.0
14	Sep-12	2,300	10,000	NA	4,600	160	210	85	<2.0

MW-13									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	12,000	87,000	2,100	18,000	470	2,400	3,500	<400
2	Dec-07	NA	68,000	NA	19,000	650	1,700	2,440	<100
3	Mar-08	1,100,000	98,000	NA	19,000	820	2,300	3,190	<100
4	Jun-08	71,000	44,000	NA	12,000	510	1,600	1,950	<2.0
5	Sep-08	440,000	52,000	NA	<100	500	1,600	1,500	<100
6	Dec-08	1,100,000	2,700,000	NA	23,000	<250	40,000	45,000	<1,000
7	Mar-09	2,000,000	330,000	NA	25,000	1,300	6,400	8,500	<1,000
8	Sep-09	38,000	1,400,000	NA	19,000	2,500	19,000	21,300	<1,000
9	Mar-10	15,000	43,000	670	12,000	310	1,600	1,140	<2,500
10	Sep-10	3,100,000	1,700,000	NA	21,000	2,300	30,000	17,200	7,000
11	Mar-11	13,000	86,000	NA	7,900	180	200	127	<2.0
12	Sep-11	15,000	49,000	NA	16,000	380	1,900	850	<2.0
13	Mar-12	1,100,000	260,000	NA	23,000	1,500	5,700	4,100	<2.0
14	Sep-12	7,200,000	60,000	NA	22,000	580	2,100	1,700	<2.0

MW-14									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	8,300	<200	3,700	240	230	260	<50
2	Dec-07	2,600	6,800	NA	3,100	150	220	168	<20
3	Mar-08	4,400	18,000	NA	4,400	330	340	245	<2.0
4	Jun-08	2,600	7,700	NA	2,600	180	200	141	<2.0
5	Sep-08	2,500	4,100	NA	1,300	50	80	61	<10
6	Dec-08	2,800	2,300	NA	830	27	45	30.7	<10
7	Mar-09	3,200	13,000	NA	4,300	870	260	283	<50
8	Sep-09	2,100	550	NA	630	14	28	17	<20
9	Mar-10	3,900	6,700	3,100	2,400	400	140	185	<20
10	Sep-10	2,500	2,000	NA	1,700	44	98	89	<40
11	Mar-11	2,800	16,000	NA	6,600	1600	450	600	<2.0
12	Sep-11	5,900	20,000	NA	6,600	690	550	740	<2.0
13	Mar-12	4,400	13,000	NA	3,000	1400	340	870	<2.0
14	Sep-12	9,900	31,000	NA	4,800	2400	740	2450	<2.0

MW-15									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	9,200	<200	3,700	<25	60	57	<50
2	Dec-07	3,300	8,100	NA	3,000	48	28	44.5	<20
3	Mar-08	3,000	13,000	NA	3,600	66	210	59.5	<64
4	Jun-08	2,900	15,000	NA	5,800	61	230	56.4	<2.0
5	Sep-08	3,400	18,000	NA	7,800	73	270	59.9	<10
6	Dec-08	3,000	20,000	NA	7,600	95	300	84.2	<50
7	Mar-09	3,400	17,000	NA	7,200	91	170	60	<50
8	Sep-09	2,700	2,300	NA	6,200	71	68	42	<50
9	Mar-10	3,700	14,000	910	5,900	74	170	69	<2.0
10	Sep-10	3,500	5,800	NA	8,100	95	170	71	<100
11	Mar-11	3,200	11,000	NA	5,600	88	110	66.1	<2.0
12	Sep-11	2,200	15,000	NA	6,400	100	71	77.7	<2.0
13	Mar-12	3,500	16,000	NA	7,200	110	160	177	<2.0
14	Sep-12	3,500	28,000	NA	12,000	300	380	297	<2.0

MW-16									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	190	<200	11.0	1.4	<0.5	<0.5	<1.0
2	Dec-07	8,500	71	NA	13	2.6	<0.5	1.46	<2.0
3	Mar-08	12,000	60	NA	11	0.73	<0.5	<0.5	<2.0
4	Jun-08	10,000	120	NA	13	2.2	<0.5	<0.5	2
5	Sep-08	8,200	64	NA	9.9	1.9	<0.5	<0.5	<2.0
6	Dec-08	8,800	60	NA	11	2.8	<0.5	0.53	<2.0
7	Mar-09	14,000	78	NA	12	2.3	<0.5	<0.5	<2.0
8	Sep-09	10,000	51	NA	9.3	1.6	<0.5	<0.5	2.2
9	Mar-10	12,000	70	4,700	12	2.1	0.56	1.35	<2.0
10	Sep-10	9,800	77	NA	12	1.9	<0.5	0.55	2
11	Mar-11	9,900	64	NA	13	1.6	<0.5	2.3	16
12	Sep-11	10,000	74	NA	17	2.3	<0.5	1.33	<2.0
13	Mar-12	8,400	66	NA	12	1.8	<0.5	1.07	<2.0
14	Sep-12	7,700	84	NA	17	1.5	0.57	0.69	<2.0

MW-17									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	14,000	<200	3,400	1,100	480	<0.5	<1.0
2	Dec-07	2,900	5,000	NA	1,100	260	110	206	<10
3	Mar-08	3,100	6,800	NA	1,200	110	91	94	21
4	Jun-08	2,900	7,200	NA	1,100	45	75	66	<2.0
5	Sep-08	3,300	5,500	NA	900	63	69	69	<10
6	Dec-08	3,200	7,100	NA	1,100	530	190	390	<10
7	Mar-09	3,000	5,400	NA	770	150	87	161	<2.0
8	Sep-09	3,000	2,200	NA	120	3.1	11	1.6	<2.0
9	Mar-10	3,400	5,000	1,900	910	66	73	93	<2.0
10	Sep-10	2,800	3,500	NA	1,400	62	46	76	<40
11	Mar-11	3,900	6,100	NA	1,100	44	55	70	<2.0
12	Sep-11	2,400	4,600	NA	850	49	51	64	<2.0
13	Mar-12	2,200	5,800	NA	1,500	57	58	67	<2.0
14	Sep-12	1,400	4,800	NA	1,300	45	100	41	<2.0

MW-18									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	120	<200	22	6.2	3.2	6.2	<2.0
2	Dec-07	8,600	<50	NA	0.98	<0.5	<0.5	<0.5	<2.0
3	Mar-08	9,800	<50	NA	0.52	<0.5	<0.5	<0.5	2.0
4	Jun-08	8,800	<50	NA	<0.5	<0.5	<0.5	<0.5	3.1
5	Sep-08	8,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
6	Dec-08	9,300	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
7	Mar-09	10,000	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
8	Sep-09	11,000	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
9	Mar-10	9,400	<50	2,700	<0.5	<0.5	<0.5	<0.5	<2.0
10	Sep-10	6,400	1,800	NA	2200	45	64.0	78.0	<50
11	Mar-11	10,000	68	NA	5.5	1.1	<0.5	1.3	17
12	Sep-11	9,800	<50	NA	0.58	<0.5	<0.5	<0.5	<2.0
13	Mar-12	9,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-12	11,000	160	NA	5.1	0	5.7	0.6	<2.0

MW-E									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	100	5,400	NA	3,200	690	97	330	NA
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	470	810	<500	340	6.1	2.2	7.7	<1.0
5	Dec-06	280	1,900	<200	910	<10	10	<10	<20
6	Dec-07	6,900	7,000	NA	3,300	50	51	80	<20
7	Mar-08	6,300	2,700	NA	780	17	20	20.9	12
8	Jun-08	5,200	7,400	NA	2,900	43	85	50	<2.0
9	Sep-08	7,800	11,000	NA	3,800	170	130	257	<50
10	Dec-08	9,400	9,100	NA	3,400	110	180	182	<50
11	Mar-09	5,600	850	NA	270	7.5	13	17.5	<2.0
12	Sep-09	6,200	540	NA	1,200	22	37	37.2	<2.0
13	Mar-10	3,800	2,400	5,100	1,000	20	37	26.9	4.9
14	Sep-10	6,600	1,800	NA	2,200	45	64	78	<50
15	Mar-11	5,900	4,400	NA	2,600	46	64	90	<50
16	Sep-11	7,600	3,600	NA	4,500	150	340	402	<2.0
17	Mar-12	5,800	6,500	NA	2,600	50	52	84	<2.0
18	Sep-12	8,300	7,800	NA	5,500	190	430	431	<2.0

RW-1									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	NS	NS	NS	NS	NS	NS	NS	NS
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	640	<200	100	1.3	2	1.6	<1.0
6	Dec-07	2,100	770	NA	110	<0.5	3.8	1.96	<2.0
7	Mar-08	11,000	890	NA	100	4.2	4.4	2.0	<2.0
8	Jun-08	1,500	1,200	NA	290	4.8	10	4.8	<2.0
9	Sep-08	1,900	1,400	NA	280	9.8	10	6.7	<2.0
10	Dec-08	54,000	1,100,000	NA	500	<250	3,200	530	<1,000
11	Mar-09	2,800	950	NA	180	3.6	13	3	<2.0
12	Sep-09	770	350	NA	120	3.1	11	2	<2.0
13	Mar-10	810	200	<300	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-10	980	860	NA	170	4.0	5.6	2.8	8.0
15	Mar-11	810	310	NA	15	4.4	2.5	3.9	8.8
16	Sep-11	440	230	NA	28	2.7	1.7	1.5	<2.0
17	Mar-12	1,900	502	NA	70	2.0	2.2	2.1	<2.0
18	Sep-12	890	790	NA	150	9.6	5.5	12.0	<2.0

Notes:

The 1988, 1989, and 1991 sampling events were conducted by Groundwater Technology, Inc.

The 2004 and 2006 sampling events were conducted by PES Environmental.

NS = Not sampled

NA = Not analyzed for this constituent

All concentrations shown in µg/L.

APPENDIX B

Groundwater Monitoring Field Data Sheets

WELL GAUGING DATA

Project # 120927-MWI Date 9/27/02 Client STELLAR

Site 6400 CHRISTIE AVE, EMERYVILLE, CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or <u>TOC</u>	Notes
MW-3	1009	2	ODOR SHEEN	*			*10.77	—		THICK BLACK STICKY SPH
MW-4	0839	2					7.82	24.95		
MW-5	0850	2					9.70	24.26		
MW-6	0853	2					7.51	23.28		
MW-7	0905	3/4					10.50	19.20		
MW-8	0940	3/4	ODOR SHEEN	8.46	0.79		9.25	—		
MW-9	0910	3/4					9.54	19.67		
MW-10	0945	3/4	ODOR SHEEN	7.40	0.08		7.40	—		
MW-11	0913	3/4					10.24	19.63		
MW-12	0916	3/4					7.44	18.99		
MW-13	0950	3/4	ODOR SHEEN	9.23	0.31		9.54	—		THICK BLACK SPH
MW-14	0955	3/4	ODOR SHEEN	7.20	0.02		7.22	—		
MW-15	0935	3/4					8.03	18.90		
MW-16	0920	3/4					9.15	19.10		
MW-17	0859	3/4					7.77	19.80		
MW-18	0925	3/4					8.59	19.59		
MW-E	0930	2					9.95	45.52		

* THICK STICKY BLACK SPH: COATED PROBE, UNABLE TO ACCURATELY MEASURE.

WELLHEAD INSPECTION CHECKLIST

Date 9/27/12 Client STELLAR

Site Address 6400 CHRISTIE AVE, EMERYVILLE, CA

Job Number 120927-WW1 Technician UN

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-3	X							
MW-4	X							
MW-5	X							
MW-6	O							
MW-7							X	
MW-8	X							
MW-9							X	
MW-10							X	
MW-11	X							
MW-12	X							
MW-13	X							
MW-14	X							
MW-15							X	
MW-16							X	
MW-17							X	
MW-18	X							

NOTES: MW-15 : - 2/2 BOLTS (9/16"). MW-16 : - 1/2 BOLTS (9/16"). MW-9 : - 1/2 BOLTS (9/16").
 MW-7 : - 1/2 BOLTS (9/16"). MW-17 : - 1/2 BOLTS (9/16"). MW-10 : - 1/2 BOLTS (9/16").

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/27/12
Well I.D.: MW-5	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>24.86</u>	Depth to Water (DTW): <u>9.70</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.73 <u>12.73</u>	

Purge Method: Bailer <u>Disposable Bailer</u> Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Other: _____
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$2.4 \text{ (Gals.)} \times 3 = 7.2 \text{ Gals.}$ I Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1133	19.7	7.67	2337	>1000	2.4	
WELL	DEWATERED		@ 4.5	GALS		
1530	18.1	8.10	2357	97	—	

Did well dewater? Yes No Gallons actually evacuated: 4.5

Sampling Date: 9/27/12 Sampling Time: 1530 Depth to Water: 9.87

Sample I.D.: MW-5 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: SEE SAN ~~Diss. Chrome & Hex Chrome~~

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/27/12
Well I.D.: MW-6	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth (TD): <u>23.28</u>	Depth to Water (DTW): <u>7.51</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.66</u>	

Purge Method: Bailer Disposable Bailer Waterria Peristaltic Extraction Pump
 Positive Air Displacement Electric Submersible Other _____
 Sampling Method: Bailer Disposable Bailer
 Extraction Port Dedicated Tubing
 Other: _____

$2.5 \text{ (Gals.)} \times 3 = 7.5 \text{ Gals.}$ <p>1 Case Volume Specified Volumes Calculated Volume</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1146	17.7	11.12	1620	127	2.5	
1150	17.2	10.98	1485	634	5	
1154	17.7	11.30	1560	439	7.5	
* DOUBLE CHECKED pH w/ 2nd ULTRAMETER						

Did well dewater? Yes No Gallons actually evacuated: 7.5

Sampling Date: 9/27/12 Sampling Time: 1200 Depth to Water: 7.58

Sample I.D.: MW-6 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: ~~Diss. Chrome & Hex Chrome~~ ^{see row}

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/28/12
Well I.D.: MW-8	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): <u> </u>	Depth to Water (DTW): <u>9.25</u>
Depth to Free Product: <u>8.46</u>	Thickness of Free Product (feet): <u>0.79</u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer	Watterra	Sampling Method: Bailer
Disposable Bailer	<u>Peristaltic</u>	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other: <u> </u>	Dedicated Tubing
		Other: <u>new 1/2" tubing</u>

(Gals.) X <u>3</u> = <u> </u> Gals. 1 Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0852						start purge @ 175 ml/min
0858						stop purge
UNABLE to measure SPH/WL DURING PURGE.						

Did well dewater? Yes No Gallons actually evacuated: 1050 ml

Sampling Date: 9/28/12 Sampling Time: 0905 Depth to ~~Water~~ ^{SPH}: 9.40

Sample I.D.: MW-8 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see SOW Diss. Chrome & Hex Chrome

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/27/12
Well I.D.: MW-12	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): <u>18.99</u>	Depth to Water (DTW): <u>7.44</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>9.75</u>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <u>Peristaltic</u> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>new (1/4") tubing</u>
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$\underline{0.2} \text{ (Gals.)} \times \underline{3} = \underline{0.6} \text{ Gals.}$ 1 Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
1350	15.0	7.80	1060	15	0.2	odor
1351	14.9	7.57	959	11	0.4	"
1352	14.9	7.48	921	12	0.6	"

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u>0.6</u>
Sampling Date: <u>9/27/12</u>	Sampling Time: <u>1400</u> Depth to Water: <u>7.57</u>
Sample I.D.: <u>MW-12</u>	Laboratory: <u>Curtis & Tompkins</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: Diss. Chrome & Hex Chrome	<u>See Saw</u>
EB I.D. (if applicable): @ _____ Time	Duplicate I.D. (if applicable):
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/28/12
Well I.D.: MW- 13	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): <u>—</u>	Depth to Water (DTW): <u>9.54</u>
Depth to Free Product: <u>9.23</u>	Thickness of Free Product (feet): <u>0.31</u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer	Wattera	Sampling Method: Bailer
Disposable Bailer	<u>Peristaltic</u>	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <u>new 1/4" tubing</u>

_____ (Gals.) X _____ = _____ Gals. I Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0943	start	purge	@ 200 ml/min			
0949	stop	purge				
UNABLE TO MEASURE NL/SAM DURING PURGE.						

Did well dewater? Yes No	Gallons actually evacuated: <u>1200 ml</u>
Sampling Date: 9/28/12	Sampling Time: <u>0955</u> Depth to Water: <u>9.80</u>
Sample I.D.: MW- 13	Laboratory: Curtis & Tompkins
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <u>SEE SOW</u> Diss. Chrome & Hex Chrome
EB I.D. (if applicable): @ _____ Time	Duplicate I.D. (if applicable):
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other:
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/28/12
Well I.D.: MW- 14	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): _____	Depth to Water (DTW): <u>7.22</u>
Depth to Free Product: <u>7.20</u>	Thickness of Free Product (feet): <u>0.02</u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer	Watterra	Sampling Method: Bailer
Disposable Bailer	<u>Peristaltic</u>	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <u>new 1/4" tubing</u>

	(Gals.) X _____ = _____ Gals.				
I Case Volume	Specified Volumes	Calculated Volume	Well Diameter	Multiplier	Well Diameter
			1"	0.04	4"
			2"	0.16	6"
			3"	0.37	Other
					radius ² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1010						start purge @ 225 mL/min
1016						stop purge
UNABLE TO MEASURE DTW/BPH DURING PURGE.						

Did well dewater? Yes No Gallons actually evacuated: 1350 ml

Sampling Date: 9/28/12 Sampling Time: 1020 Depth to ~~Water~~ SPH

Sample I.D.: MW- 14 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See below ~~Diss. Chrome & Hex Chrome~~

EB I.D. (if applicable): _____ @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/27/12
Well I.D.: MW-17	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): <u>19.50</u>	Depth to Water (DTW): <u>7.77</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.12</u>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible

Water Peristaltic Extraction Pump Other _____

Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: new tubing (1/4")

$0.2 \text{ (Gals.)} \times 3 = 0.6 \text{ Gals.}$ <p style="font-size: small; margin: 0;">1 Case Volume Specified Volumes Calculated Volume</p>	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1217	16.2	8.68	676	140	0.2	
1218	16.3	8.25	607	46	0.4	
1219	16.3	8.15	592	27	0.6	
* DOUBLE CHECKED PH W/ 2ND ULTRAMETER						

Did well dewater? Yes No Gallons actually evacuated: 0.6

Sampling Date: 9/27/12 Sampling Time: 1225 Depth to Water: 7.77

Sample I.D.: MW-17 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: all saw ~~Diss. Chrome & Hex Chrome~~

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/27/12
Well I.D.: MW-18	Well Diameter: 2 3 4 6 8 <u>(3/4")</u>
Total Well Depth (TD): <u>19.59</u>	Depth to Water (DTW): <u>8.59</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>10.79</u>	

Purge Method: Bailer Waterra Peristaltic Extraction Pump Other _____

Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: new (1/4") tubing

$\frac{0.2 \text{ (Gals.)} \times 3}{1 \text{ Case Volume}} = 0.6 \text{ Gals.}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1435	15.1	7.59	6467	376	0.2	odor
1436	15.2	7.16	6676	404	0.4	"
1438	15.3	7.06	6724	578	0.6	

Did well dewater? Yes No Gallons actually evacuated: 0.6

Sampling Date: 9/27/12 Sampling Time: 1445 Depth to Water: 10.89

Sample I.D.: MW-18 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: all saw ~~Diss. Chrome & Hex Chrome~~

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____

D.O. (if req'd):	Pre-purge:		mg/L	Post-purge:		mg/L
------------------	------------	--	------	-------------	--	------

O.R.P. (if req'd):	Pre-purge:		mV	Post-purge:		mV
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WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/18/12
Well I.D.: MW- <u>2</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>45.52</u>	Depth to Water (DTW): <u>9.95</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>17.06</u>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible Water Peristaltic Extraction Pump Other _____

Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: new 5/8" tubing

$\frac{5.7 \text{ (Gals.)} \times 3}{\text{Specified Volumes}} = 17.1 \text{ Gals.}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														
1 Case Volume	Calculated Volume																

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0813	15.8	7.03	2765	>1000	5.7	odor, gray
WELL	DEW	ADDED		9.1 GALS		
1220	15.2	8.17	2771	477	—	gray

Did well dewater? Yes No Gallons actually evacuated: 9.1

Sampling Date: 9/18/12 Sampling Time: 1220 Depth to Water: 10.63

Sample I.D.: MW-2 Laboratory: Curtis & Tompkins

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: see saw ~~Diss. Chrome & Hex Chrome~~

EB I.D. (if applicable): @ _____ Time Duplicate I.D. (if applicable): _____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 120927-WW1	Client: Stellar Environmental Solutions
Sampler: <u>WW</u> / KS	Date: 9/28/12
Well I.D.: <u>RW-1</u>	Well Diameter: 2 3 4 6 8 <u>10</u>
Total Well Depth (TD): <u>—</u>	Depth to Water (DTW): <u>—</u>
Depth to Free Product: <u>9.69</u>	Thickness of Free Product (feet): <u>THICK BLACK SPH</u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <u>Peristaltic</u> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>new 1/4" tubing</u>
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_____ (Gals.) X _____ = _____ Gals. 1 Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius ² * 0.163
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1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius ² * 0.163														

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1149						START PURGE @ 250 ml/min DTW: 9.69
1152					750 ml	DTW: 9.69
1155					1500 ml	DTW: 9.69
* THICK SPH COATED PROBE.						

Did well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>	Gallons actually evacuated: <u>1500 ml</u>	
Sampling Date: 9/28/12	Sampling Time: <u>1200</u>	Depth to Water: <u>9.69</u>
Sample I.D.: <u>RW-1</u>	Laboratory: Curtis & Tompkins	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: Diss. Chrome & Hex Chrome		
EB I.D. (if applicable): _____ @ _____ Time	Duplicate I.D. (if applicable): _____	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:		
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L	
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV	

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record



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 240021
ANALYTICAL REPORT

Stellar Environmental Solutions
2198 6th Street
Berkeley, CA 94710

Project : 2007-65
Location : Bay Center Apts
Level : II

Table with 2 columns: Sample ID and Lab ID. Lists 18 samples from MW-4 to RW-1 with corresponding Lab IDs from 240021-001 to 240021-018.

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: _____

John Goyette
Senior Program Manager
(510) 204-2233

Date: 10/08/2012

CASE NARRATIVE

Laboratory number: 240021
Client: Stellar Environmental Solutions
Project: 2007-65
Location: Bay Center Apts
Request Date: 09/28/12
Samples Received: 09/28/12

This data package contains sample and QC results for eighteen water samples, requested for the above referenced project on 09/28/12. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):

Low recoveries were observed for gasoline C7-C12 in the MS/MSD for batch 191306; the parent sample was not a project sample, the LCS was within limits, and the associated RPD was within limits. High surrogate recoveries were observed for bromofluorobenzene (FID) in the MS/MSD for batch 191306; the parent sample was not a project sample. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

MW-8 (lab # 240021-012) and MW-13 (lab # 240021-014) were diluted due to the dark and viscous nature of the sample extracts. No other analytical problems were encountered.

Chain of Custody Record

240021

Lab job no. _____
 Date 9/28/12
 Page 2 of 2

Laboratory CURTIS & TOMPKINS
 Address 2323 FIFTH ST.
BERKELEY, CA

Method of Shipment HAND DELIVERY or LAB COURIER

Project Owner _____
 Site Address 6400 CHRISTIE AVE.
BERKELEY, CA

Shipment No. _____
 Airbill No. _____
 Cooler No. _____
 Project Manager R. MAKDISI
 Telephone No. (510) 644-3123

Project Name RAY CENTER APARTMENT
 Project Number 2007-65

Fax No. (510) 644-3859
 Samplers: (Signature) [Signature]

Filtered	No. of Containers	Analysis Required										Remarks
X	6	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	

13
14
15
16
17
18

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation	
						Cooler	Chemical
MW-10		9/28/12	0935	W	4-40 ml Vials 1-16 AFB		HCl NP
MW-13			0955				
MW-14			1000				
MW-15			0810				
MW-E			1220				
RW-1			1200				

Relinquished by: <u>[Signature]</u> Signature _____ Printed <u>WILLIAM WONG</u> Company <u>BIAVE TECH SERVICES</u>	Date <u>9/28/12</u> Time _____	Received by: <u>[Signature]</u> Signature _____ Printed <u>DESIREE TENDRANT</u> Company <u>CLT</u>	Date <u>9/28/12</u> Time <u>1405</u>	Relinquished by: _____ Signature _____ Printed _____ Company _____	Date _____ Time _____	Received by: <u>[Signature]</u> Signature _____ Printed <u>Adnan Ahmad</u> Company _____	Date <u>9/28</u> Time <u>1405</u>
---	-----------------------------------	---	---	---	--------------------------	---	--------------------------------------

Turnaround Time: <u>STANDARD</u> Comments: <u>EDF REQUIRED</u> <u>GLOBAL ID # SLT2005561</u>	Relinquished by: _____ Signature _____ Printed _____ Company _____
--	---

10-00000-00

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 240021 Date Received 9/29/12 Number of coolers 2
Client STELLAR ENVIRONMENTAL Project BAJ CENTER APARTMENT

Date Opened 9/29/12 By (print) P.S. (sign) [Signature]
Date Logged in [initials] By (print) [initials] (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 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) 4

- Samples Received on ice & cold without a temperature blank; temp. taken with 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? 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.

