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FIRST SEMIANNUAL 2013 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

June 2013

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6475 CHRISTIE AVENUE, SUITE 550
EMERYVILLE, CA 94608

Prepared by:

STELLAR ENVIRONMENTAL SOLUTIONS, INC.
2198 SIXTH STREET
BERKELEY, CALIFORNIA 94710

June 4, 2013

Project No. 2007-65

STELLAR
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GEOSCIENCE & ENGINEERING CONSULTING

June 4, 2013

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: First Semiannual 2013 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 March 2013 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 surfactant injection into selected wells, a product extraction event and the first semiannual 2013 groundwater monitoring event.

This report summarizes the 19th sampling event conducted at the site since 1988. The plume underlying the open parking garage appears stable when compared to the last three March semiannual events, with the main residual contamination concentrated around wells MW-8, MW-12, MW-13 MW-14, and MW-15. 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 project site is located at 6400 Christie Avenue in Emeryville, California (see Figure 1). The project site, which slopes to the south, is wholly developed with an open ground-floor parking area and apartment complex known as the Emery Bay Phase I Condos and parking garage. 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 Emery Bay Phase II Condos and parking garage, to the north by 65th Avenue, beyond Christie Avenue and to the west by the Bay Center Offices, and to the south by 64th Avenue. The surrounding area is developed with apartment complexes, offices, and commercial stores.

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.

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SITE LOCATION ON AERIAL PHOTO

6400 Christie Ave.
Emeryville, CA

By: MJC | JANUARY 2008

Figure 1

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2007-65-01

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SITE PLAN AND ADJACENT LAND USE

6400 Christie Ave.
Emeryville, CA

By: MJC | MAY 2013

Figure 2

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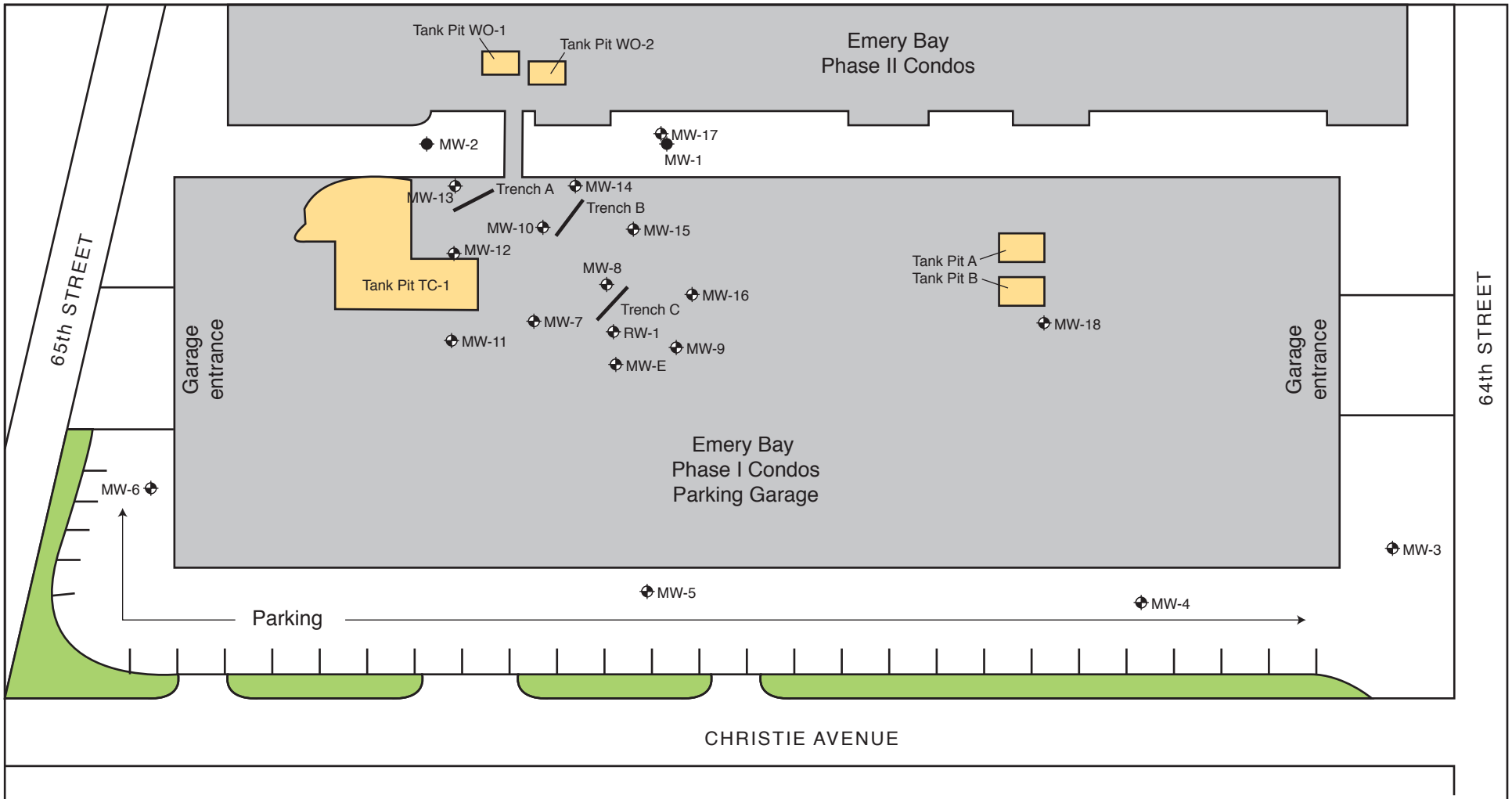
2007-65-07