Curtis & Tompkins Laboratories Analytical Report

Lab #: 240021	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/28/12
Units: ug/L	

Field ID: MW-4	Batch#: 191188
Type: SAMPLE	Sampled: 09/27/12
Lab ID: 240021-001	Analyzed: 10/02/12
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	84	75-124	EPA 8015B
Bromofluorobenzene (PID)	73	62-134	EPA 8021B

Field ID: MW-5	Batch#: 191188
Type: SAMPLE	Sampled: 09/27/12
Lab ID: 240021-002	Analyzed: 10/02/12
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	92	75-124	EPA 8015B
Bromofluorobenzene (PID)	87	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 NA= Not Analyzed
 ND= Not Detected
 RL= Reporting Limit

Curtis & Tompkins Laboratories Analytical Report

Lab #: 240021	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/28/12
Units: ug/L	

Field ID: MW-6	Batch#: 191188
Type: SAMPLE	Sampled: 09/27/12
Lab ID: 240021-003	Analyzed: 10/02/12
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	0.85	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	93	75-124	EPA 8015B
Bromofluorobenzene (PID)	86	62-134	EPA 8021B

Field ID: MW-7	Lab ID: 240021-004
Type: SAMPLE	Sampled: 09/27/12

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	1,700	50	1.000	191188	10/02/12	EPA 8015B
MTBE	ND	26	12.82	191310	10/04/12	EPA 8021B
Benzene	660	6.4	12.82	191310	10/04/12	EPA 8021B
Toluene	35	6.4	12.82	191310	10/04/12	EPA 8021B
Ethylbenzene	32	6.4	12.82	191310	10/04/12	EPA 8021B
m,p-Xylenes	120	6.4	12.82	191310	10/04/12	EPA 8021B
o-Xylene	17	6.4	12.82	191310	10/04/12	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	100	75-124	1.000	191188	10/02/12	EPA 8015B
Bromofluorobenzene (PID)	125	62-134	12.82	191310	10/04/12	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 NA= Not Analyzed
 ND= Not Detected
 RL= Reporting Limit

Curtis & Tompkins Laboratories Analytical Report

Lab #: 240021	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/28/12
Units: ug/L	

Field ID: MW-9 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-005 Analyzed: 10/02/12

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	130 Y	50	191188 EPA 8015B	
MTBE	ND	2.0	191241 EPA 8021B	
Benzene	7.2	0.50	191241 EPA 8021B	
Toluene	ND	0.50	191241 EPA 8021B	
Ethylbenzene	0.53	0.50	191241 EPA 8021B	
m,p-Xylenes	0.92	0.50	191241 EPA 8021B	
o-Xylene	ND	0.50	191241 EPA 8021B	

Surrogate	%REC	Limits	Batch#	Analysis
Bromofluorobenzene (FID)	97	75-124	191188 EPA 8015B	
Bromofluorobenzene (PID)	94	62-134	191241 EPA 8021B	

Field ID: MW-11 Sampled: 09/27/12
 Type: SAMPLE Analyzed: 10/02/12
 Lab ID: 240021-006

Analyte	Result	RL	Diln Fac	Batch#	Analysis
Gasoline C7-C12	4,100 Y	50	1.000	191188 EPA 8015B	
MTBE	ND	2.0	1.000	191188 EPA 8021B	
Benzene	1,500	15	30.30	191236 EPA 8021B	
Toluene	33	15	30.30	191236 EPA 8021B	
Ethylbenzene	ND	15	30.30	191236 EPA 8021B	
m,p-Xylenes	18	15	30.30	191236 EPA 8021B	
o-Xylene	ND	15	30.30	191236 EPA 8021B	

Surrogate	%REC	Limits	Diln Fac	Batch#	Analysis
Bromofluorobenzene (FID)	100	75-124	1.000	191188 EPA 8015B	
Bromofluorobenzene (PID)	109	62-134	30.30	191236 EPA 8021B	

C= Presence confirmed, but RPD between columns exceeds 40%
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 NA= Not Analyzed
 ND= Not Detected
 RL= Reporting Limit

Curtis & Tompkins Laboratories Analytical Report

Lab #: 240021	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/28/12
Units: ug/L	

Field ID: RW-1 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/28/12
 Lab ID: 240021-018

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	790 Y	50	191192	10/01/12	EPA 8015B
MTBE	ND	2.0	191192	10/01/12	EPA 8021B
Benzene	150	0.50	191241	10/02/12	EPA 8021B
Toluene	9.6	0.50	191241	10/02/12	EPA 8021B
Ethylbenzene	5.5	0.50	191241	10/02/12	EPA 8021B
m,p-Xylenes	8.8	0.50	191241	10/02/12	EPA 8021B
o-Xylene	3.2	0.50	191241	10/02/12	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	111	75-124	191192	10/01/12	EPA 8015B
Bromofluorobenzene (PID)	100	62-134	191192	10/01/12	EPA 8021B

Type: BLANK Batch#: 191188
 Lab ID: QC659069 Analyzed: 10/01/12
 Diln Fac: 1.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	111	75-124	EPA 8015B
Bromofluorobenzene (PID)	101	62-134	EPA 8021B

Type: BLANK Batch#: 191192
 Lab ID: QC659087 Analyzed: 10/01/12
 Diln Fac: 1.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	75-124	EPA 8015B
Bromofluorobenzene (PID)	86	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 NA= Not Analyzed
 ND= Not Detected
 RL= Reporting Limit

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Received:	09/28/12
Units:	ug/L		

Type:	BLANK	Batch#:	191306
Lab ID:	QC659517	Analyzed:	10/04/12
Diln Fac:	1.000	Analysis:	EPA 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Bromofluorobenzene (FID)		103	75-124
Bromofluorobenzene (PID)	NA		

Type:	BLANK	Batch#:	191310
Lab ID:	QC659535	Analyzed:	10/04/12
Diln Fac:	1.000		

Analyte	Result	RL	Analysis
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	103	75-124	EPA 8015B
Bromofluorobenzene (PID)	89	62-134	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
 Y= Sample exhibits chromatographic pattern which does not resemble standard
 NA= Not Analyzed
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191188
Units:	ug/L	Analyzed:	10/01/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659066

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.23	91	39-161
Benzene	20.00	19.28	96	80-120
Toluene	20.00	18.37	92	80-120
Ethylbenzene	20.00	20.23	101	80-120
m,p-Xylenes	20.00	20.64	103	80-120
o-Xylene	20.00	20.11	101	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	95	62-134

Type: BSD Lab ID: QC659067

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	16.66	83	39-161	9	69
Benzene	20.00	18.04	90	80-120	7	30
Toluene	20.00	17.06	85	80-120	7	20
Ethylbenzene	20.00	19.00	95	80-120	6	20
m,p-Xylenes	20.00	19.17	96	80-120	7	20
o-Xylene	20.00	18.78	94	80-120	7	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	89	62-134

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC659068	Batch#:	191188
Matrix:	Water	Analyzed:	10/01/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	974.2	97	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	75-124

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	191188
MSS Lab ID:	239885-002	Sampled:	09/25/12
Matrix:	Water	Received:	09/25/12
Units:	ug/L	Analyzed:	10/01/12
Diln Fac:	1.000		

Type: MS Lab ID: QC659070

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	29.34	2,000	1,960	97	71-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	118	75-124

Type: MSD Lab ID: QC659071

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,993	98	71-120	2	22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	75-124

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191192
Units:	ug/L	Analyzed:	10/01/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659084

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.48	92	39-161

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	86	62-134

Type: BSD Lab ID: QC659085

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	20.29	101	39-161	9	69

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	91	62-134

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC659086	Batch#:	191192
Matrix:	Water	Analyzed:	10/01/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	3,000	2,790	93	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	75-124

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-3	Batch#:	191192
MSS Lab ID:	240021-011	Sampled:	09/28/12
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Analyzed:	10/02/12
Diln Fac:	1.000		

Type: MS Lab ID: QC659088

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	377.7	2,000	2,368	100	71-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	116	75-124

Type: MSD Lab ID: QC659089

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,287	95	71-120	3	22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	115	75-124

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191236
Units:	ug/L	Analyzed:	10/02/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659234

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	9.824	98	80-120
Toluene	10.00	9.390	94	80-120
Ethylbenzene	10.00	9.449	94	80-120
m,p-Xylenes	10.00	9.187	92	80-120
o-Xylene	10.00	9.036	90	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	85	62-134

Type: BSD Lab ID: QC659235

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	10.00	9.942	99	80-120	1	30
Toluene	10.00	9.937	99	80-120	6	20
Ethylbenzene	10.00	9.600	96	80-120	2	20
m,p-Xylenes	10.00	9.640	96	80-120	5	20
o-Xylene	10.00	9.080	91	80-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	80	62-134

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC659236	Batch#:	191236
Matrix:	Water	Analyzed:	10/02/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	997.9	100	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	85	75-124

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	191236
MSS Lab ID:	239998-008	Sampled:	09/27/12
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Analyzed:	10/02/12
Diln Fac:	1.000		

Type: MS Lab ID: QC659238

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	22.34	2,000	2,045	101	71-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	75-124

Type: MSD Lab ID: QC659239

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,104	104	71-120	3	22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	108	75-124

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC659261	Batch#:	191241
Matrix:	Water	Analyzed:	10/02/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.33	87	39-161
Benzene	20.00	19.52	98	80-120
Toluene	20.00	17.67	88	80-120
Ethylbenzene	20.00	18.92	95	80-120
m,p-Xylenes	20.00	18.96	95	80-120
o-Xylene	20.00	18.89	94	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	100	62-134

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191275
Units:	ug/L	Analyzed:	10/03/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659403

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.14	101	39-161
Benzene	10.00	11.32	113	80-120
Toluene	10.00	11.36	114	80-120
Ethylbenzene	10.00	10.95	109	80-120
m,p-Xylenes	10.00	11.04	110	80-120
o-Xylene	10.00	10.09	101	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	96	62-134

Type: BSD Lab ID: QC659404

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.27	103	39-161	1	69
Benzene	10.00	11.02	110	80-120	3	30
Toluene	10.00	11.10	111	80-120	2	20
Ethylbenzene	10.00	10.85	108	80-120	1	20
m,p-Xylenes	10.00	10.83	108	80-120	2	20
o-Xylene	10.00	9.526	95	80-120	6	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	96	62-134

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC659516	Batch#:	191306
Matrix:	Water	Analyzed:	10/04/12
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,048	105	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	75-124

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	191306
MSS Lab ID:	240031-001	Sampled:	09/27/12
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Analyzed:	10/04/12
Diln Fac:	1.000		

Type: MS Lab ID: QC659518

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	3,994	2,000	4,143	7 *	71-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	143 *	75-124

Type: MSD Lab ID: QC659519

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	4,432	22 *	71-120	7	22

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	143 *	75-124

*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	191310
Units:	ug/L	Analyzed:	10/04/12
Diln Fac:	1.000		

Type: BS Lab ID: QC659533

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.712	87	39-161
Benzene	10.00	9.627	96	80-120
Toluene	10.00	9.162	92	80-120
Ethylbenzene	10.00	10.06	101	80-120
m,p-Xylenes	10.00	10.26	103	80-120
o-Xylene	10.00	9.863	99	80-120

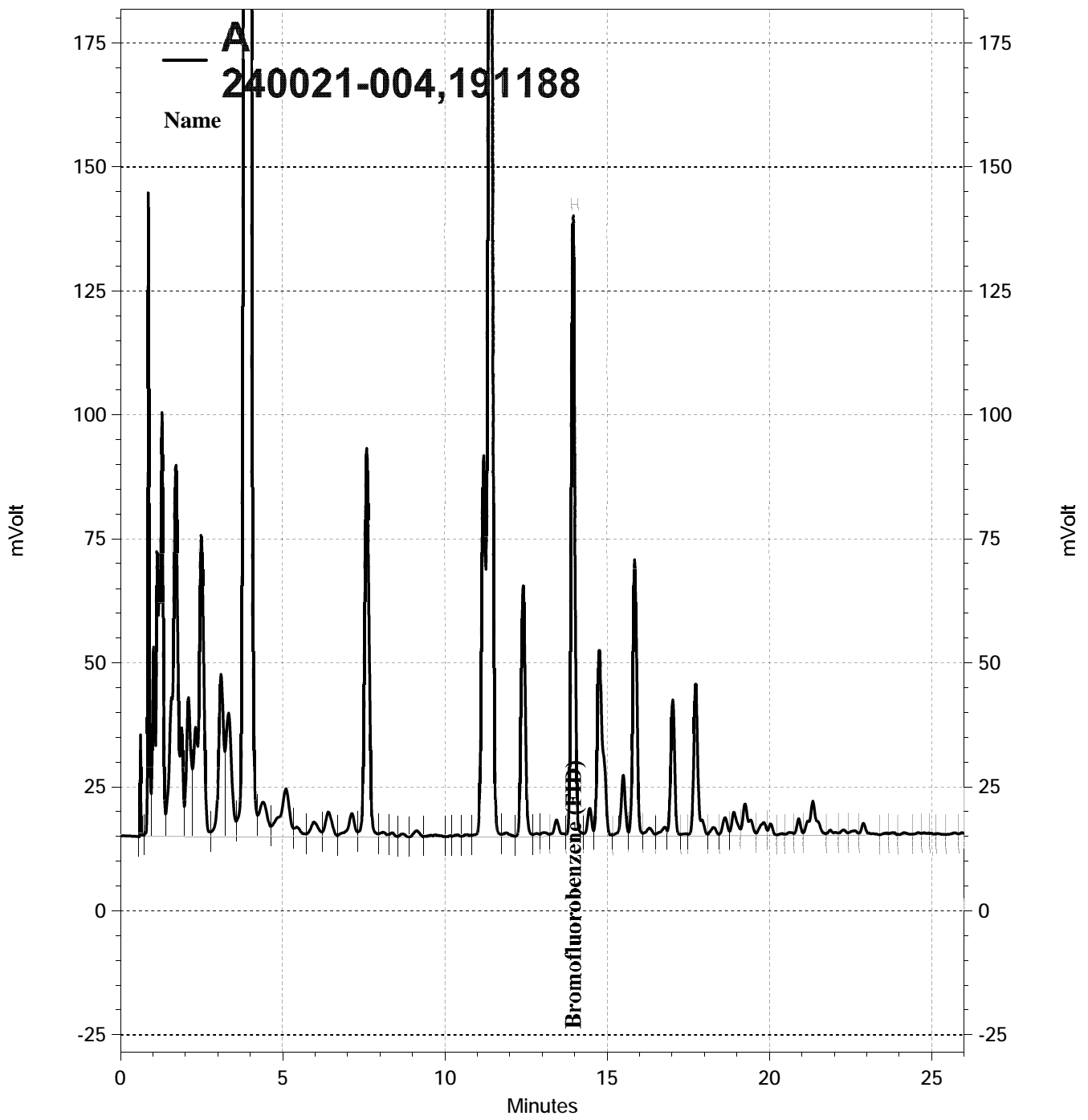
Surrogate	%REC	Limits
Bromofluorobenzene (PID)	93	62-134

Type: BSD Lab ID: QC659532

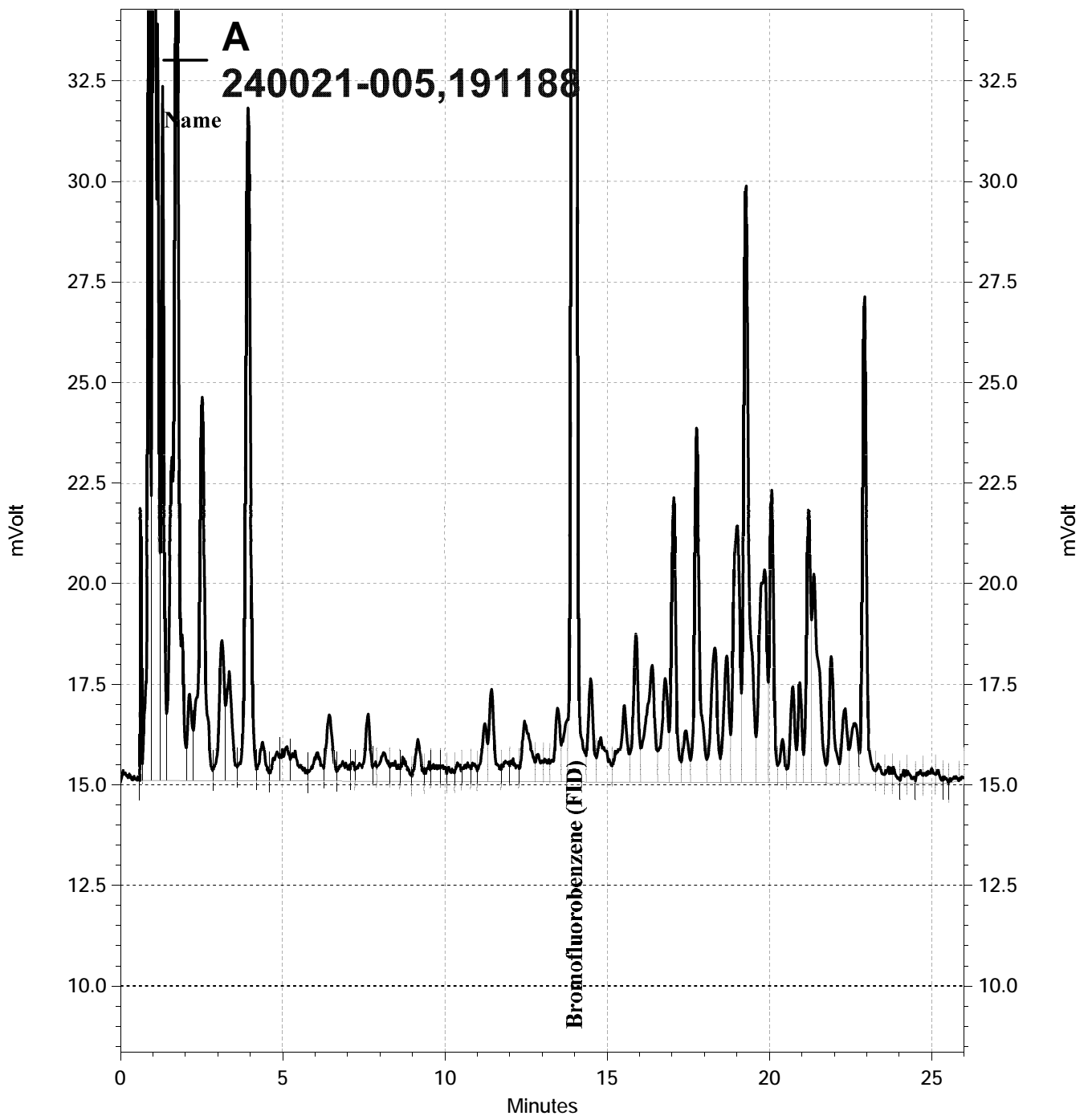
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	8.717	87	39-161	0	69
Benzene	10.00	9.636	96	80-120	0	30
Toluene	10.00	9.315	93	80-120	2	20
Ethylbenzene	10.00	10.17	102	80-120	1	20
m,p-Xylenes	10.00	10.28	103	80-120	0	20
o-Xylene	10.00	9.970	100	80-120	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	85	62-134

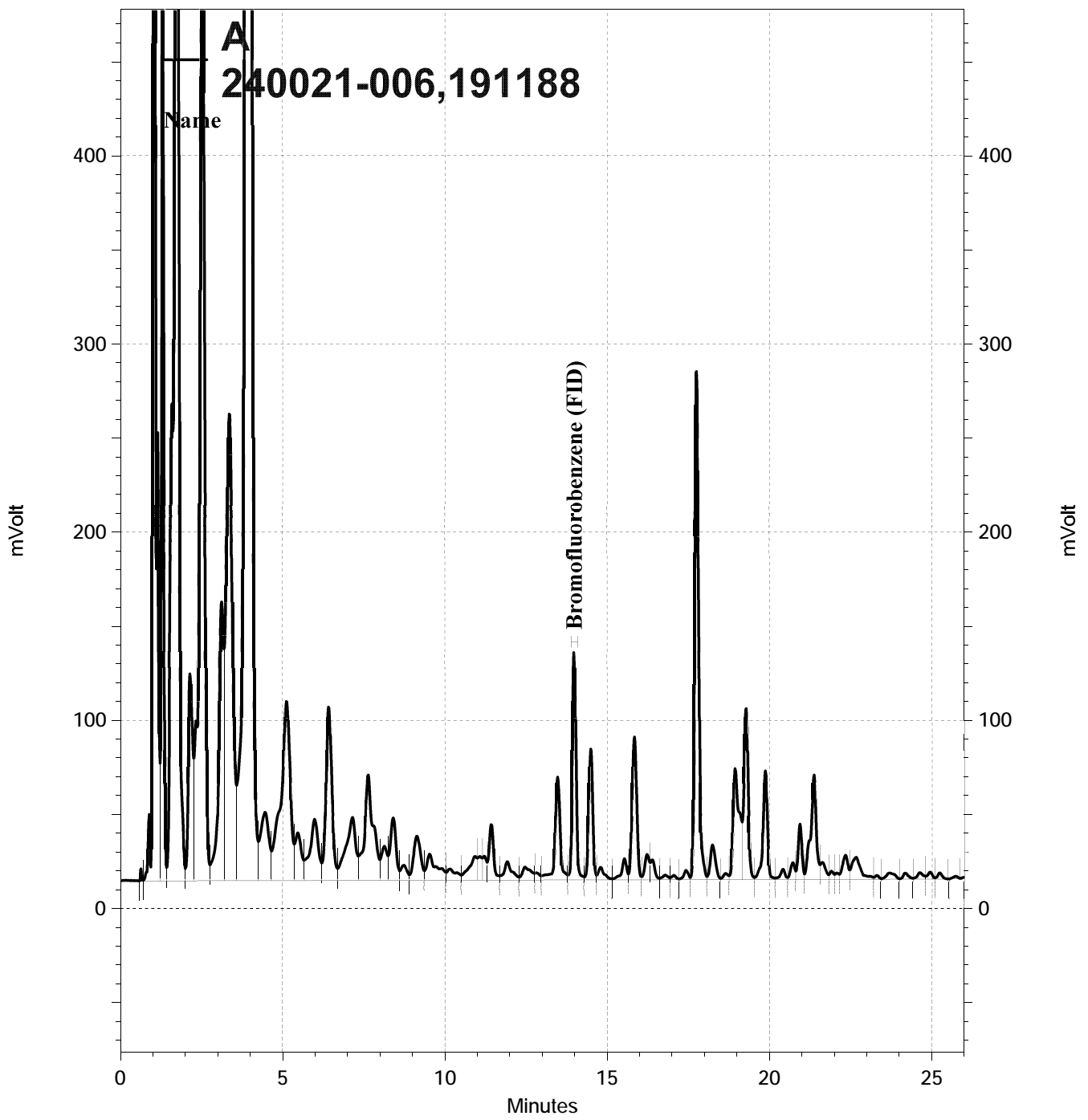
RPD= Relative Percent Difference



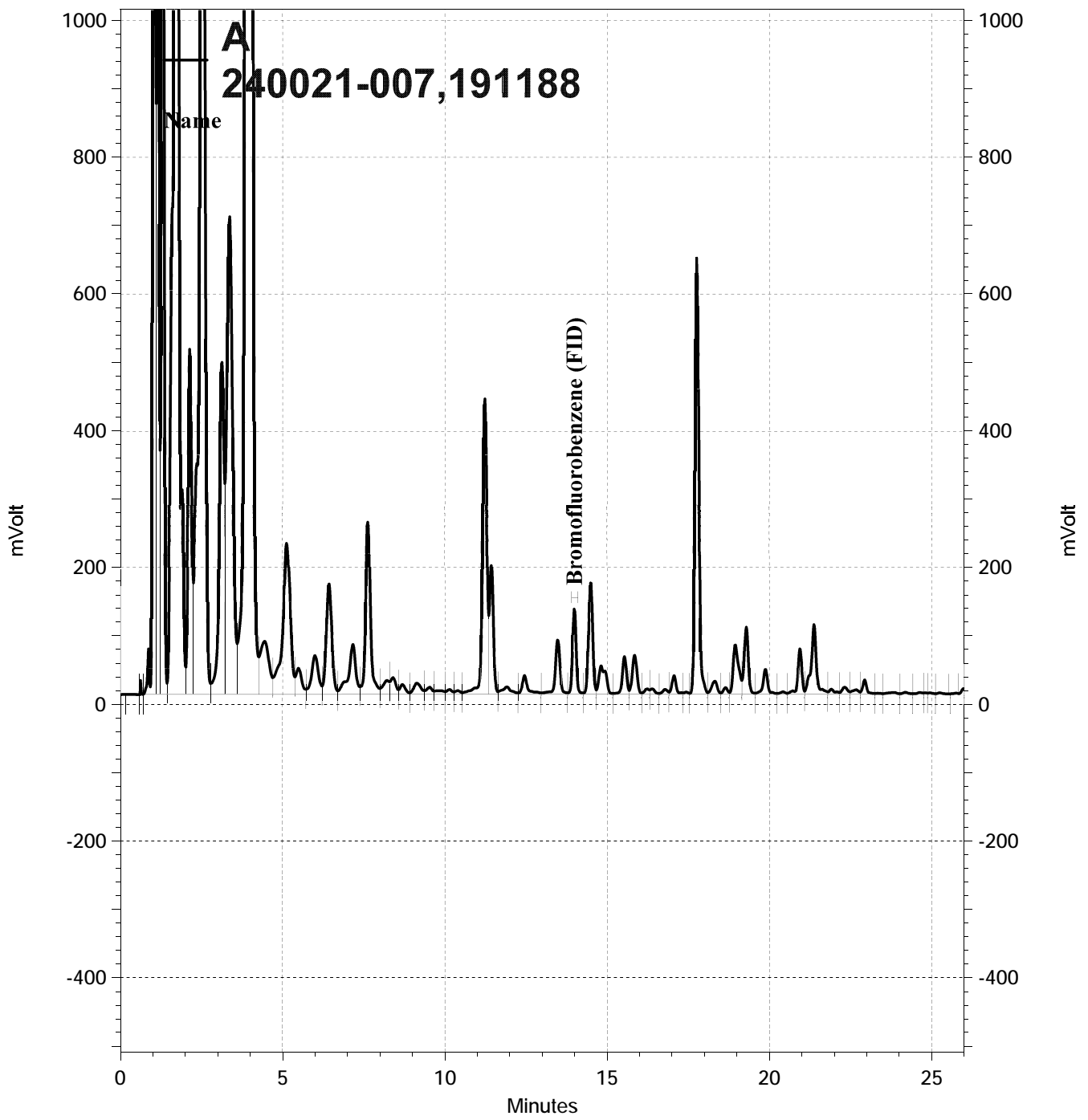
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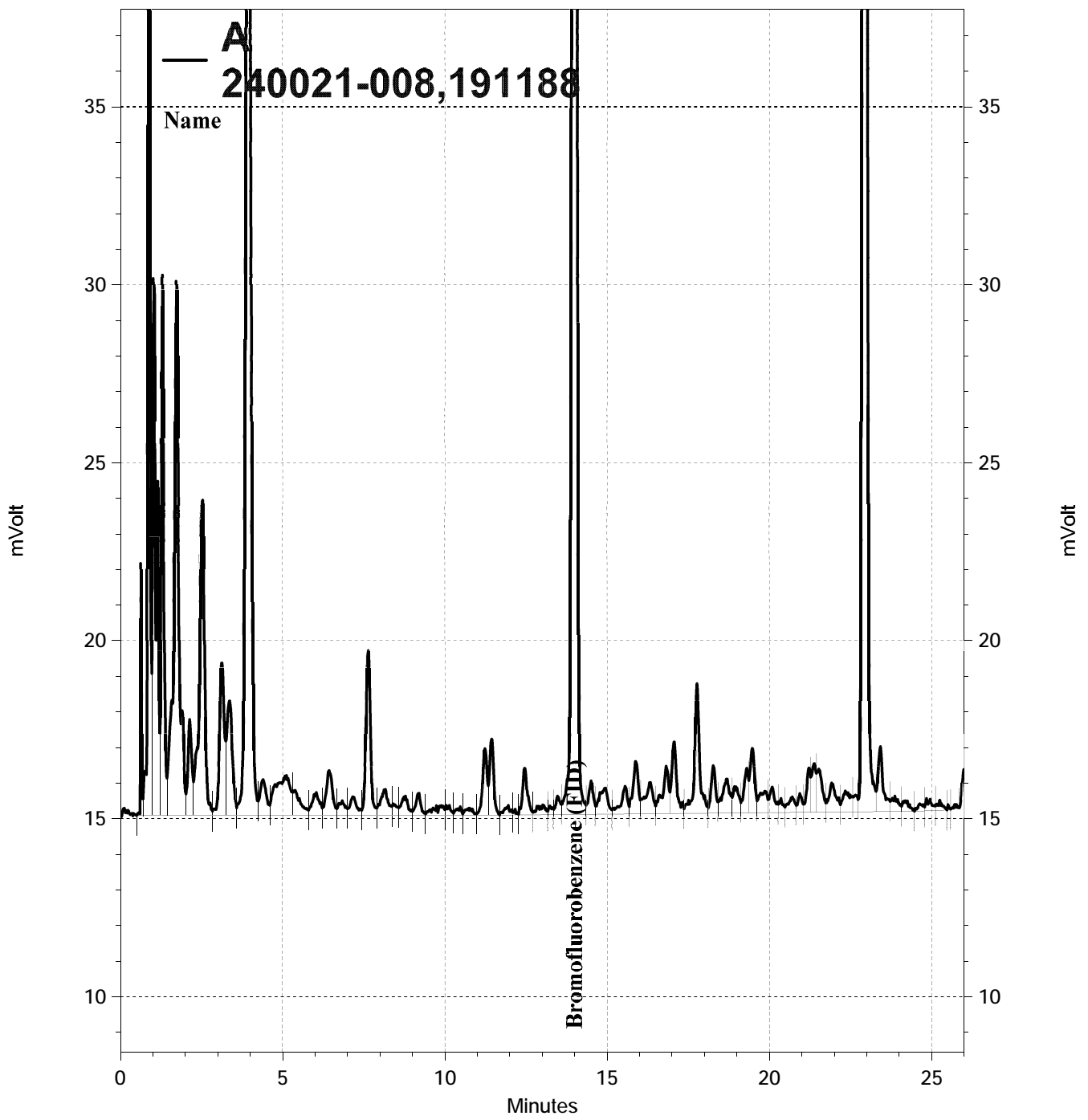
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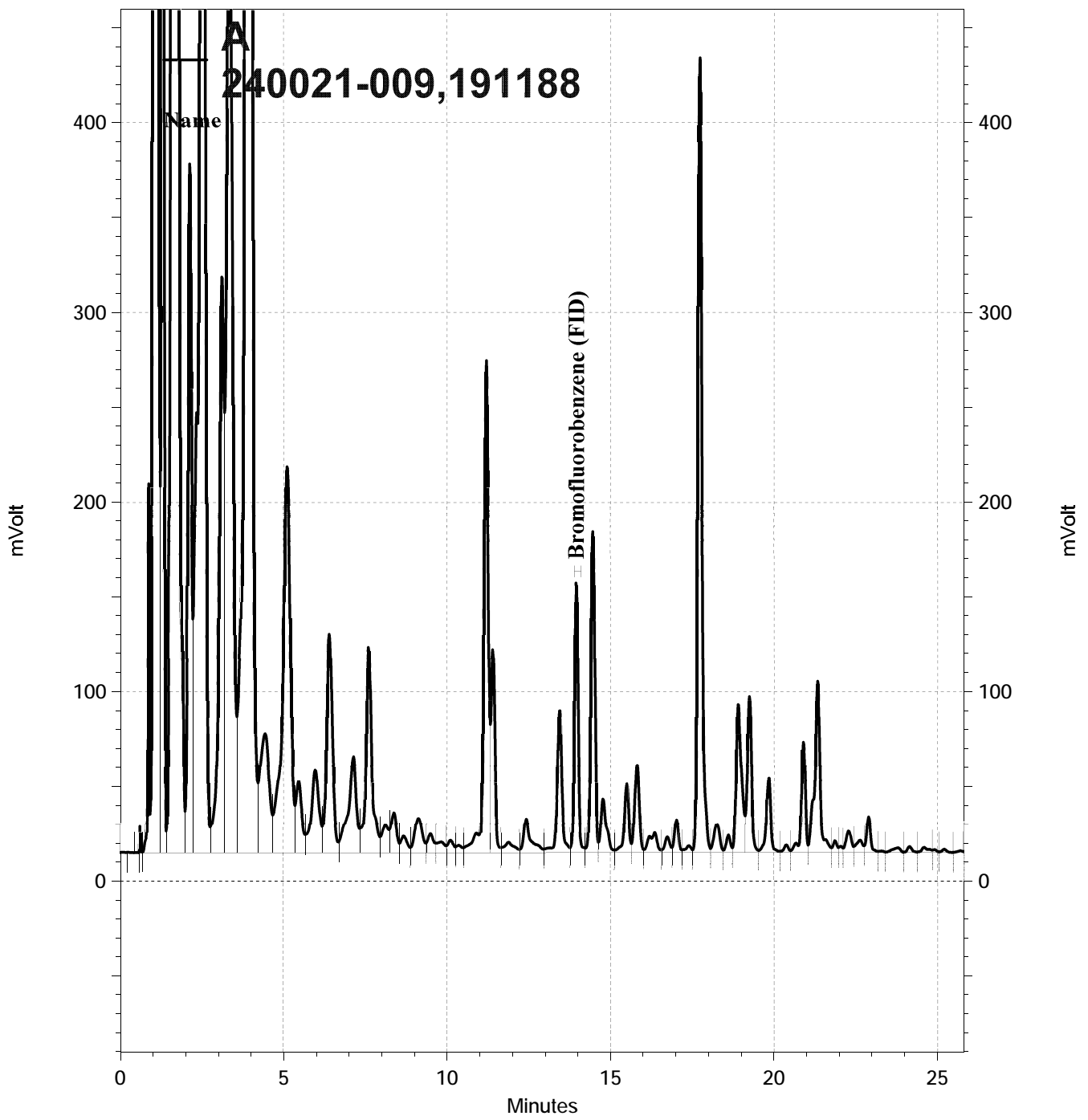
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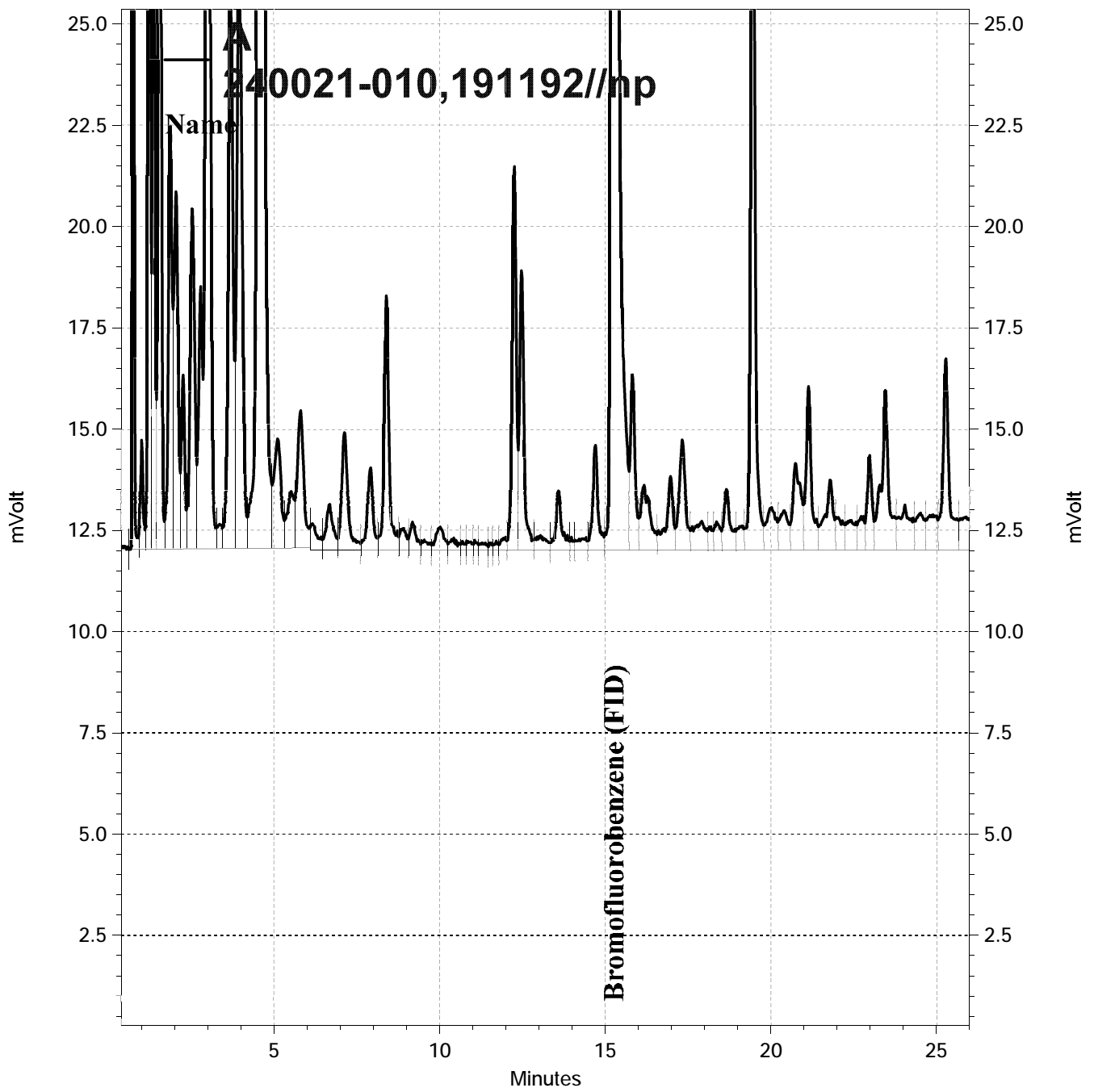
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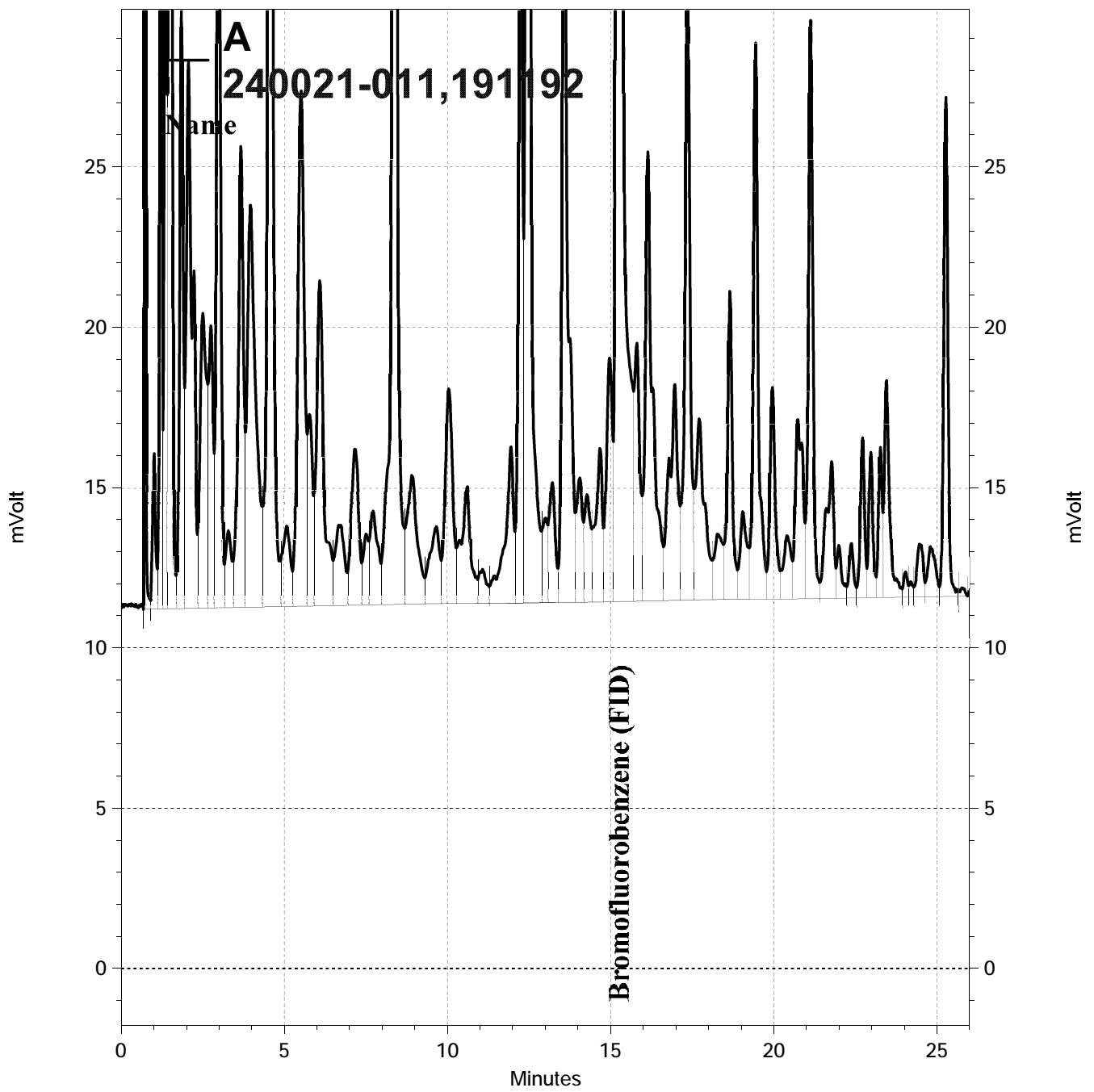
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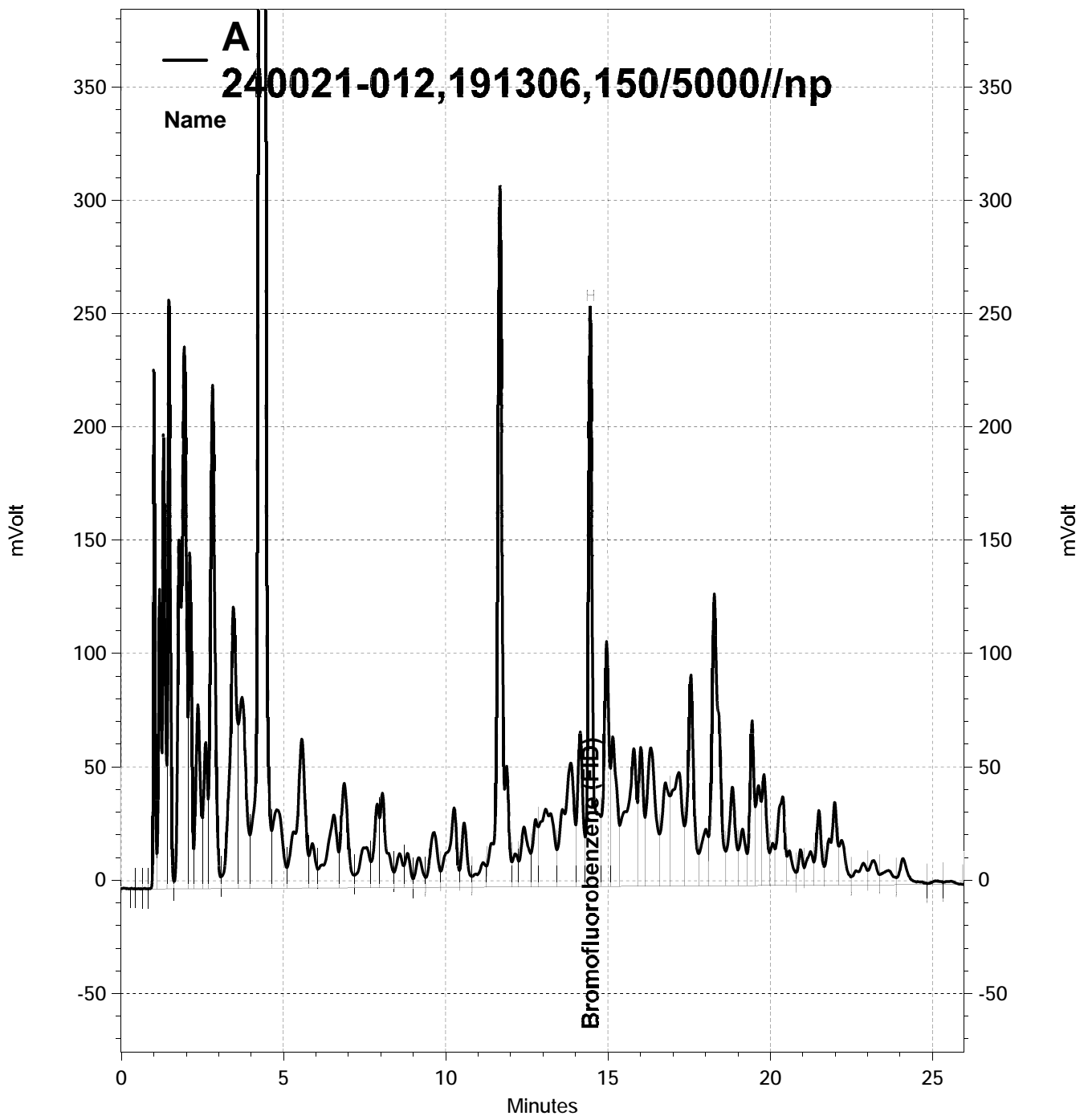
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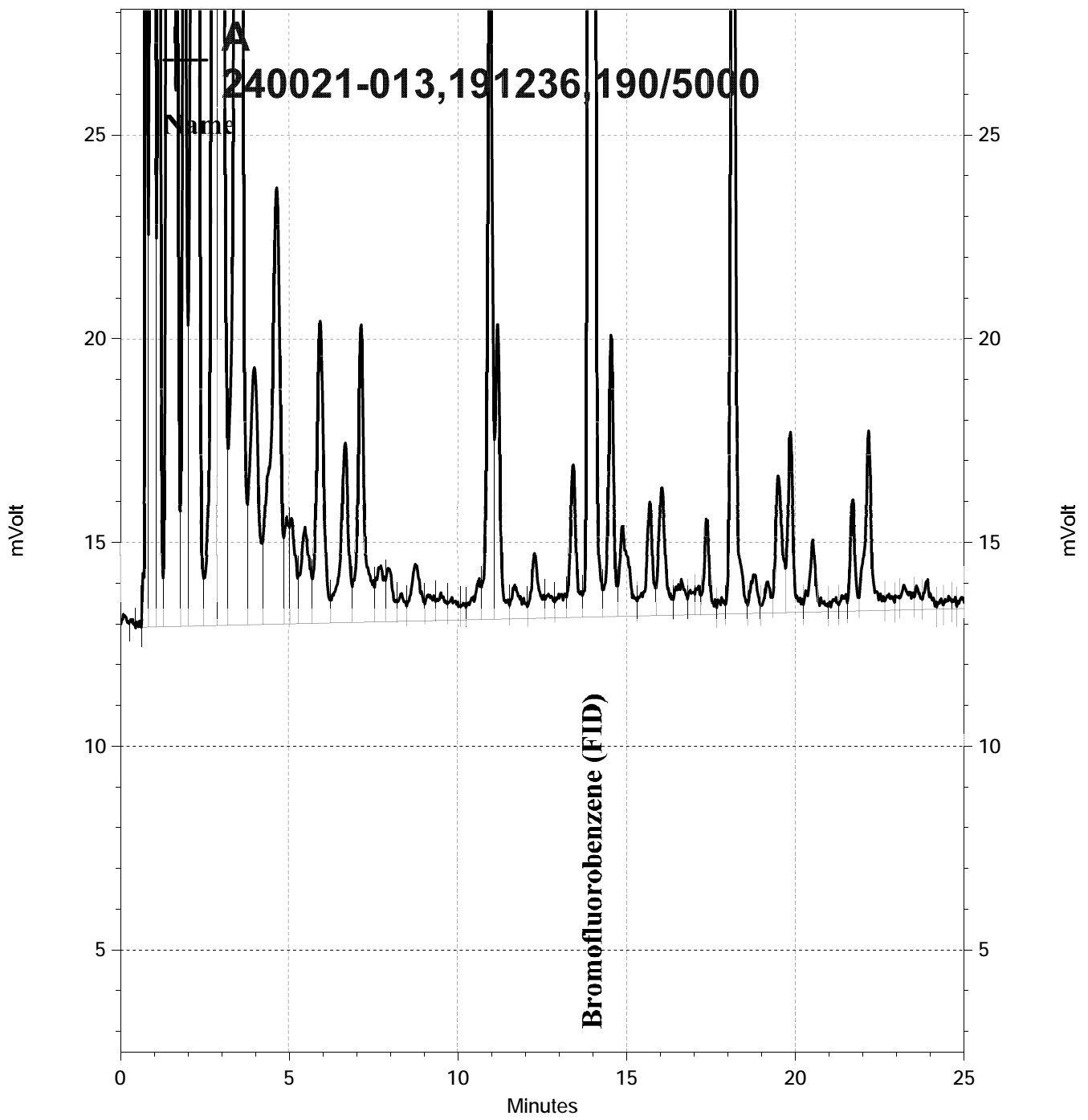
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— \\Lims\gdrive\ezchrom\Projects\GC07\Data\275-010, A