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 Bay Center Apartments 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 Emery Bay Phase I Condo complex, while three were beneath the Emery Bay Phase II Condo complex. Figure 2 shows the historical locations where the tanks were removed.

To remediate the hydrocarbon contamination beneath the garage area of the Emery Bay Phase I Condo 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 of 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 system was abandoned. Appendix A contains the historical analytical results. Figure 3 shows the locations of the monitoring wells and 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) Emery Bay Phase I Condo 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 Phase I parking garage area. 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



LEGEND

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

0 60

SCALE: 1/2" = 60 FEET

N

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MONITORING WELL AND TRENCH LOCATIONS

6400 Christie Ave., Emeryville, CA

Figure 3

by: MJC | MAY 2013

2007-65-02

(Stellar Environmental, 2007) 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 annual monitoring period:

- Introduction of a hydrocarbon dissolving surfactant in wells MW-8, MW-12, MW-13 and MW-14 with the goal of capturing the viscous hydrocarbon layer around some key wells and cleaning the wells screens in these wells to reduce the accumulated heavy product fraction.
- 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
- Collection 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 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 (whom 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) was 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. SLT2O05561 in the Water Board's GeoTracker system. Electronic uploads of required data/reports are submitted to both agencies. The Y2012 sampling warned ACEH of impacts form the adjacent site dewatering.