— \\Lims\gdrive\ezchrom\Projects\GC04\Data\278-017, A

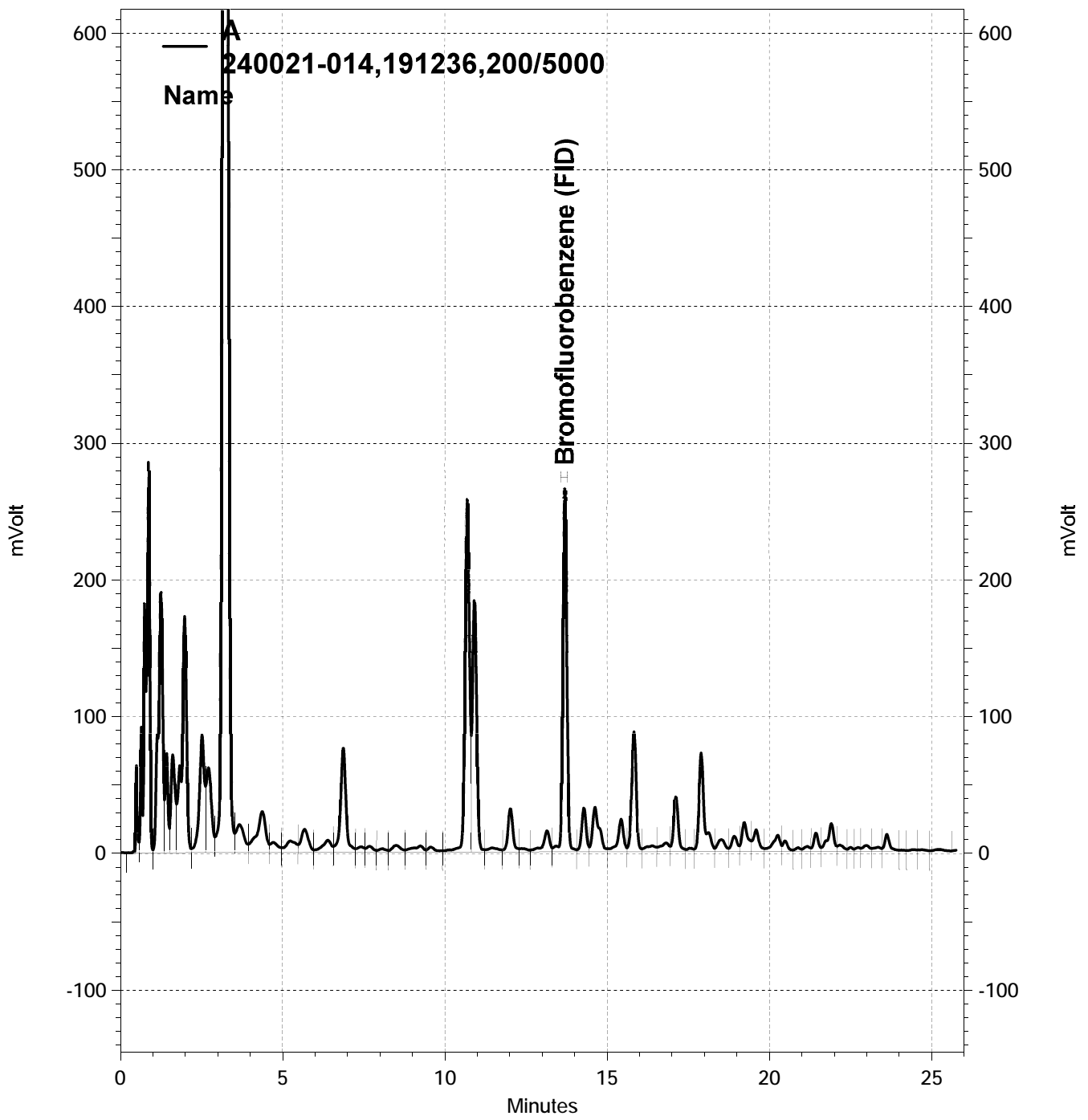


240021-013,191236,190/5000

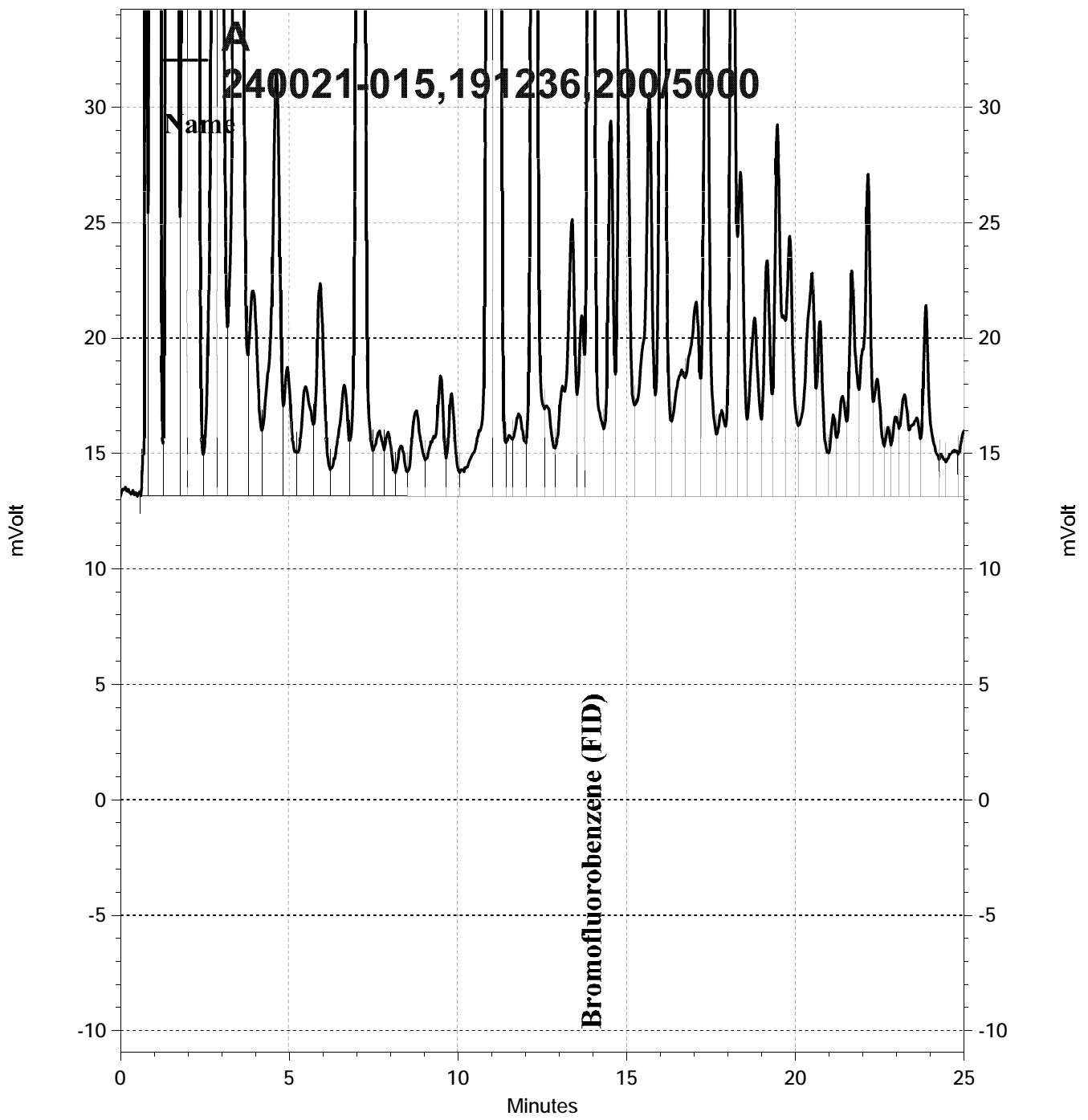
Name

Bromofluorobenzene (FID)

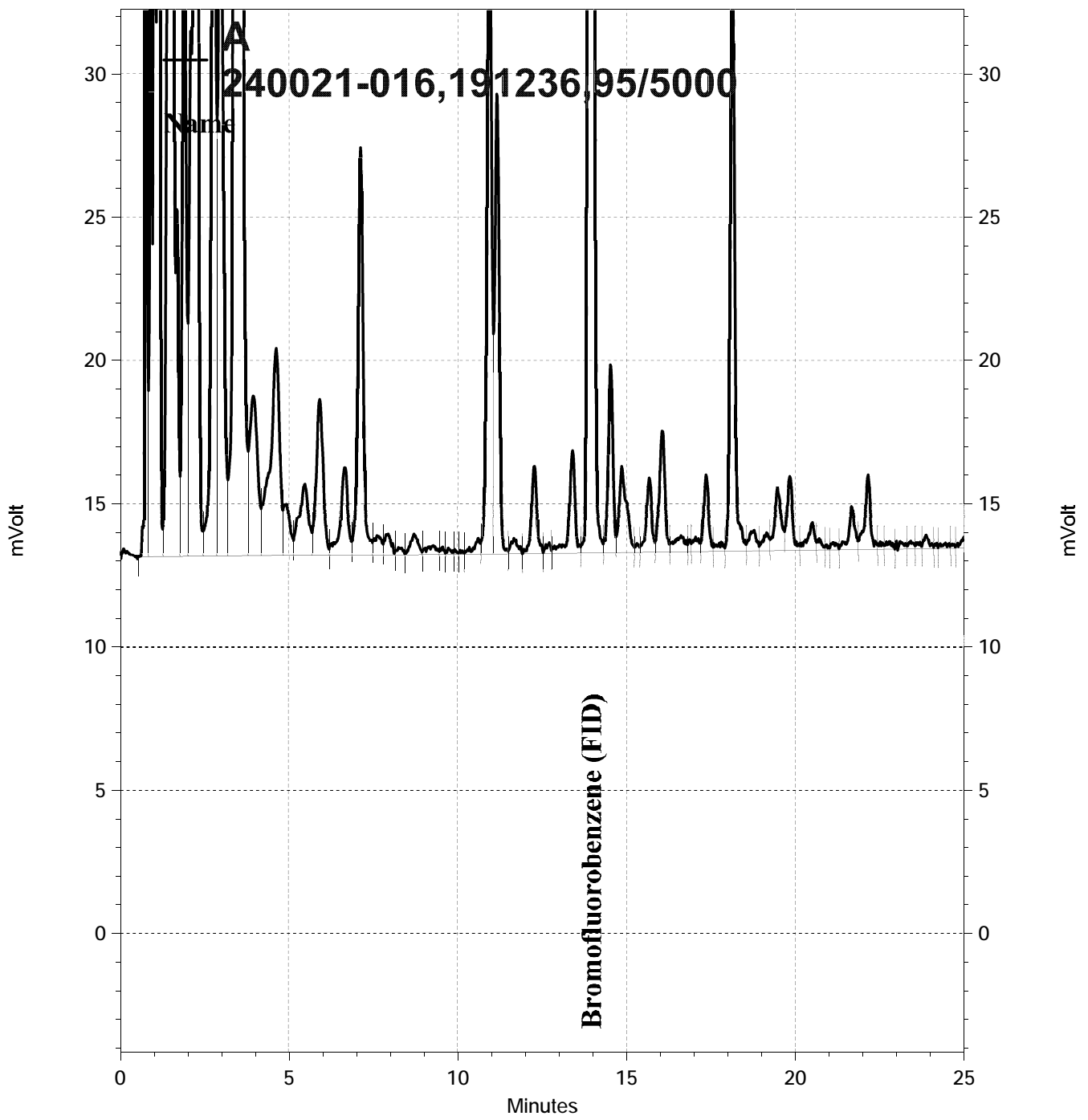
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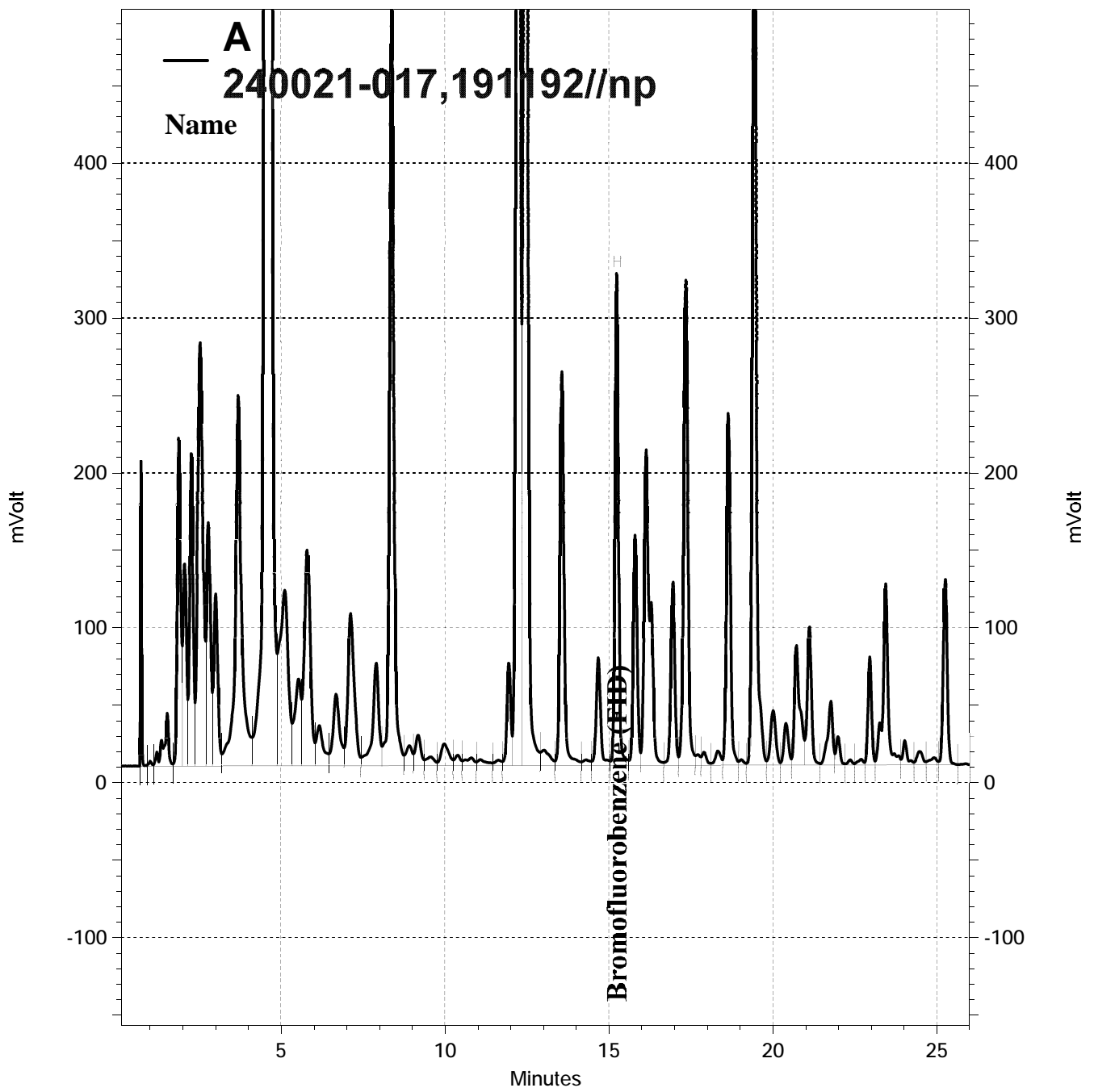
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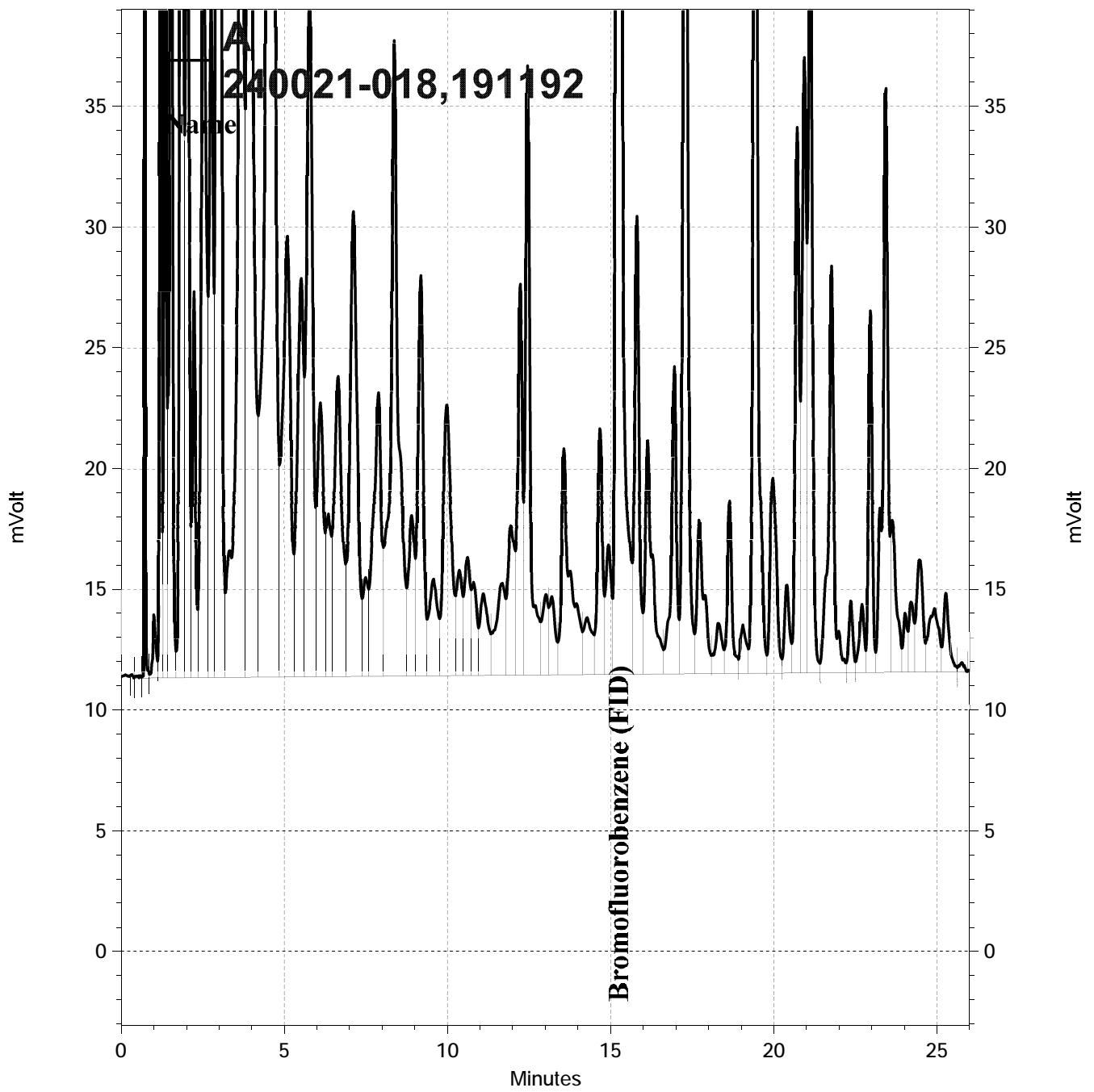
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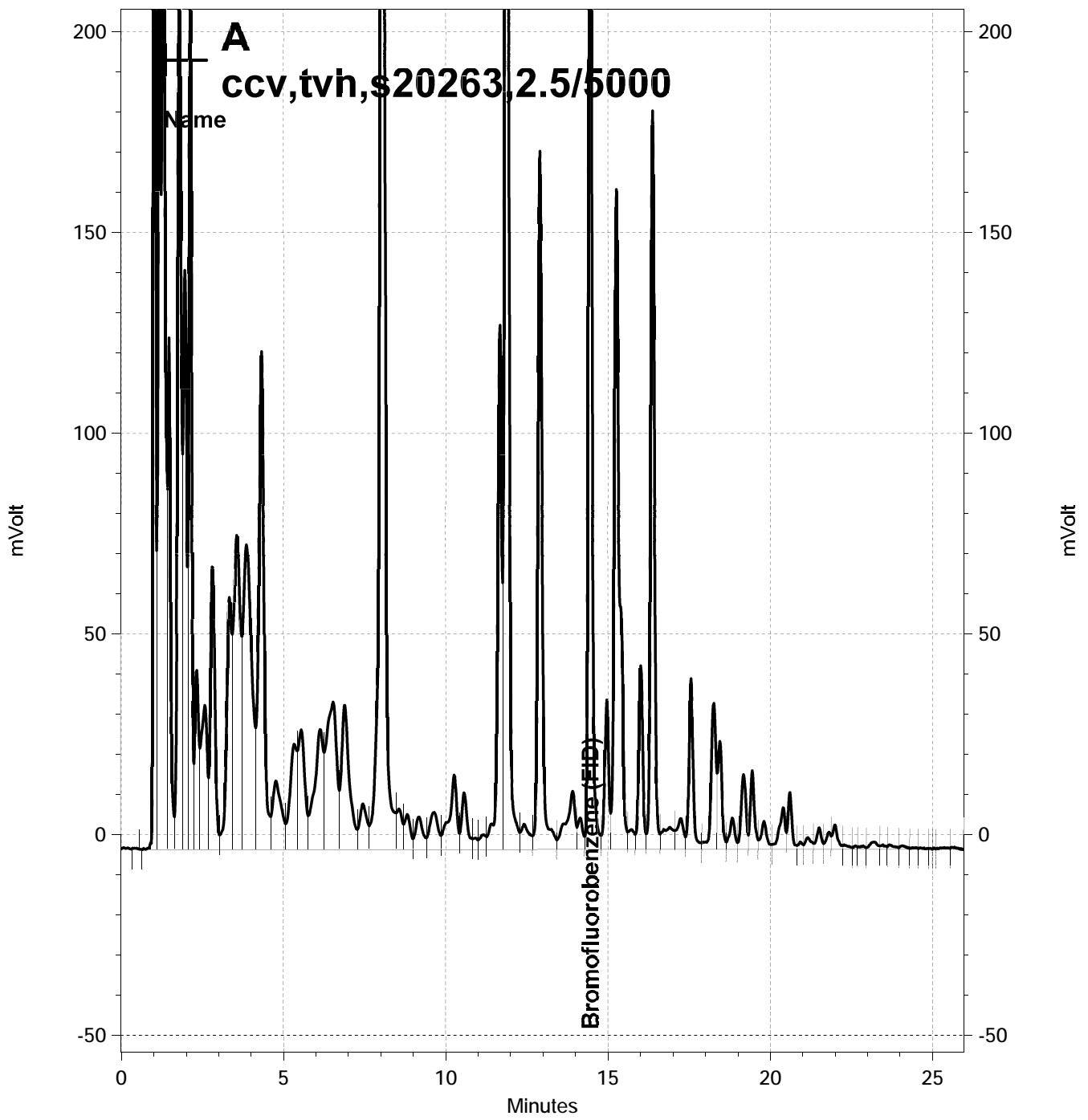
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— \\Lims\gdrive\ezchrom\Projects\GC07\Data\275-011, A



— \\Lims\gdrive\ezchrom\Projects\GC04\Data\278-002, A

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Prepared:	10/01/12
Batch#:	191178		

Field ID:	MW-4	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/27/12
Lab ID:	240021-001	Analyzed:	10/02/12

Analyte	Result	RL
Diesel C10-C24	350 Y	50

Surrogate	%REC	Limits
o-Terphenyl	106	61-134

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/27/12
Lab ID:	240021-002	Analyzed:	10/02/12

Analyte	Result	RL
Diesel C10-C24	4,100 Y	50

Surrogate	%REC	Limits
o-Terphenyl	104	61-134

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/27/12
Lab ID:	240021-003	Analyzed:	10/02/12

Analyte	Result	RL
Diesel C10-C24	2,200 Y	50

Surrogate	%REC	Limits
o-Terphenyl	106	61-134

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/27/12
Lab ID:	240021-004	Analyzed:	10/02/12

Analyte	Result	RL
Diesel C10-C24	10,000 Y	50

Surrogate	%REC	Limits
o-Terphenyl	84	61-134

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

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Prepared:	10/01/12
Batch#:	191178		

Field ID: MW-9 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-005 Analyzed: 10/02/12

Analyte	Result	RL
Diesel C10-C24	10,000 Y	50
Surrogate	%REC	Limits
o-Terphenyl	100	61-134

Field ID: MW-11 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-006 Analyzed: 10/02/12

Analyte	Result	RL
Diesel C10-C24	5,200 Y	50
Surrogate	%REC	Limits
o-Terphenyl	110	61-134

Field ID: MW-12 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-007 Analyzed: 10/02/12

Analyte	Result	RL
Diesel C10-C24	2,300 Y	50
Surrogate	%REC	Limits
o-Terphenyl	104	61-134

Field ID: MW-16 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-008 Analyzed: 10/02/12

Analyte	Result	RL
Diesel C10-C24	7,700 Y	50
Surrogate	%REC	Limits
o-Terphenyl	82	61-134

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

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Prepared:	10/01/12
Batch#:	191178		

Field ID: MW-17 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-009 Analyzed: 10/03/12

Analyte	Result	RL
Diesel C10-C24	1,400 Y	50
Surrogate	%REC	Limits
o-Terphenyl	109	61-134

Field ID: MW-18 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/27/12
 Lab ID: 240021-010 Analyzed: 10/03/12

Analyte	Result	RL
Diesel C10-C24	11,000 Y	50
Surrogate	%REC	Limits
o-Terphenyl	108	61-134

Field ID: MW-3 Diln Fac: 1.000
 Type: SAMPLE Sampled: 09/28/12
 Lab ID: 240021-011 Analyzed: 10/03/12

Analyte	Result	RL
Diesel C10-C24	7,200 Y	50
Surrogate	%REC	Limits
o-Terphenyl	124	61-134

Field ID: MW-8 Diln Fac: 10.00
 Type: SAMPLE Sampled: 09/28/12
 Lab ID: 240021-012 Analyzed: 10/02/12

Analyte	Result	RL
Diesel C10-C24	24,000	500
Surrogate	%REC	Limits
o-Terphenyl	DO	61-134

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

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Prepared:	10/01/12
Batch#:	191178		

Field ID:	MW-10	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-013	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	13,000	50
Surrogate	%REC	Limits
o-Terphenyl	121	61-134

Field ID:	MW-13	Diln Fac:	200.0
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-014	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	7,200,000	80,000
Surrogate	%REC	Limits
o-Terphenyl	DO	61-134

Field ID:	MW-14	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-015	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	9,900	50
Surrogate	%REC	Limits
o-Terphenyl	121	61-134

Field ID:	MW-15	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-016	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	3,500 Y	50
Surrogate	%REC	Limits
o-Terphenyl	116	61-134

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

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/28/12
Units:	ug/L	Prepared:	10/01/12
Batch#:	191178		

Field ID:	MW-E	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-017	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	8,300 Y	50

Surrogate	%REC	Limits
o-Terphenyl	114	61-134

Field ID:	RW-1	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/28/12
Lab ID:	240021-018	Analyzed:	10/03/12

Analyte	Result	RL
Diesel C10-C24	890 Y	50

Surrogate	%REC	Limits
o-Terphenyl	112	61-134

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC659035	Analyzed:	10/02/12

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	117	61-134

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

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	240021	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	191178
Units:	ug/L	Prepared:	10/01/12
Diln Fac:	1.000	Analyzed:	10/02/12

Type: BS Lab ID: QC659036

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,286	91	60-120

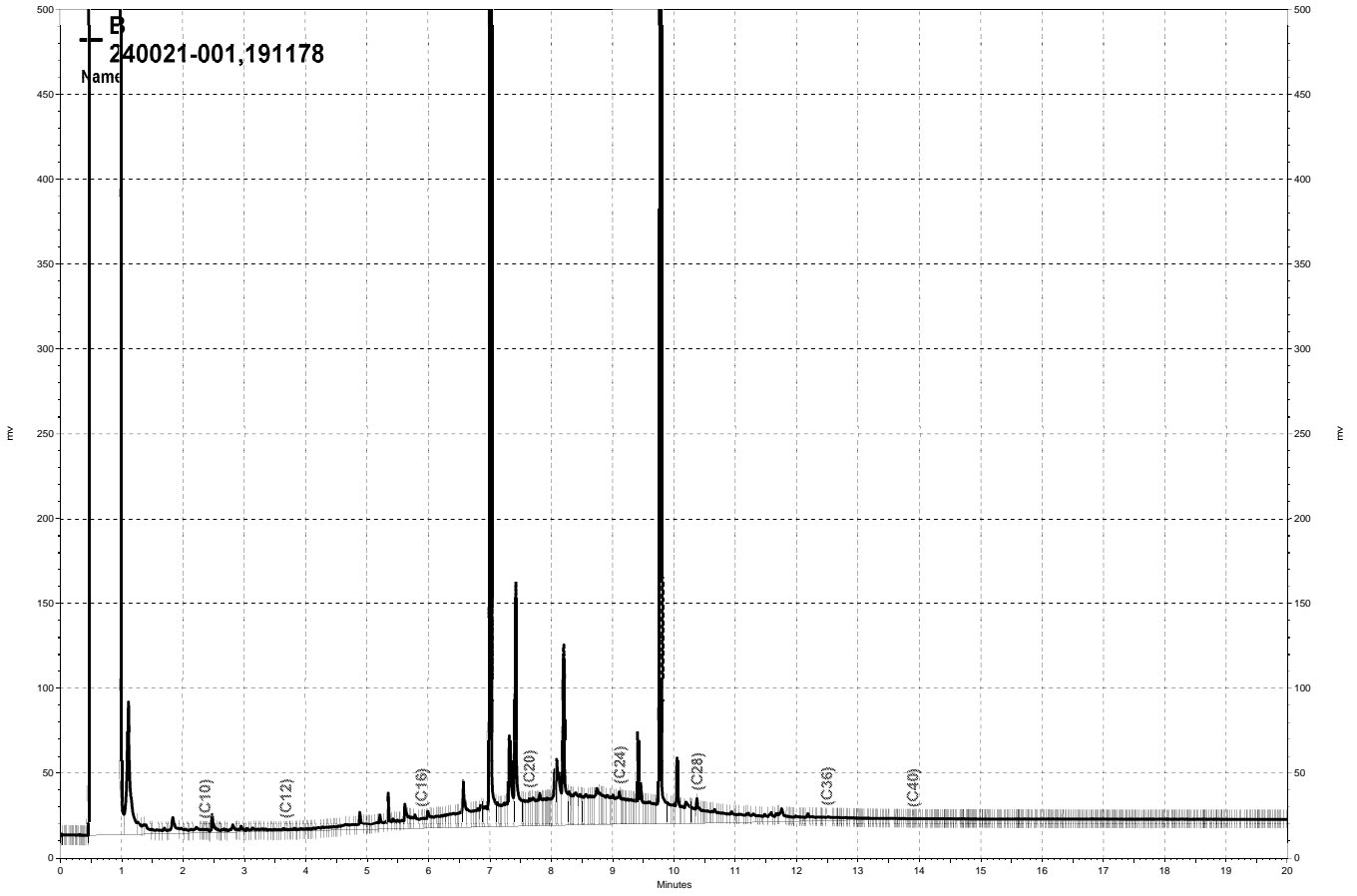
Surrogate	%REC	Limits
o-Terphenyl	111	61-134

Type: BSD Lab ID: QC659037

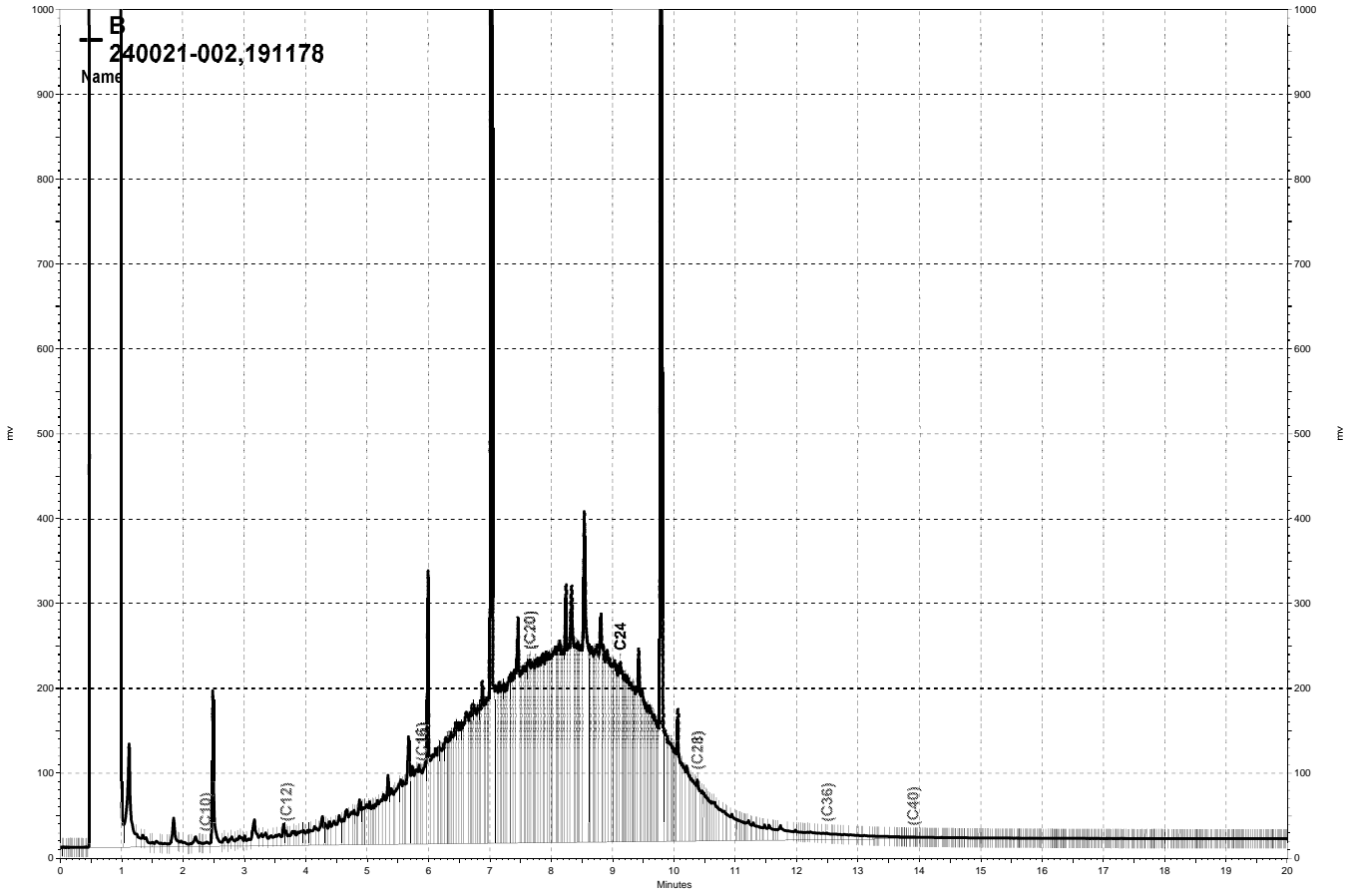
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,295	92	60-120	0	35

Surrogate	%REC	Limits
o-Terphenyl	111	61-134

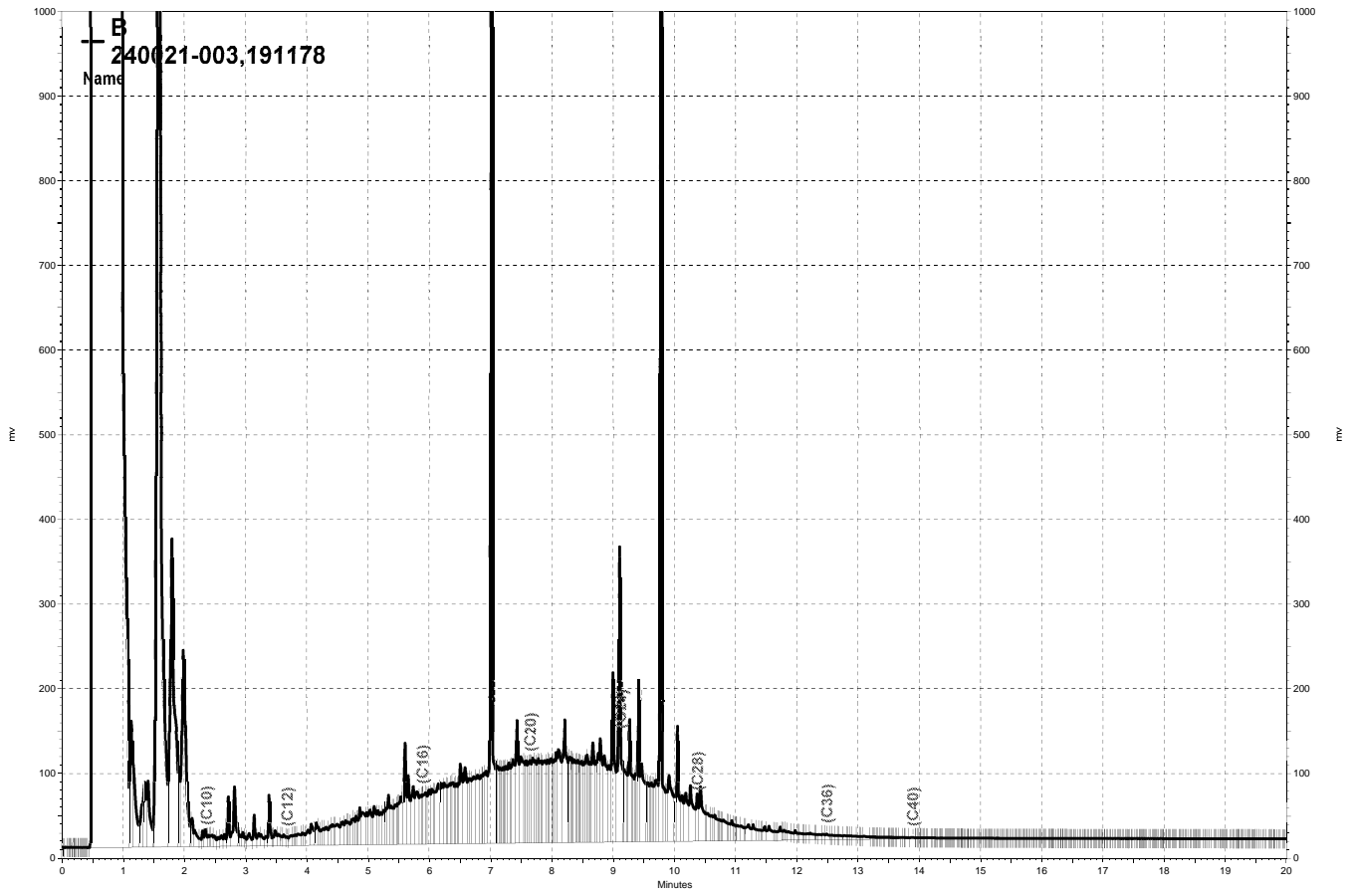
RPD= Relative Percent Difference



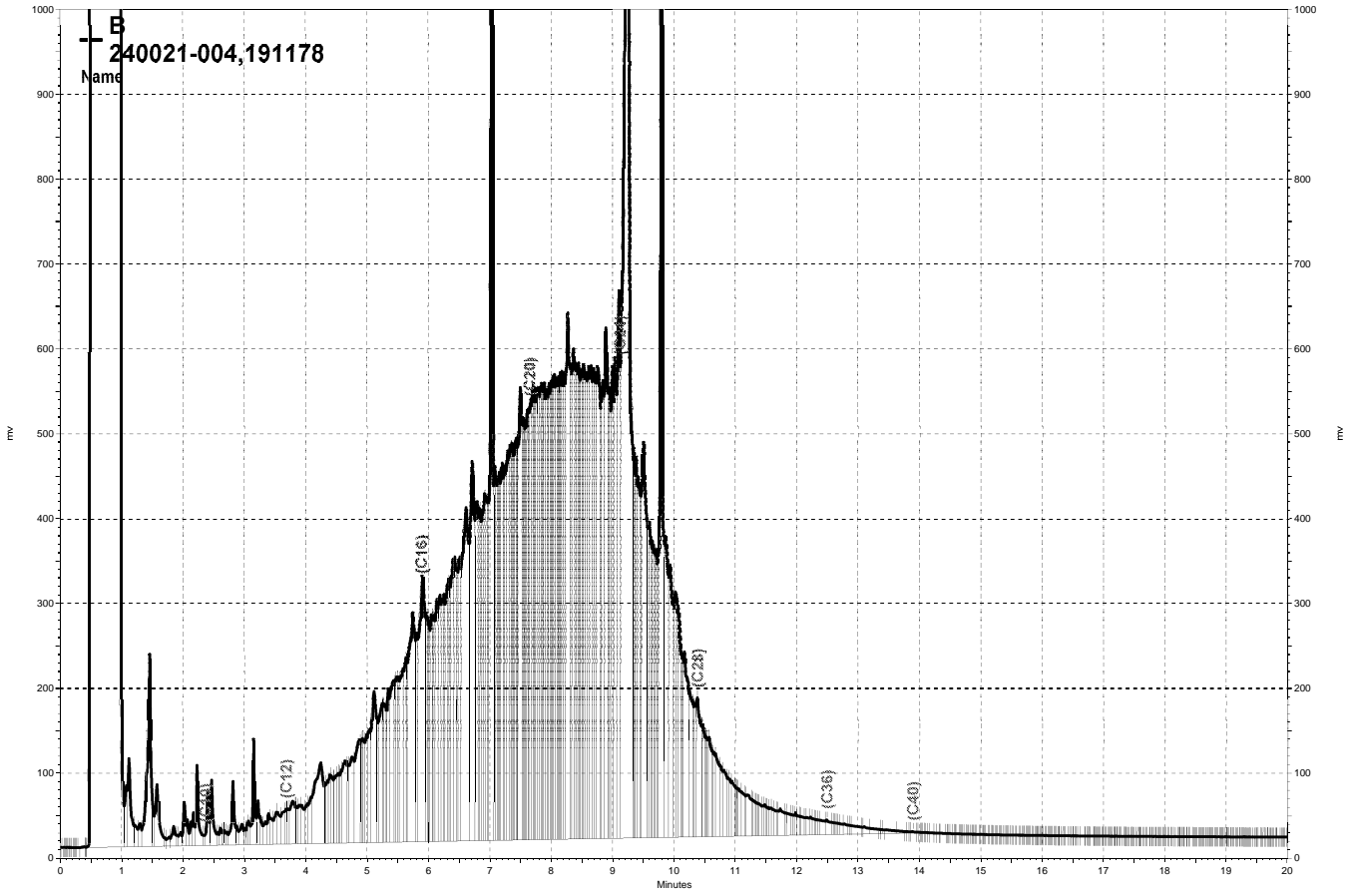
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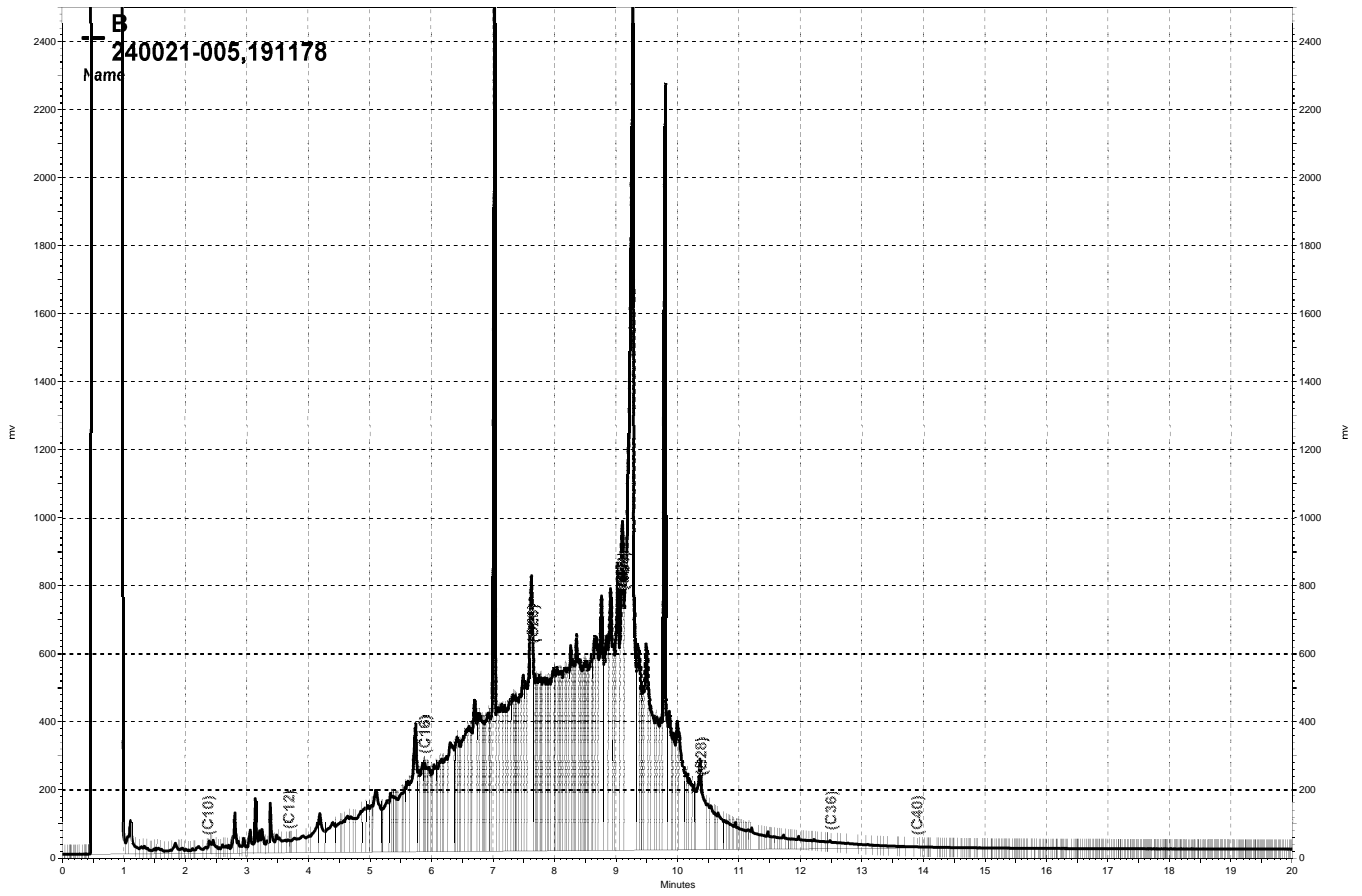
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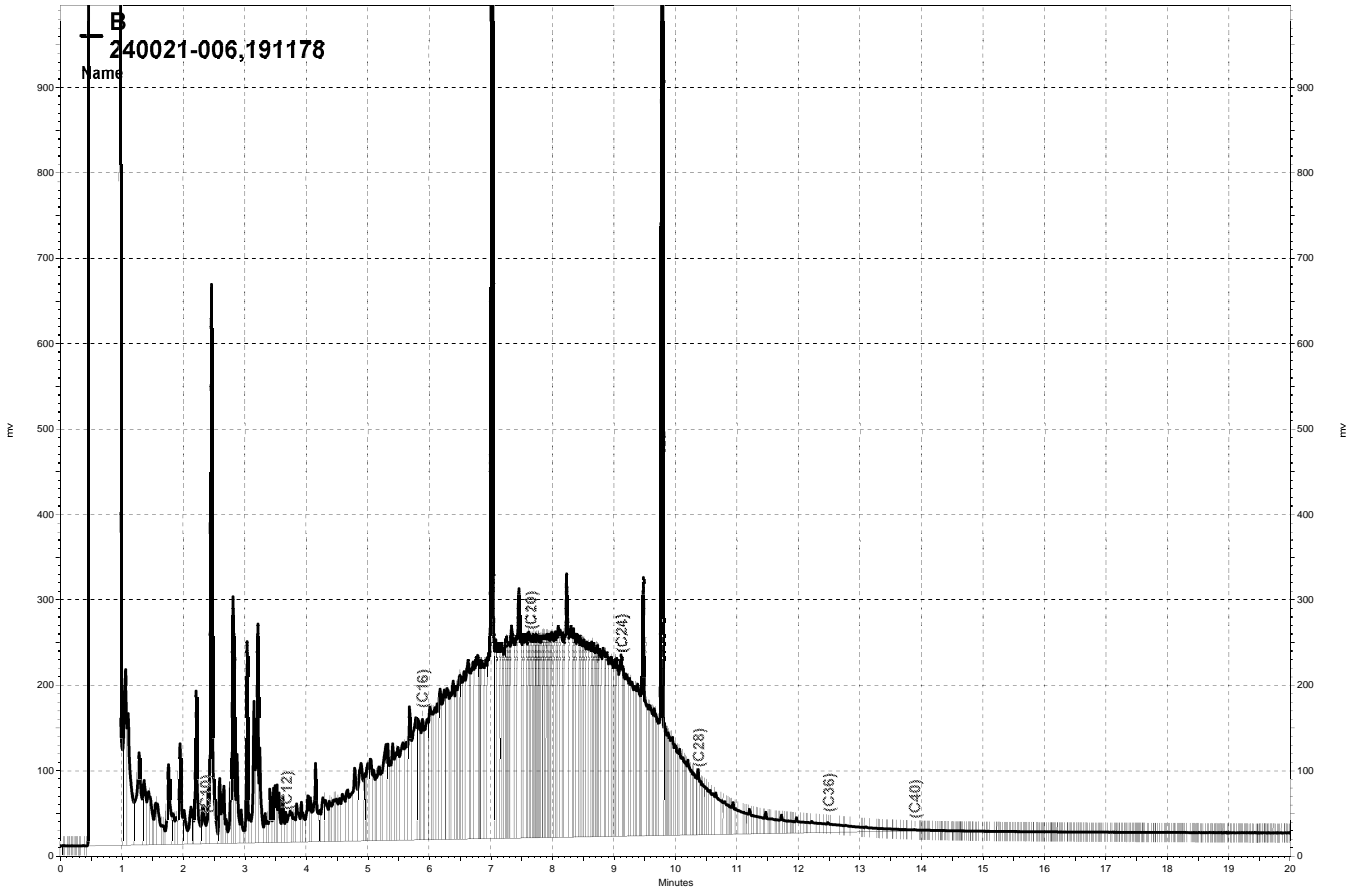
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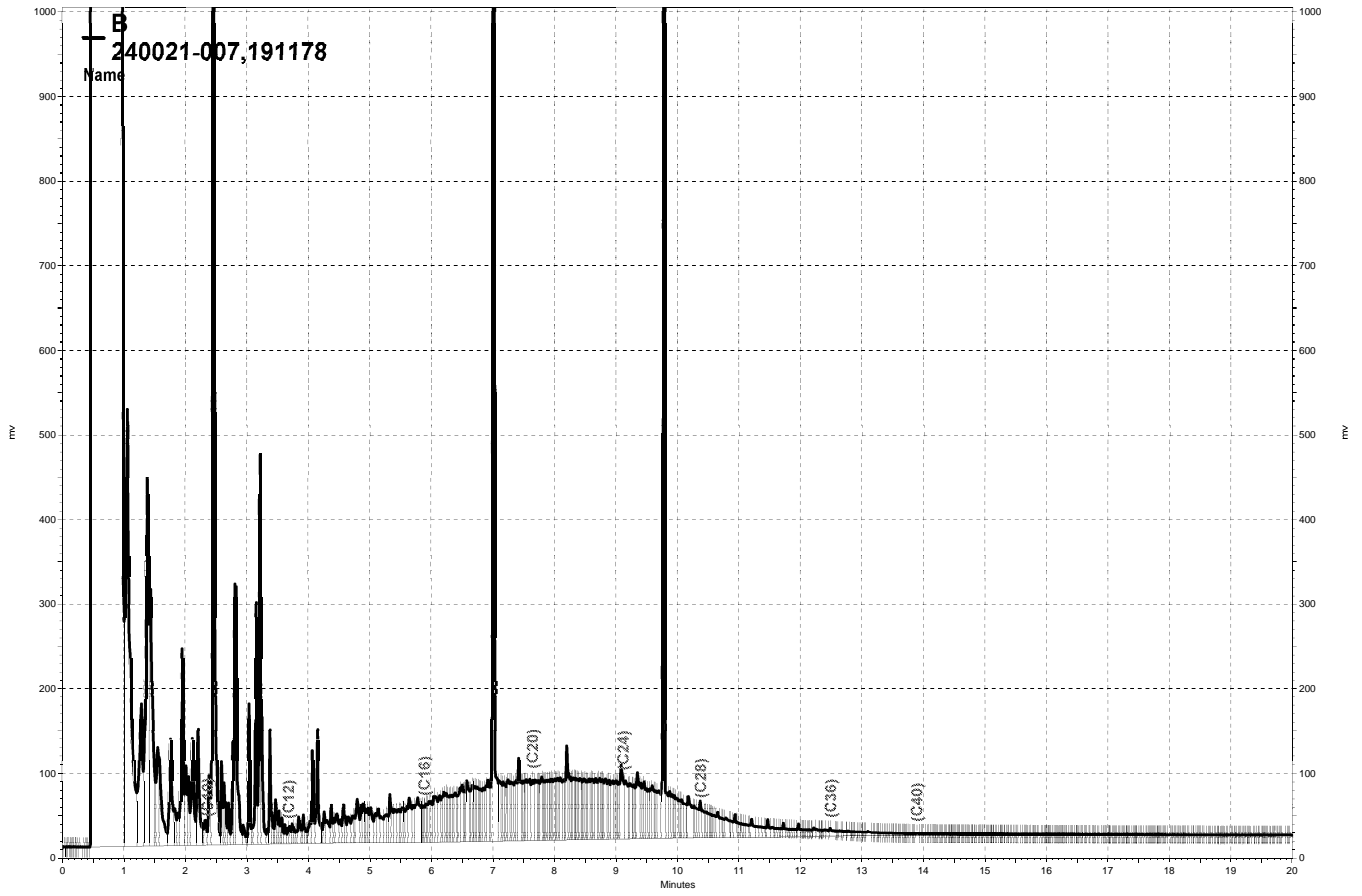
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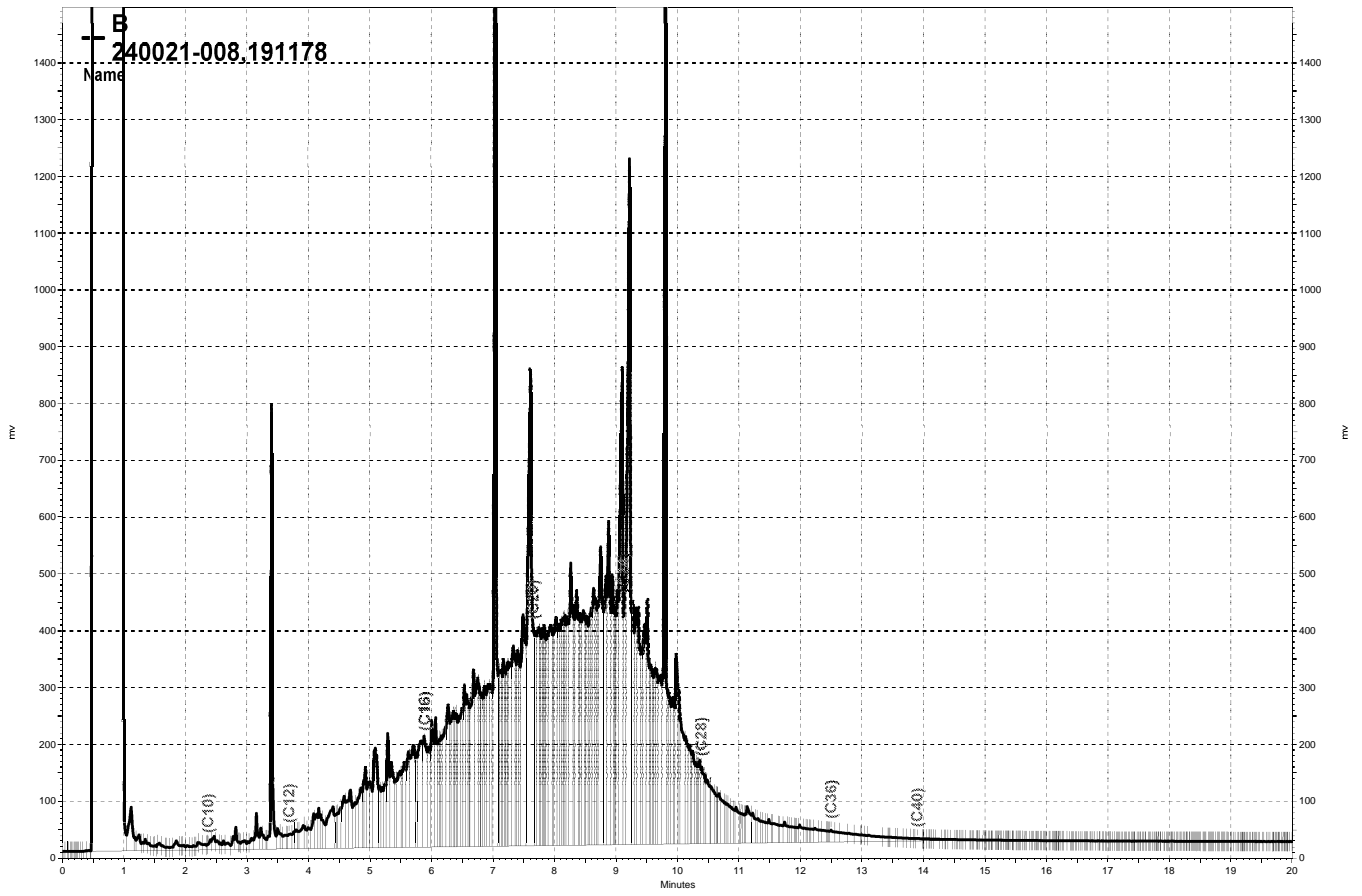
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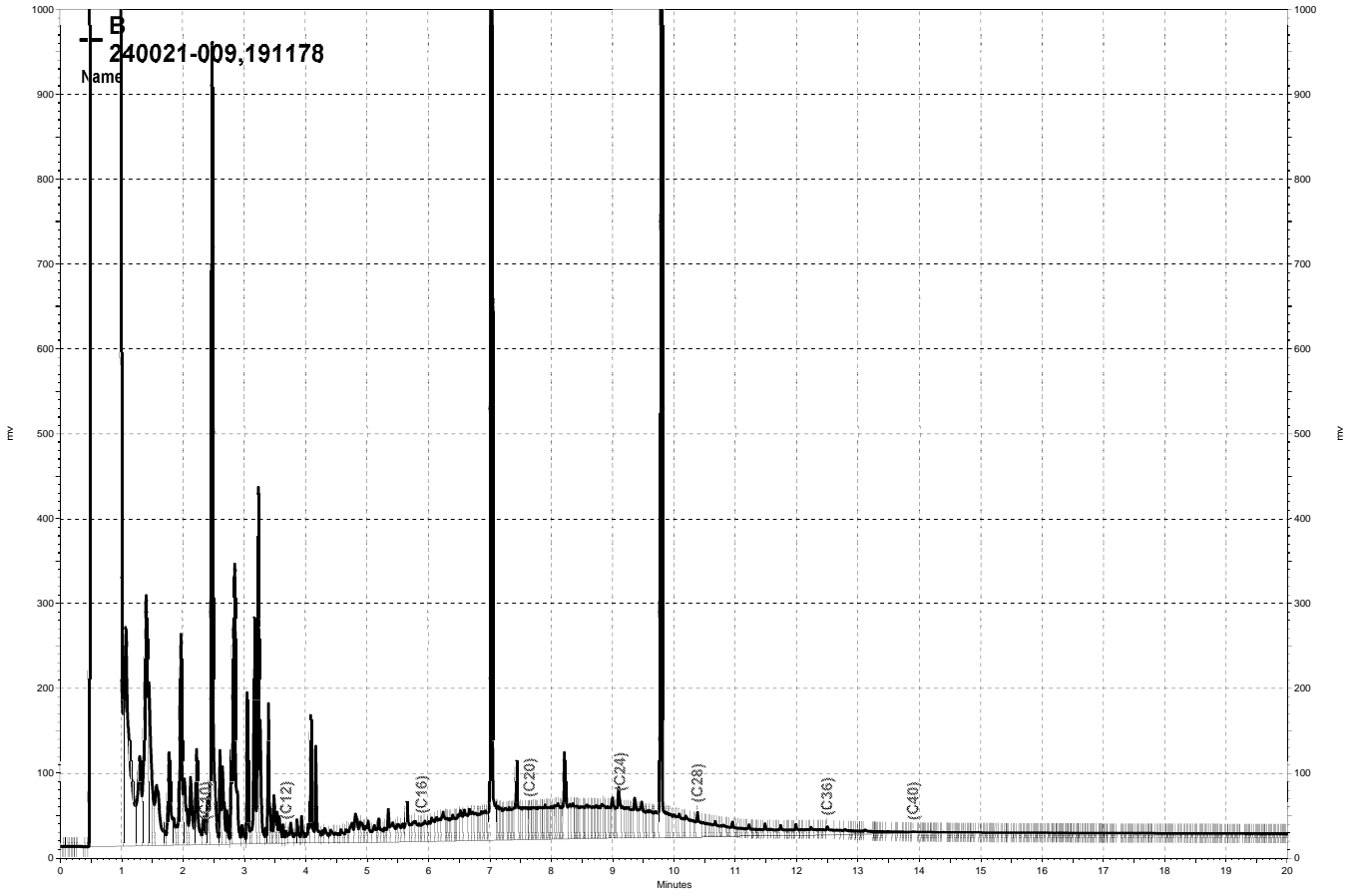
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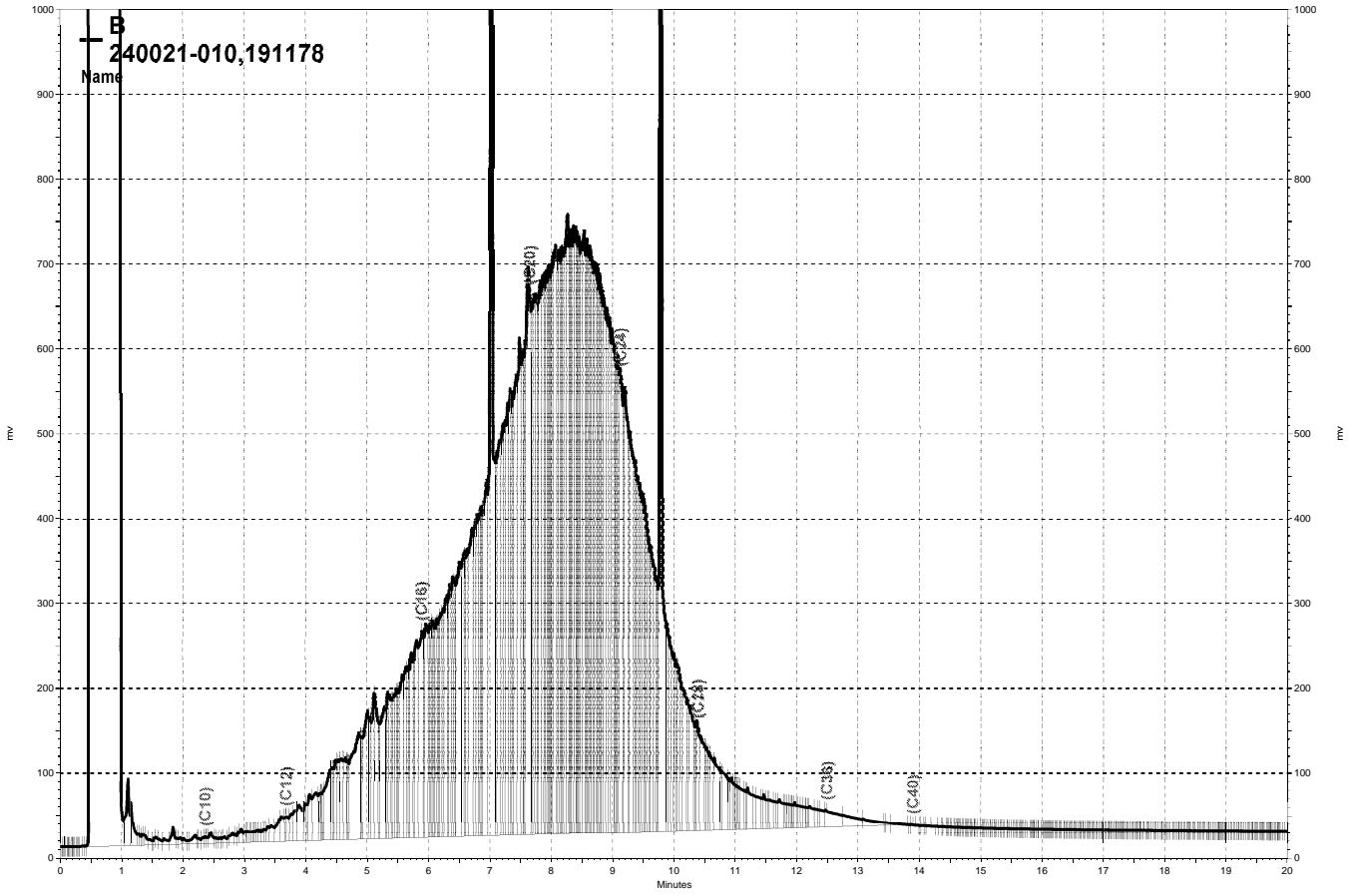
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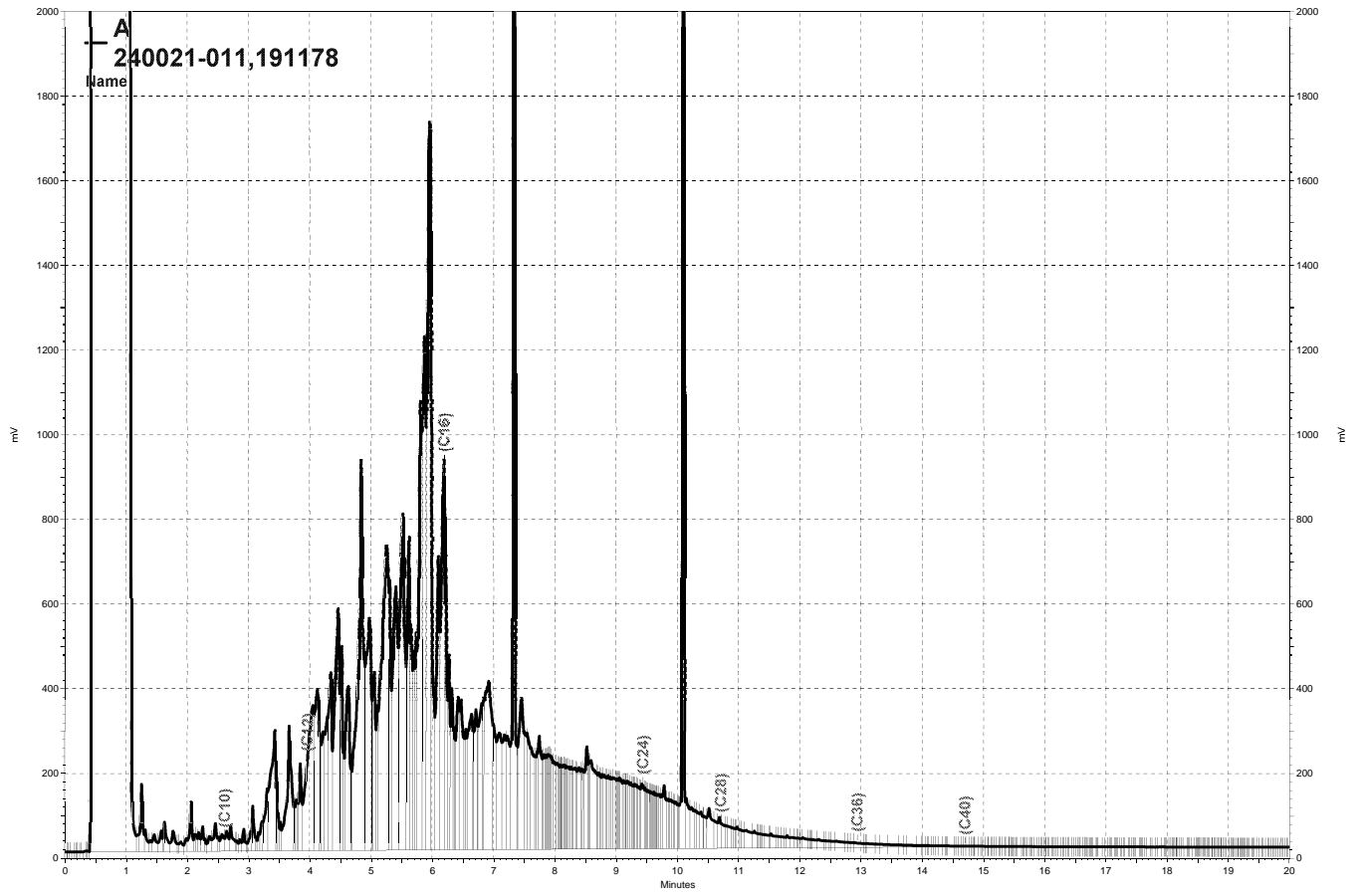
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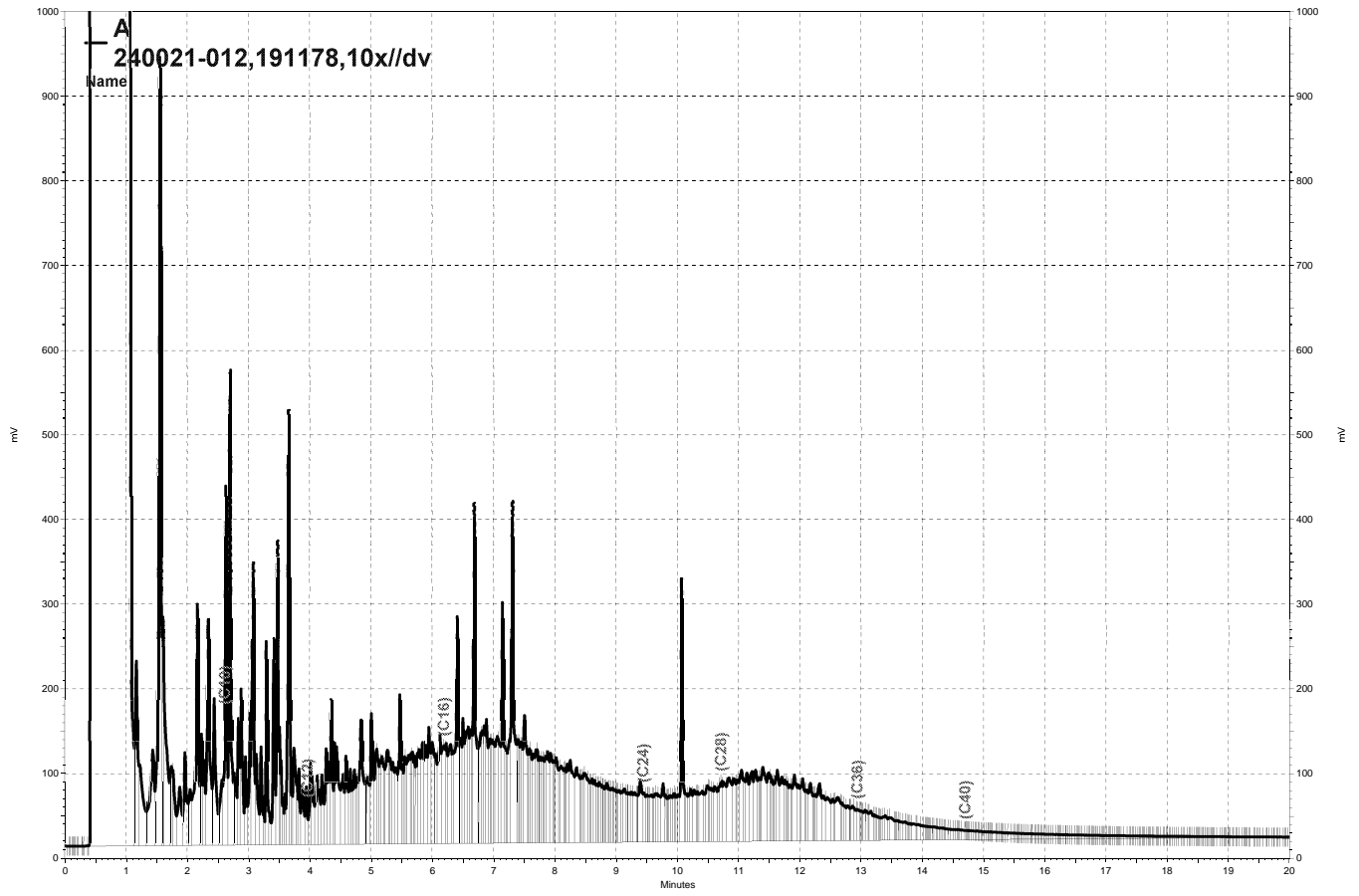
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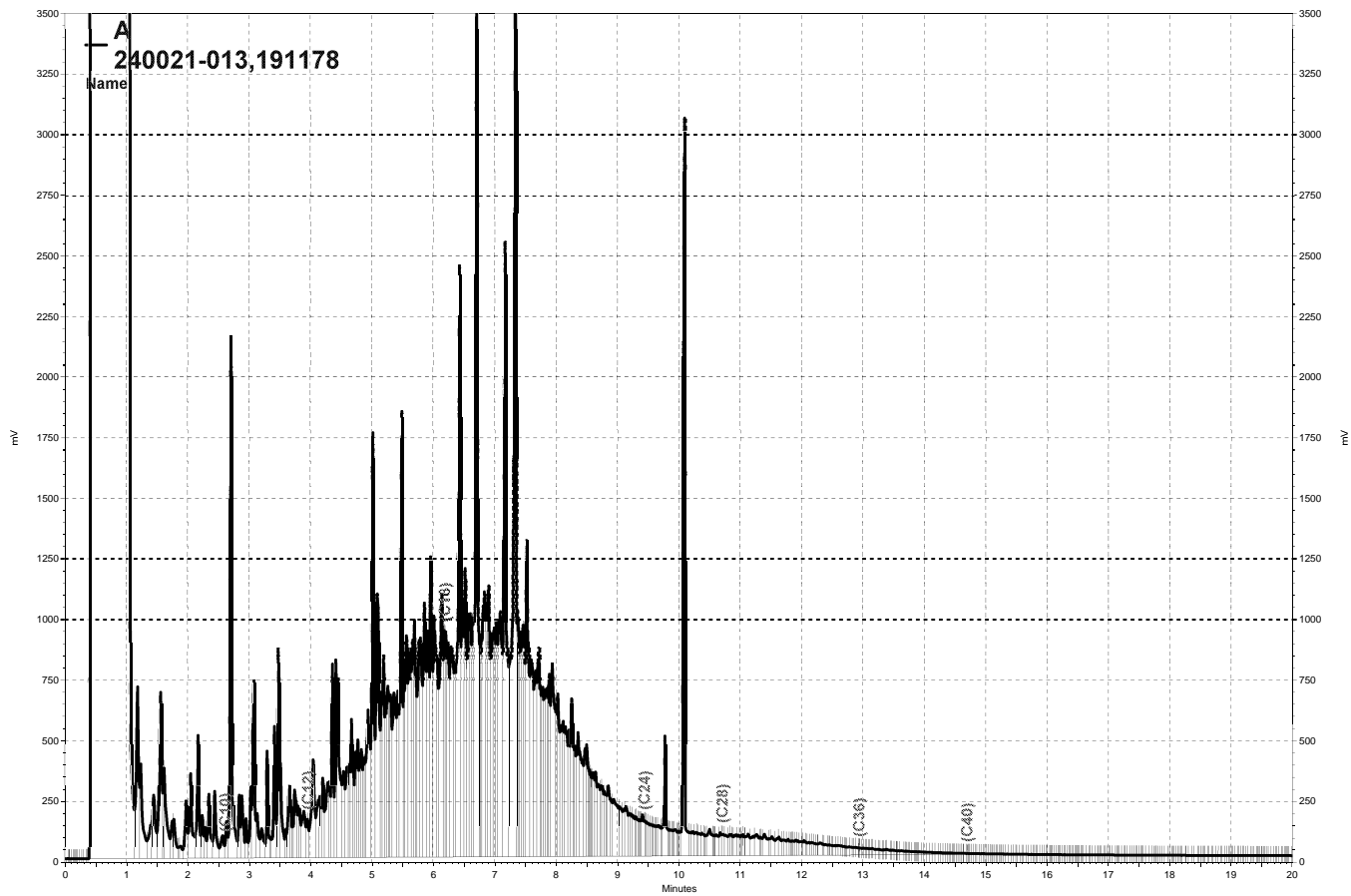
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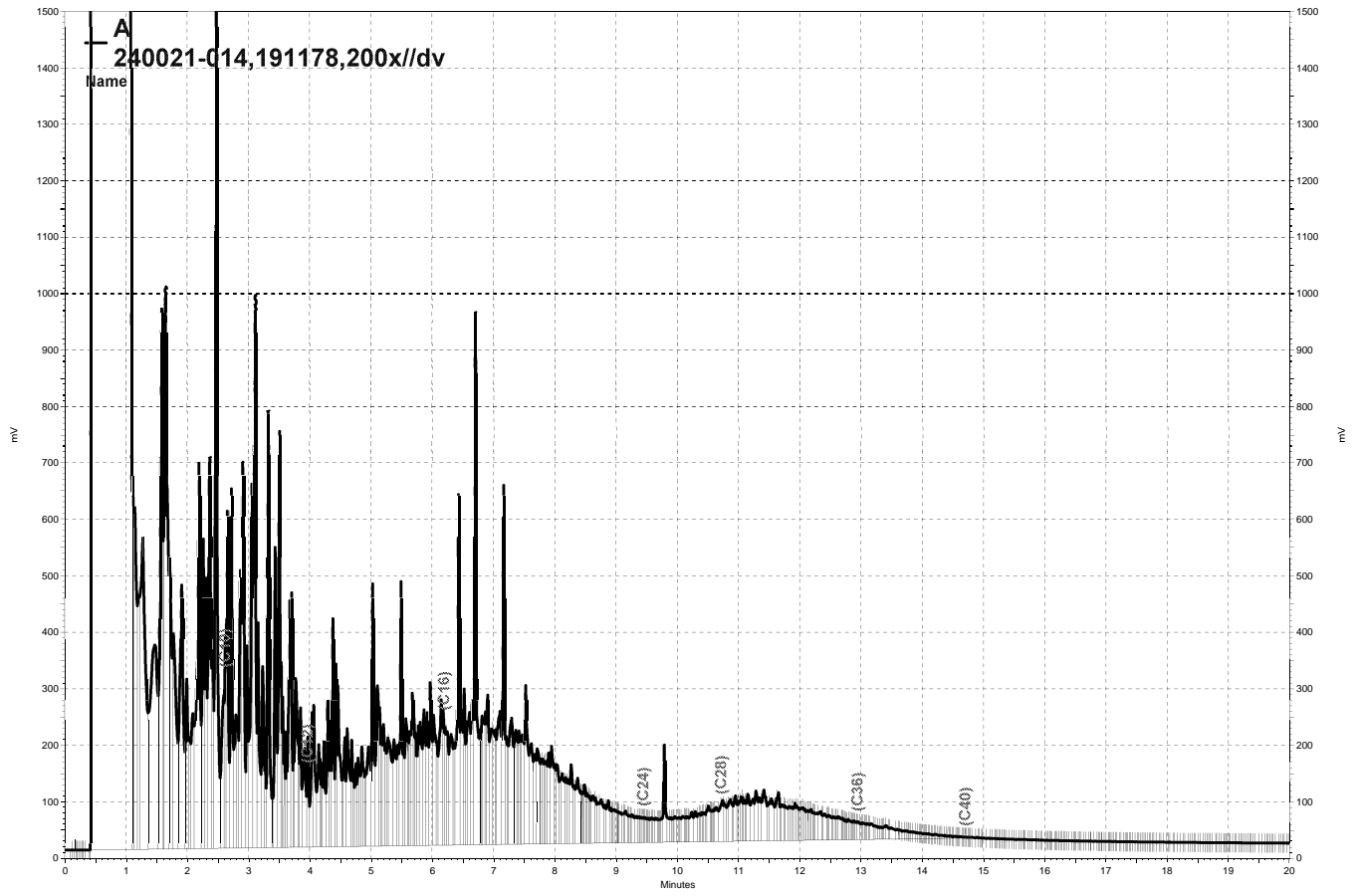
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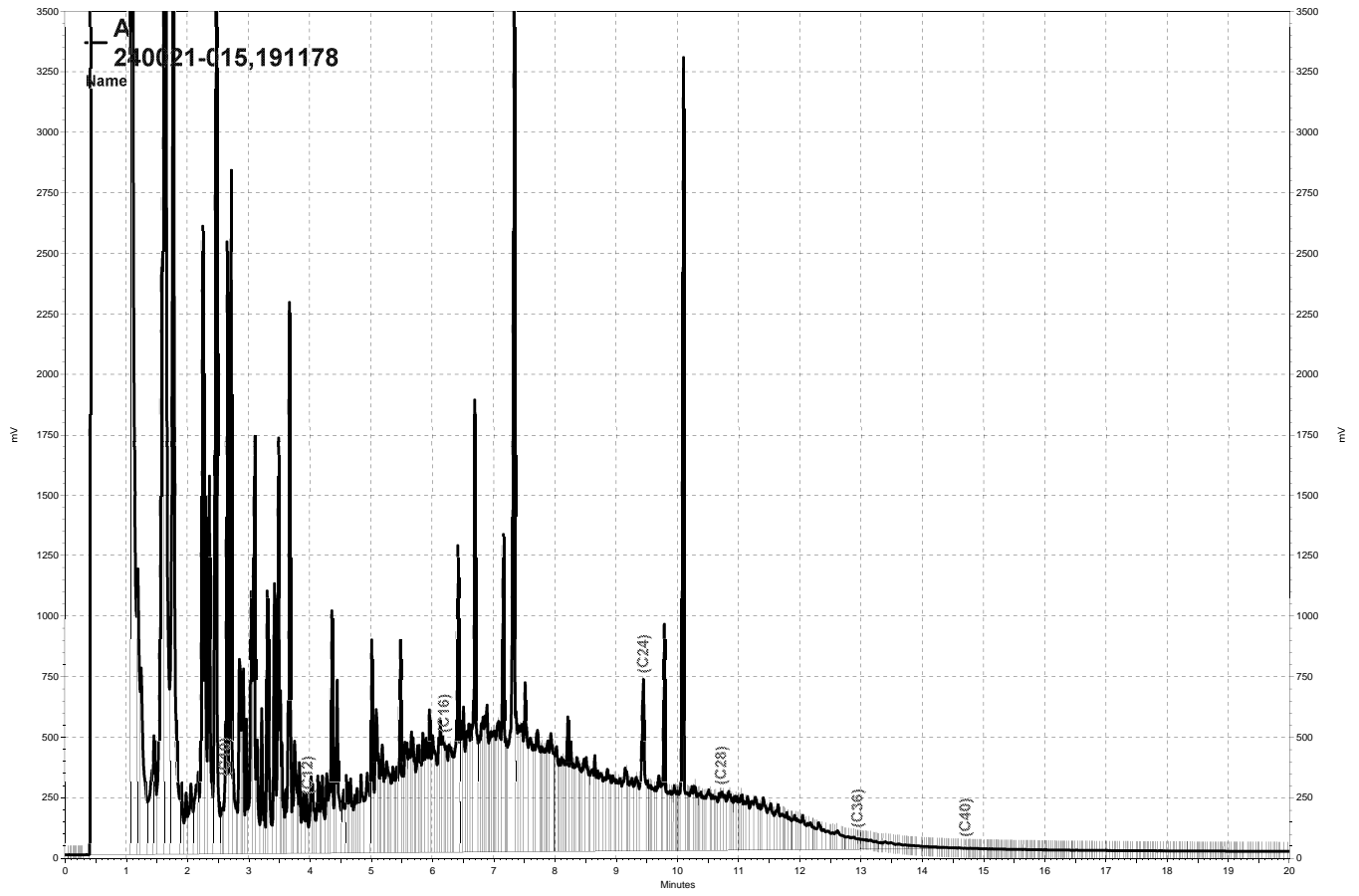
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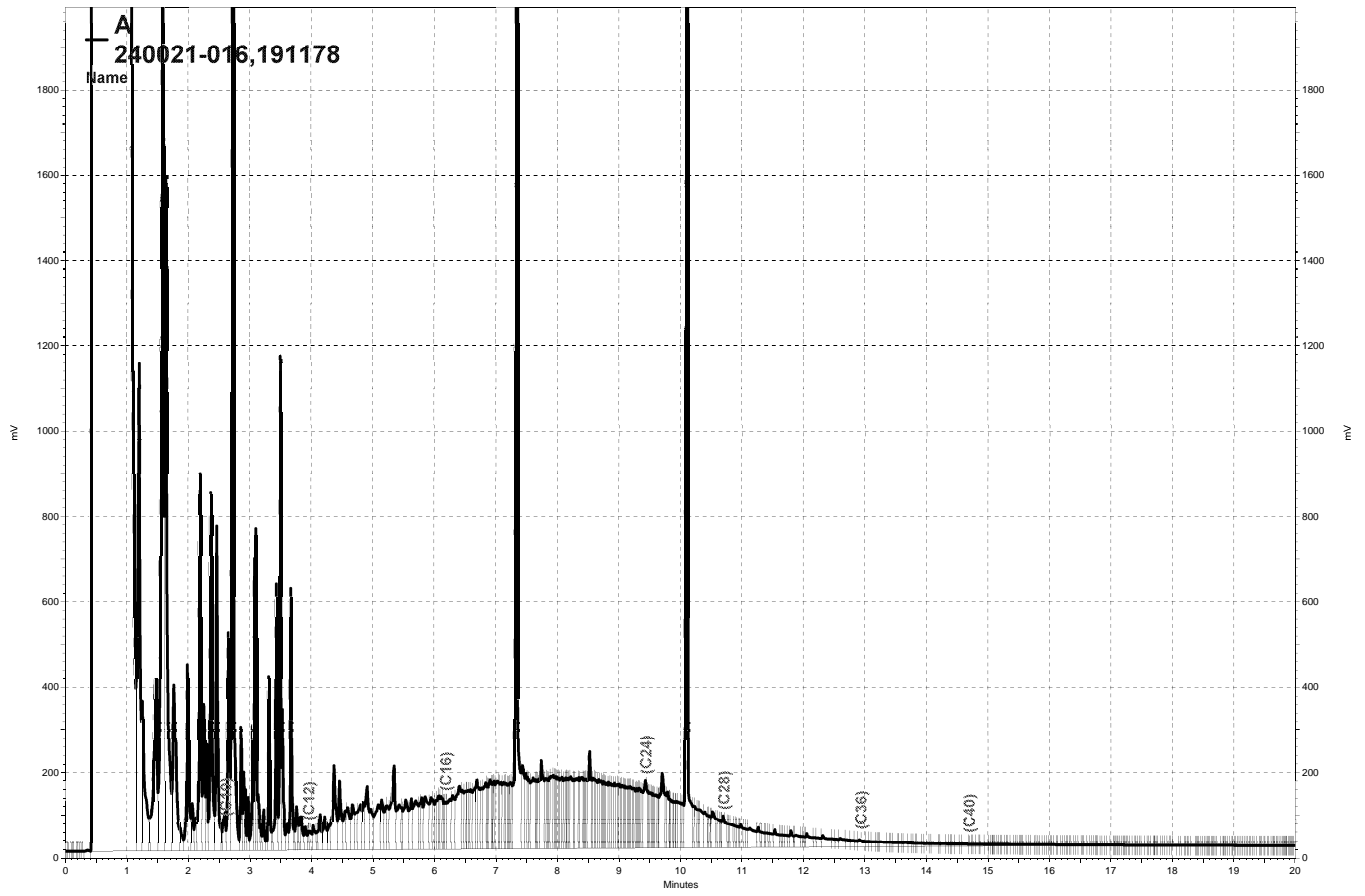
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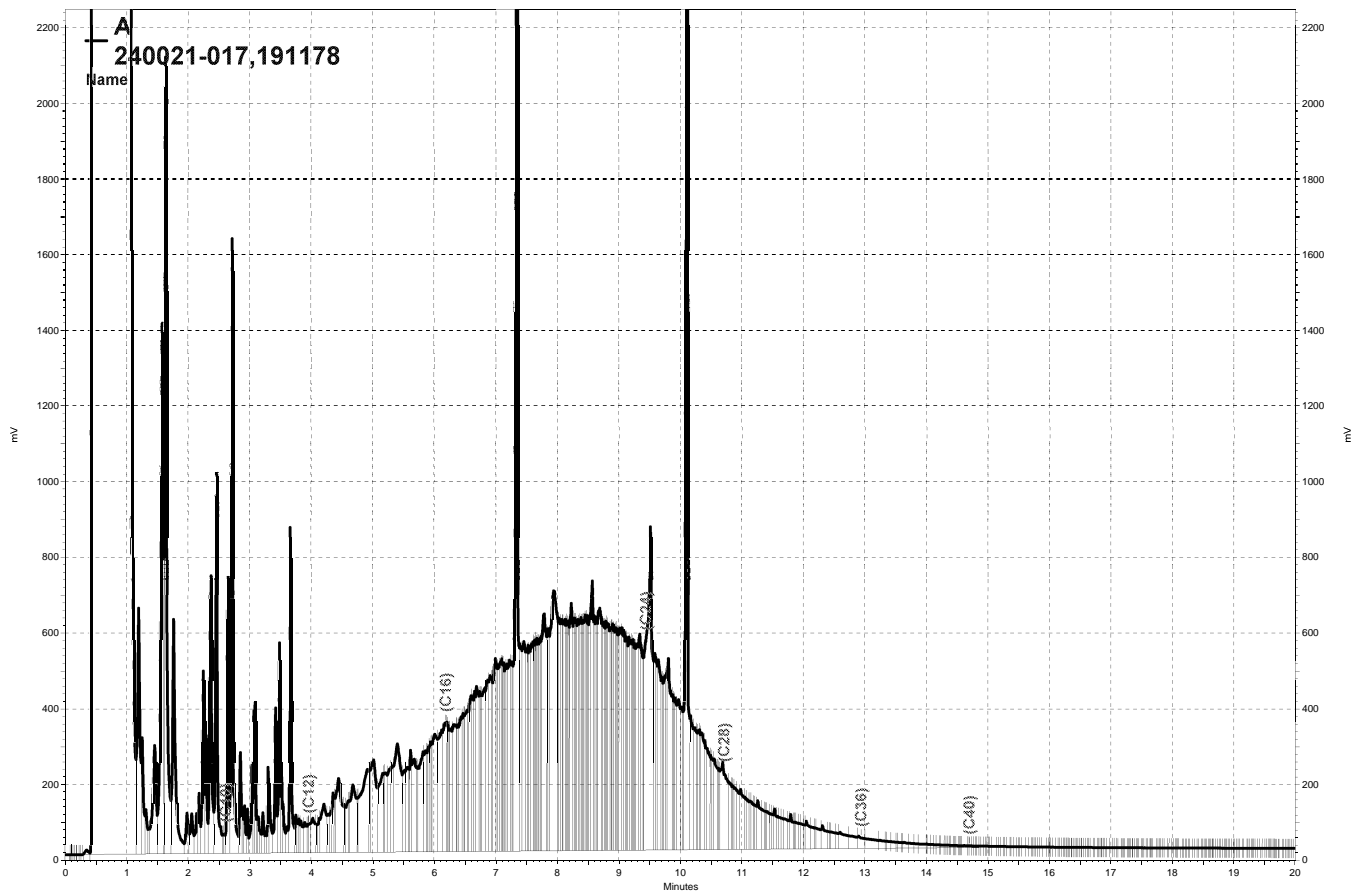
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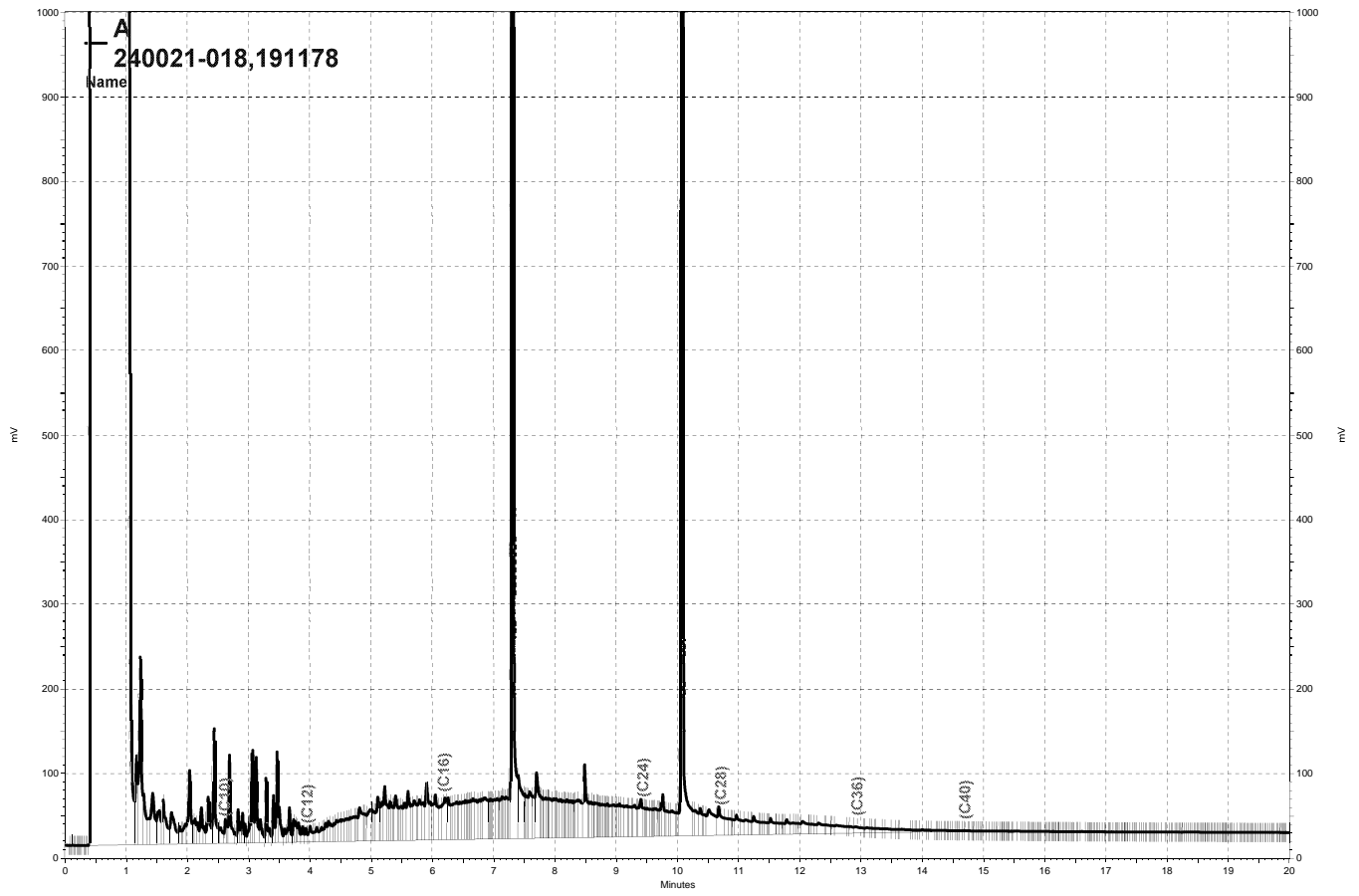
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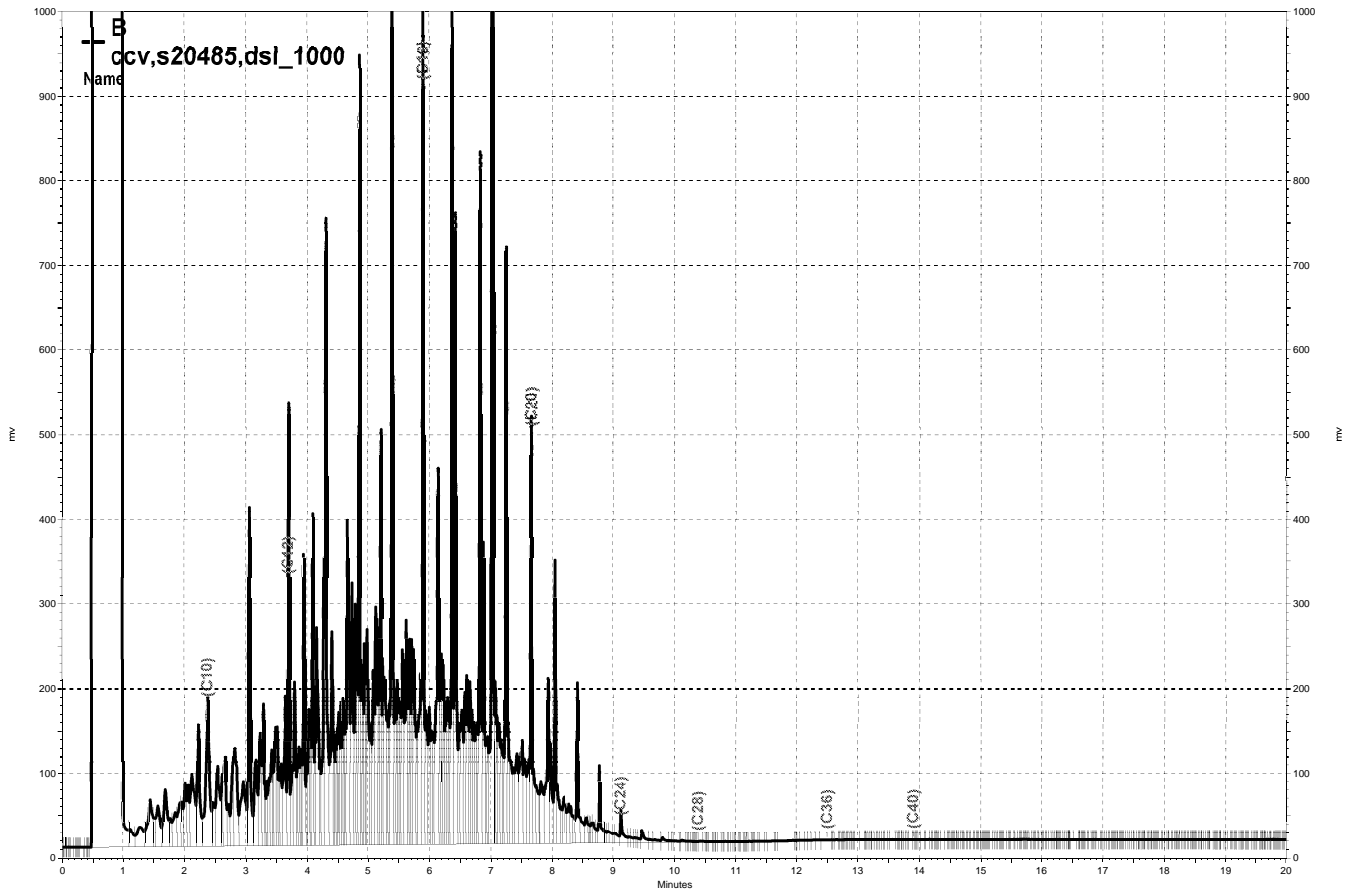
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— \\Lims\gdrive\ezchrom\Projects\GC15B\Data\276b018, B

APPENDIX D

Historical Groundwater Elevation Data

TABLE B
Historical Monitoring, Extraction, and Trench Well Elevations
6400 Christie Avenue, Emeryville, California

MW-1					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.39	9.60	NP	4.79
2	May-89	14.31 ^(a)	8.73	NP	5.58
3	Feb-91	14.31	9.18	NP	5.13
Monitoring well abandoned - date unclear					

MW-2					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.36	9.64	NP	4.72
2	May-89	14.28 ^(a)	8.78	NP	5.50
3	Feb-91	14.28	9.61	NP	4.67
Monitoring well abandoned - date unclear					

MW-3					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.53	8.93	trace	5.60
2	May-89	14.43 ^(a)	8.69	NP	5.74
3	Feb-91	14.43	8.31	NP	6.12
4	Mar-04	16.96 ^(b)	9.47	NP	7.49
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.65 ^(c)	7.76 ^(e)	7.76	8.89
7	Mar-08	16.65	8.72	8.70	7.93
8	Jun-08	16.65	8.56	NP	8.09
9	Sep-08	16.65	9.27	7.95	7.38
10	Dec-08	16.65	8.36	7.49	8.29
11	Mar-09	16.65	7.94	NP	8.71
12	Sep-09	16.65	8.58	NP	8.07
13	Mar-10	16.65	8.08 ^(e)	8.08	8.57
14	Sep-10	16.65	8.68 ^(e)	8.68	7.97
15	Mar-11	16.65	10.40	NM	6.25
16	Sep-11	16.65	10.84	10.83	6.17
17	Mar-12	16.65	8.21	NM	8.44
18	Sep-12	16.65	10.77	NM	5.88

MW-4					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.21	8.29	NP	5.92
2	May-89	14.12 ^(a)	7.75	NP	6.37
3	Feb-91	14.12	8.04	NP	6.08
4	Mar-04	16.74 ^(b)	6.90	NP	7.49
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.29 ^(c)	6.61	NP	9.68
7	Mar-08	16.29	7.24	NP	9.05
8	Jun-08	16.29	6.94	NP	9.35
9	Sep-08	16.29	6.85	NP	6.85
10	Dec-08	16.29	7.42	NP	8.87
11	Mar-09	16.29	6.90	NP	9.39
12	Sep-09	16.29	7.40	NP	8.89
13	Mar-10	16.29	7.08	NP	9.21
14	Sep-10	16.29	7.08	NP	9.21
15	Mar-11	16.29	7.02	NP	9.27
16	Sep-11	16.29	7.83	NP	8.46
17	Mar-12	16.29	7.01	NP	9.28
18	Sep-12	16.29	7.82	NP	8.45

MW-5					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.65	10.23	NP	4.42
2	May-89	14.56 ^(a)	9.29	NP	5.27
3	Feb-91	14.56	10.04	NP	4.52
4	Mar-04	17.11 ^(b)	9.10	NP	8.01
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.72 ^(c)	9.66	NP	7.06
7	Mar-08	16.72	9.72	NP	7.00
8	Jun-08	16.72	9.72	NP	7.00
9	Sep-08	16.72	8.56	NP	8.16
10	Dec-08	16.72	9.75	NP	6.97
11	Mar-09	16.72	9.31	NP	7.41
12	Sep-09	16.72	9.79	NP	6.93
13	Mar-10	16.72	9.48	NP	7.24
14	Sep-10	16.72	9.90	NP	6.82
15	Mar-11	16.72	9.29	NP	7.43
16	Sep-11	16.72	9.77	NP	6.95
17	Mar-12	16.72	9.19	NP	7.53
18	Sep-12	16.72	9.70	NP	7.02

MW-6					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	14.75	8.10	NP	6.65
2	May-89	14.67 ^(a)	7.58	NP	7.09
3	Feb-91	14.67	7.05	NP	7.62
4	Mar-04	17.22 ^(b)	6.51	NP	10.71
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.82 ^(c)	6.61	NP	10.21
7	Mar-08	16.82	7.02	NP	9.80
8	Jun-08	16.82	7.55	NP	9.27
9	Sep-08	16.82	6.06	NP	10.76
10	Dec-08	16.82	6.91	NP	9.91
11	Mar-09	16.82	6.45	NP	10.37
12	Sep-09	16.82	8.05	NP	8.77
13	Mar-10	16.82	6.66	NP	10.16
14	Sep-10	16.82	7.98	NP	8.84
15	Mar-11	16.82	5.91	NP	10.91
16	Sep-11	16.82	7.66	NP	9.16
17	Mar-12	16.82	5.65	NP	11.17
18	Sep-12	16.82	7.51	NP	9.31

MW-7					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.09	9.93	NP	8.16
2	Dec-06	NA	NA	NA	NA
3	Dec-07	17.73 ^(c)	10.30	NP	7.43
4	Mar-08	17.73	10.51	NP	7.22
5	Jun-08	17.73	10.50	NP	7.23
6	Sep-08	17.73	10.37	NP	7.36
7	Dec-08	17.73	10.60	NP	7.13
8	Mar-09	17.73	10.13	NP	7.60
9	Sep-09	17.73	10.61	NP	7.12
10	Mar-10	17.73	10.02	NP	7.71
11	Sep-10	17.73	10.59	NP	7.14
12	Mar-11	17.73	10.14	NP	7.59
13	Sep-11	17.73	10.58	NP	7.15
14	Mar-12	17.73	10.12	NP	7.61
15	Sep-12	17.73	10.50	NP	7.23

MW-8					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.25	9.32	8.15	8.93
2	Nov-06 ^(d)	16.96	10.59	NP	6.37
3	Dec-07	17.84 ^(c)	9.42	NP	8.42
4	Mar-08	17.84	10.50	9.18	7.34
5	Jun-08	17.84	9.68	9.10	8.16
6	Sep-08	17.84	9.63	8.89	8.21
7	Dec-08	17.84	9.58	8.89	8.26
8	Mar-09	17.84	9.62	8.89	8.22
9	Sep-09	17.84	8.55 ^(e)	8.55	9.29
10	Mar-10	17.84	9.02 ^(e)	9.02	8.82
11	Sep-10	17.84	9.75	9.89	7.95
12	Mar-11	17.84	8.89	8.99	8.85
13	Sep-11	17.84	9.87	9.55	7.97
14	Mar-12	17.84	9.29	9.01	8.55
15	Sep-12	17.84	9.25	8.46	8.59

MW-9					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.27	9.38	NP	8.89
2	Dec-06	NA	NA	NA	NA
3	Dec-07	17.84 ^(c)	9.54	NP	8.30
4	Mar-08	17.84	9.77	NP	8.07
5	Jun-08	17.84	9.68	NP	9.27
6	Sep-08	17.84	9.30	NP	8.54
7	Dec-08	17.84	9.83	NP	8.01
8	Mar-09	17.84	9.37	NP	8.47
9	Sep-09	17.84	9.70	NP	8.14
10	Mar-10	17.84	9.46	NP	8.38
11	Sep-10	17.84	9.75	NP	8.09
12	Mar-11	17.84	9.52	NP	8.32
13	Sep-11	17.84	9.80	NP	8.04
14	Mar-12	17.84	9.54	NP	8.30
15	Sep-12	17.84	9.54	NP	8.30

MW-10					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.21	9.87	8.24	8.34
2	Dec-06	18.21	9.30	8.86	8.91
3	Dec-07	17.83 ^(c)	8.98 ^(e)	8.98	8.85
4	Mar-08	17.83	9.28	8.98	8.55
5	Jun-08	17.83	8.86	8.78	7.23
6	Sep-08	17.83	8.95	8.84	8.88
7	Dec-08	17.83	8.97	8.74	8.86
8	Mar-09	17.83	9.25	8.54	9.25
9	Sep-09	17.83	8.63	8.52	9.20
10	Mar-10	17.83	10.30	8.58	7.53
11	Sep-10	17.83	8.76	8.82	9.01
12	Mar-11	17.83	8.15	8.14	9.68
13	Sep-11	17.83	8.83	8.78	9.00
14	Mar-12	17.83	7.89	7.75	9.94
15	Sep-12	17.83	7.48	7.40	10.35

MW-11					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed May 2004					
1	Nov-06 ^(d)	17.76 ^(c)	10.33	NP	7.43
2	Dec-07	17.76	10.27	NP	7.49
3	Mar-08	17.76	10.34	NP	7.42
4	Jun-08	17.76	10.20	NP	8.16
5	Sep-08	17.76	10.03	NP	7.73
6	Dec-08	17.76	10.34	NP	7.42
7	Mar-09	17.76	10.20	NP	7.56
8	Sep-10	17.76	10.25	NP	7.51
9	Mar-10	17.76	10.23	NP	7.53
10	Sep-10	17.76	10.24	NP	7.52
11	Mar-11	17.76	10.10	NP	7.66
12	Sep-11	17.76	10.30	NP	7.46
13	Mar-12	17.76	10.18	NP	7.58
14	Sep-12	17.76	10.24	NP	7.52

MW-12					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Nov-06 ^(d)	17.83 ^(c)	9.37	NP	8.46
2	Dec-07	17.83	9.15	NP	8.68
3	Mar-08	17.83	9.11	NP	8.72
4	Jun-08	17.83	8.86	NP	8.97
5	Sep-08	17.83	8.76	NP	9.07
6	Dec-08	17.83	8.98	NP	8.85
7	Mar-09	17.83	8.50	NP	9.33
8	Sep-09	17.83	8.95	NP	8.88
9	Mar-10	17.83	8.66	NP	9.17
10	Sep-10	17.83	8.89	NP	8.94
11	Mar-11	17.83	8.18	NP	9.65
12	Sep-11	17.83	8.80	NP	9.03
13	Mar-12	17.83	7.79	NP	10.04
14	Sep-12	17.83	7.44	NP	10.39

MW-13					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	17.66 ^(c)	9.81	9.44	7.85
2	Dec-07	17.66	9.95	9.39	7.71
3	Mar-08	17.66	10.02	9.54	7.64
4	Jun-08	17.66	9.86	9.45	7.80
5	Sep-08	17.66	10.34	9.54	7.32
6	Dec-08	17.66	10.54	9.65	7.12
7	Mar-09	17.66	9.26	9.14	8.40
8	Sep-09	17.66	9.91 ^(c)	9.72	7.75
9	Mar-10	17.66	9.22 ^(c)	9.22	8.44
10	Sep-10	17.66	9.40	10.18	7.48
11	Mar-11	17.66	9.90	NM	NM
12	Sep-11	17.66	10.41	9.64	7.25
13	Mar-12	17.66	10.09	9.02	7.57
14	Sep-12	17.66	9.54	9.23	8.12

MW-14					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Nov-06 ^(d)	17.60 ^(c)	9.11	9.11(sheen)	8.49
2	Dec-07	17.60	8.86	8.84	8.74
3	Mar-08	17.60	8.91	8.88	8.69
4	Jun-08	17.60	8.66	8.62	8.94
5	Sep-08	17.60	8.64	NP	8.96
6	Dec-08	17.60	8.70	NP	8.90
7	Mar-09	17.60	9.25	NP	9.25
8	Sep-09	17.60	8.80	NP	8.80
9	Mar-10	17.60	8.42	NP	9.18
10	Sep-10	17.60	8.56	8.62	8.98
11	Mar-11	17.60	7.93	7.92	9.67
12	Sep-11	17.60	8.60	8.55	9.00
13	Mar-12	17.60	7.71	7.61	9.89
14	Sep-12	17.60	7.22	7.20	10.38

MW-15					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	17.80 ^(c)	9.15	NP	8.65
2	Dec-07	17.80	9.30	NP	8.50
3	Mar-08	17.80	9.20	9.18	8.60
4	Jun-08	17.80	9.60	9.63	8.20
5	Sep-08	17.80	8.84	8.84 ^(d)	8.96
6	Dec-08	17.80	9.19	8.36	8.61
7	Mar-09	17.80	8.70	NP	9.10
8	Sep-09	17.80	9.40 ^(e)	9.22	8.08
9	Mar-10	17.80	8.81 ^(e)	8.81	8.99
10	Sep-10	17.80	9.42	9.45	8.35
11	Mar-11	17.80	8.50	NM	9.30
12	Sep-11	17.80	9.32	NP	8.48
13	Mar-12	17.80	8.55	NP	9.25
14	Sep-12	17.80	8.03	NP	9.77

MW-16					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	17.74 ^(c)	9.36	NP	8.38
3	Mar-08	17.74	9.88	NP	7.86
4	Jun-08	17.74	9.25	NP	7.80
5	Sep-08	17.74	9.07	NP	8.67
6	Dec-08	17.74	9.45	NP	8.29
7	Mar-09	17.74	8.88	NP	8.86
8	Sep-09	17.74	9.51	NP	8.23
9	Mar-10	17.74	8.92	NP	8.82
10	Sep-10	17.74	9.40	NP	8.34
11	Mar-11	17.74	9.16	NP	8.57
12	Sep-11	17.74	9.56	NP	8.18
13	Mar-12	17.74	9.38	NP	8.36
14	Sep-12	17.74	9.15	NP	8.59

MW-17					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	18.17 ^(c)	9.40	9.32	8.77
3	Mar-08	18.17	9.34	9.18	8.83
4	Jun-08	18.17	8.98	8.97	9.19
5	Sep-08	18.17	9.21	7.92	8.96
6	Dec-08	18.17	9.25	9.11	8.92
7	Mar-09	18.17	8.89	NP	9.28
8	Sep-09	18.17	9.31	NP	8.86
9	Mar-10	18.17	8.93	NP	9.24
10	Sep-10	18.17	9.15	NP	9.02
11	Mar-11	18.17	8.52	8.50	9.65
12	Sep-11	18.17	9.15	NP	9.02
13	Mar-12	18.17	8.17	NP	10.00
14	Sep-12	18.17	7.77	NP	10.40

MW-18					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	16.35 ^(c)	8.30	NP	8.05
3	Mar-04	16.35	8.34	NP	8.01
4	Jun-08	16.35	8.34	NP	8.20
5	Sep-08	16.35	8.48	NP	7.87
6	Dec-08	16.35	8.61	NP	7.74
7	Mar-09	16.35	7.75	NP	8.60
8	Sep-09	16.35	8.50	NP	7.85
9	Mar-10	16.35	7.97	NP	8.38
10	Sep-10	16.35	8.28	NP	8.07
11	Mar-11	16.35	8.63	NP	7.72
12	Mar-11	16.35	8.90	NP	7.45
13	Mar-12	16.35	8.56	NP	7.79
14	Mar-12	16.35	8.59	NP	7.76

MW-E					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	NM	NM	NM	NM
2	May-89	15.32	10.39	NP	4.93
3	Feb-91	NM	NM	NM	NM
4	Mar-04	17.80	9.92	NP	7.88
5	Nov-06 ^(b)	17.80	10.22	NP	7.58
6	Dec-07	17.47 ^(c)	10.03	NP	7.44
7	Mar-08	17.47	10.21	NP	7.26
8	Jun-08	17.47	10.20	NP	7.27
9	Sep-08	17.47	9.55	NP	7.92
10	Dec-08	17.47	10.32	NP	7.15
11	Mar-09	17.47	9.79	NP	7.68
12	Sep-09	17.47	10.22	NP	7.25
13	Mar-10	17.47	9.82	NP	7.65
14	Sep-10	17.47	10.11	NP	7.36
15	Mar-11	17.47	9.10	NP	8.37
16	Sep-11	17.47	8.41	NP	9.06
17	Mar-12	17.47	9.86	NP	7.61
18	Sep-12	17.47	9.95	NP	7.52

RW-1					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
1	Dec-88	NM	NM	NM	NM
2	May-89	14.54	10.17	10.14	4.37
3	Feb-91	14.54	11.46	10.85	3.57
4	Mar-04	18.32	7.20	5.62	11.12
5	Nov-06 ⁽⁴⁾	18.32	9.15	9.11	9.17
6	Dec-07	16.70 ⁽⁵⁾	9.53 ⁽⁶⁾	9.53	7.17
7	Mar-08	16.70	8.99	8.92	7.71
8	Jun-08	16.70	8.95	8.87	7.75
9	Sep-08	16.70	NM ⁽⁷⁾	NM ⁽⁷⁾	NM ⁽⁷⁾
10	Dec-08	16.70	NM	NM	NM
11	Mar-09	16.70	9.06 ⁽⁸⁾	9.06	7.64
12	Sep-09	16.70	9.45 ⁽⁸⁾	9.45	7.25
13	Mar-10	16.70	8.93 ⁽⁸⁾	8.93	7.77
14	Sep-10	16.70	9.50	9.65	7.05
15	Mar-11	16.70	9.05	9.04	7.65
16	Sep-11	16.70	9.75	9.74	6.95
17	Mar-12	16.70	9.33	NP	7.35
18	Sep-12	16.70	NM	9.69	NM

Notes:

The 1988, 1989, and 1991 water elevations were measured by Groundwater Technology, Inc.

The 2004 and 2006 water elevations were measured by PES Environmental.

NS = Not sampled

NP = No product

NM = Not measured

NA = data not available from the previous consultant for this event

TOC Elevation = Top of Casing Elevation

DTW = Depth to water from the top of the casing

DTP = Depth to product from the top of the casing

GW Elevation - Groundwater elevation as compared to mean sea level

⁽⁴⁾ Wells resurveyed in May 1989

⁽⁵⁾ New elevation recorded by PES. Date of survey unclear.

⁽⁶⁾ Wells resurveyed by PES in April 2007

⁽⁸⁾ no water level data available for the December 2006 sampling event

⁽⁷⁾ Thickness of product interfered with determining oil/water interface.

⁽⁸⁾ Depth to groundwater = depth to free product as difference could not be determined

APPENDIX E

Historical Product Extraction Data Table

Table D
Historical Trench and Monitoring Well Product Recovery
6400 Christie Avenue, Emeryville, CA

Extraction Date	Well or Trench Location																							Total Extracted					
	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MW-E	RW-1	TA-E	TA-M	TA-W	TB-E	TB-M		TB-W	TC-E	TC-M	TC-W	
Apr-04	---	---	---	---	---	1.00	---	1.00	---	---	---	---	---	---	---	---	---	19.75	---	---	---	---	---	---	---	---	---	---	21.75
May-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22.5	---	---	---	---	---	---	---	---	---	---	22.50
Sep-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.74	---	---	---	---	---	---	---	---	---	---	0.74
Oct-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5.22	---	---	---	---	---	---	---	---	---	---	0.00
2004 Total	44.99																												
Jan-05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.00	
Apr-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.3	---	---	---	---	---	---	---	3.30
Jun-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8.9	9.2	10.3	---	---	---	---	---	---	---	28.40
Jul-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.6	5	5.3	---	---	---	---	---	---	---	13.90
Aug-06	---	---	---	---	---	0.8	---	0.8	---	---	1	0.2	0.2	---	---	---	---	---	0.2	0.2	0.4	---	---	---	---	---	---	---	3.80
Sep-06	---	---	---	---	---	---	---	0.8	---	---	0.2	0.3	---	---	---	---	---	---	0.6	---	0.6	---	---	---	---	---	---	---	2.50
Nov-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	0.20
Dec-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	0.20
2006 Total	52.30																												
Jan-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	0.20
Feb-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	0.20
Mar-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	0.20
Nov-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.81	0.68	---	---	---	---	0.63	---	---	2.12
Dec-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01	0.61	0.07	---	---	---	---	0.002	---	---	0.69
2007 Total	3.41																												
Feb-08	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.08	0.06	0.18	0.04	0.06	0.06	0.08	0.05	0.05	1.14	
Feb-08	---	---	0.05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.15	0.15	0.30	---	---	---	---	---	---	---	1.10
Mar-08	---	---	---	0.02	0.002	0.02	0.001	0.04	0.02	0.03	0.004	0.01	0.02	0.01	0.01	0.003	0.012	0.3	0.09	0.06	0.09	---	---	---	0.06	---	---	0.80	
Mar-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	0.008	---	---	---	---	---	---	---	0.01
May-08	0.09	---	---	---	---	---	---	0.075	---	0.075	0.019	0.009	---	---	0.13	---	---	1.397	0.866	1.466	1.431	---	---	---	---	---	---	5.56	
Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.11	0.57	---	---	---	---	---	---	---	0.83
Aug-08	0.12	---	---	---	---	---	---	0.048	---	0.024	0.009	---	---	---	---	---	---	0.75	0.9	1.6	0.7	0.3	0.3	---	0.15	---	---	4.90	
Sep-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.03	0.09	0.048	---	---	---	---	---	---	---	0.17
Nov-08	0.078	---	---	---	---	0.009	---	---	---	0.06	0.009	---	---	0.003	0.06	---	---	0.6	0.1	0.03	---	0.06	0.06	0.06	0.06	0.09	0.09	1.37	
Dec-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0003	0.08	---	---	---	---	0.03	---	---	---	0.11
2008 Total	14.99																												
Mar-09	0.279	---	---	---	---	0.378	---	0.369	---	0.261	0.007	0.023	0.117	---	0.342	---	0.023	1.800	0.750	0.950	1.010	0.153	0.153	0.153	0.653	0.153	0.153	7.73	
Jun-09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.5	---	---	---	---	---	---	---	---	---	0.50
Sep-09	0.286	---	---	---	0.022	0.418	---	0.176	0.308	0.176	0.088	0.007	0.176	0.088	0.176	0.022	0.066	7.15	1.4	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	19.46	
Dec-09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0	0.9	0.06	---	---	---	0	---	---	---	0.96
2009 Total	28.65																												
Mar-10	0.14	---	---	---	0.01	0.18	0.02	0.60	---	0.60	0.03	0.10	0.69	0.04	0.30	0.02	---	8.00	1.30	1.00	1.00	0.50	1.00	0.50	1.00	1.00	1.00	19.03	
Jun-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.75	---	---	---	---	---	---	---	---	0.75
Sep-10	0.3	0.2	0.4	0.5	0.01	0.5	0.01	0.5	---	1.6	0.02	0.01	1.5	0.02	1.0	0.02	0.1	6.9	1.00	1.00	1.00	0.3	0.3	0.4	1.00	0.5	0.5	19.59	
Dec-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.10	0.00	0.05	---	---	---	0.00	---	---	---	0.15
2010 Total	39.52																												
Mar-11	---	---	---	---	---	0.002	---	0.002	---	---	---	0.002	---	---	0.003	---	---	0.002	0.06	0.06	0.02	---	---	---	0	---	---	---	0.15
Sep-11	0.2	---	---	---	---	0.3	---	---	---	---	0.2	---	---	0.1	---	---	---	0.5	---	0.45	0.25	0.1	0.1	0.1	---	0.1	0.1	2.50	
2011 Total	2.65																												
Mar-12	0.015	---	---	---	---	0.015	---	---	---	---	0.06	---	---	---	0.01	---	---	0.06	0.13	0.03	0.015	---	0.01	---	---	0.015	0.015	0.375	
Sep-12	---	---	---	---	---	0.03	---	0.023	---	---	0.08	---	---	---	---	---	---	0.015	0.06	0.045	0.08	0.09	---	---	---	---	---	---	0.423
2012 Total	0.798																												
Total Extracted	1.54	0.20	0.45	0.52	0.04	3.65	0.03	4.43	0.33	2.83	1.73	0.66	2.70	0.26	2.03	0.07	0.22	76.63	21.96	25.79	28.67	2.55	3.08	2.37	4.77	3.01	3.01	193.53	

Note:
All free product quantities presented in gallons
Product extraction events conducted before November 2007 were completed by PES Environmental

APPENDIX F

Groundwater Disposal Documentation

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CAL00374146	2. Page 1 of 1	3. Emergency Response Phone 1800-424-8300	4. Manifest Tracking Number 009438220 JJK		
5. Generator's Name and Mailing Address STELLAR ENVIRONMENTAL SOLUTIONS 3140 SIXTH ST STE 201 MERCED CA 94710 515-594-2397				Generator's Site Address (if different than mailing address) BAY CENTER APARTMENTS 6400 CHRISTIE ST EMERYVILLE CA 94604			
6. Transporter 1 Company Name EVERGREEN ENVIRONMENTAL SERVICES					U.S. EPA ID Number CAD982413262		
7. Transporter 2 Company Name					U.S. EPA ID Number		
8. Designated Facility Name and Site Address EVERGREEN OIL, INC. 6880 SMITH AVENUE NEWARK CA 94599 510-795-4400					U.S. EPA ID Number CAD860687418		
Facility's Phone:							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
1.	NON-RCRA HAZARDOUS WASTE, LIQUID (OILY WATER)	001	TT	1100	g	223	
2.							
3.							
4.							
14. Special Handling Instructions and Additional Information PROFILE # 76819 DOT BRG # 171 WEAR PROTECTIVE CLOTHING							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offorer's Printed/Typed Name Steve Bthum					Signature <i>[Signature]</i>		Month Day Year 11/01/10
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name CKAIL-TALERO					Signature <i>[Signature]</i>		Month Day Year 11/05/10
Transporter 2 Printed/Typed Name					Signature		Month Day Year
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number:							
18b. Alternate Facility (or Generator)					U.S. EPA ID Number		
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator)							Month Day Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1.		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name					Signature		Month Day Year

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY



Evergreen Environmental Services

dedicated to the protection of the environment

To schedule a pickup, call

800-596-9455

or 510-795-4400

6880 Smith Ave., Newark, CA EPA# CAD982413262
16540 S. San Pedro St., Carson, CA EPA# CAD982413262

Send Payment to:

Evergreen Oil Inc
Dept. of LA 23234
Pasadena, CA 91185-3234

Work Order Bill of Lading WOC99240

Customer SES007

Pickup Location:

**BAY CENTER APARTMENTS
6400 CHRISTIE ST**

EMERYVILLE CA 94608

Bill To:

**STELLAR ENVIRONMENTAL SOLUTIONS
2198 SIXTH ST STE 201**

BERKELEY CA 94710

Contact: **HENRY PIETROPAOLI (510) 594-2050 Ext. 0000**

NOTE

CUST NO.		EPA NO.		TERMS		PURCHASE ORDER NUMBER			TERRITORY
SES007		CAL000374146		Net 30					130
REQ. DATE		BOE NO.		Billgroup	OIL ROUTE	PROFILE	PROFILE	PRINTED BY	
10/2/2012					5			chuber	
Quantity		Item Description				Manifest No.		Unit Price	Amount
Req.	Pickup								
x.##	2	HOURLY LABOR/TRANSPORTATION				009433220JR		\$0.00 Contract	CFC
1.00		WASHOUT FEE						\$0.00 Contract	
100.00	100	NON-RCRA HAZARDOUS WASTE, LIQUID						\$0.00 Contract	
		76819.							
		STEVE 510 612 8751.SM				CALL 30 MIN BEFORE ARRIVING			

TSDF

- Evergreen Oil, Inc. 6880 Smith Ave. Newark, CA 94560 CAD980887418
- Evergreen Oil, Inc. - Davis Road 30B Davis, CA 95616 CAD982446874
- Evergreen Oil, Inc. - Fresno 4139 N. Valentine Fresno, CA 93722 CAD982446882
- Evergreen Env. Svc. 16604 San Pedro Carson, CA 90746 CAD981696420
- Evergreen Oil, Inc - Santa Maria 745 A West Betteravia Santa Maria, CA 93454 CAD982446858
- SA Recycling 33210 Western Union City, CA 94587 CAL000344530

Consolidated Manifest

DRIVER CHECKLIST

- Time In 12:15 Time Out _____
- Tank/Drum Properly Labeled
- Accumulation Start Date Marked
- House Keeping - Tank/Drum Clean
- Other Services Checked: Oil Filters/Drums Antifreeze
- Called in other services needed Oil Filters/Drums Antifreeze

Source: Collection Station Government
 Marine Agricultural Industrial

Retain Sample # _____

IMPORTANT NOTICE REGARDING THE DISPOSITION OF YOUR OIL.

Per California Health and Safety Code Section 25250.9, Evergreen hereby advises customer that customer's shipment of used oil may be transported to a facility that is required to comply with federal regulations applicable to management of used oil, but that is not required to comply with the more stringent requirements applicable to hazardous waste management facilities. California facilities that handle or process used oil are required to meet those more stringent requirements, and some out-of-state facilities that process used oil also meet those requirements. These include more stringent leak detection and prevention requirements, engineering certifications of tank integrity, and financial assurances for closure and accidental releases. It is lawful to send used oil to out-of-state facilities that comply only with federal used oil management standards and not these more stringent requirements. This notification is for information purposes only.

Driver Signature: [Signature] Print Name: CHRISTOPHER 2203 Route #: 10-5-R Date: 10-5-12
 Generator's Signature: [Signature] Print Name: Steve Bittman Date: _____