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

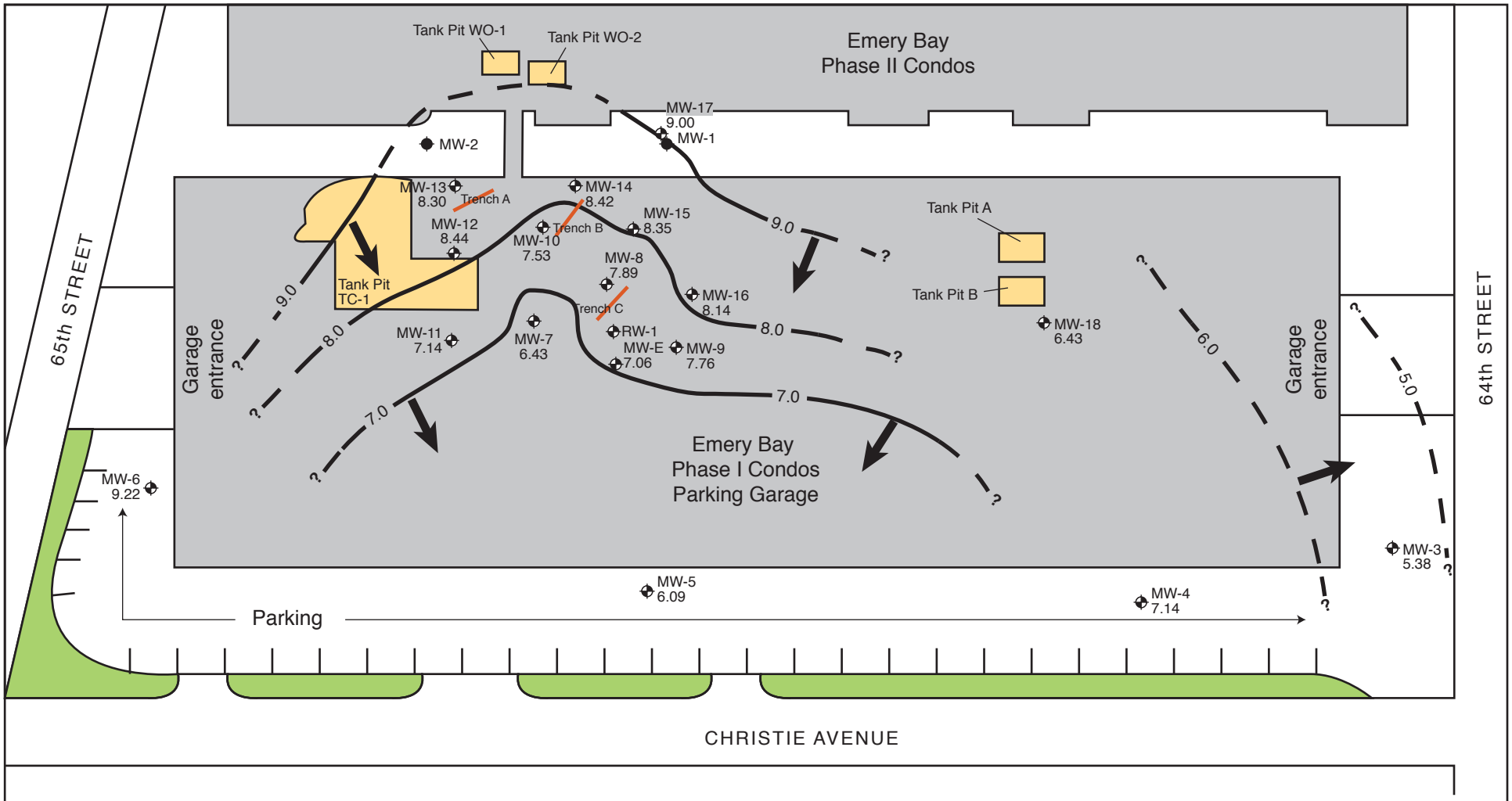
fault zone, the legislatively defined zone of restricted land use 200 feet around an active fault due to the high probability of ground rupture.

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 March 2013 monitoring event ranged from the southwest on the northern portion of the site, to the west on the central portion of the site. A localized approximately southerly direction to groundwater flow in the area of MW-3 may be the result of construction dewatering that has been occurring over the past 6 months at the re-development site across 64th Street. According to current and historical water level data obtained from onsite monitoring wells, depth to groundwater beneath the site ranges from approximately 6 to 11 feet below ground surface (bgs). Groundwater elevations recorded during the March 2013 sampling event ranged from 5.38 (MW-3) to 9.22 (MW-6) 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
- 9.0 Groundwater elevation contour in feet amsl
- Extrapolated groundwater elevation contour

N

0 60

SCALE: ½" = 60'

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GROUNDWATER ELEVATION MAP — March 29, 2013

6400 Christie Ave., Emeryville, CA

Figure 4

by: MJC | APRIL 2013

2007-65-64

3.0 MARCH 2013 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 March 28, 2013 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

March 28, 2013
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 (March 28, 2013)
MW-3	25	5 to 20	16.65	NM	NM	5.38
MW-4	25	5 to 20	16.29	NP	NP	7.14
MW-5	25	5 to 20	16.72	NP	NP	6.09
MW-6	25	5 to 20	16.82	NP	NP	9.22
MW-7	20	5 to 20	17.73	NP	NP	6.43
MW-8	16	5 to 16	17.84	9.59	0.36	7.89
MW-9	20	5 to 20	17.84	NP	NP	7.76
MW-10	20	5 to 20	17.83	9.33	0.97	7.53
MW-11	20	5 to 20	17.76	NP	NP	7.14
MW-12	20	5 to 20	17.83	NP	NP	8.44
MW-13	20	5 to 20	17.66	9.35	0.01	8.30
MW-14	20	5 to 20	17.60	9.17	0.01	8.42
MW-15	20	5 to 20	17.80	NM	NM	8.35
MW-16	20	5 to 20	17.74	NP	NP	8.14
MW-17	20	5 to 20	18.17	NP	NP	9.00
MW-18	20	5 to 20	16.35	NP	NP	6.43
MW-E	47	7 to 40	17.47	NP	NP	7.06
RW-1	30	unknown	16.70	9.99	NM	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 product

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 1,025 gallons of water and 1.22 gallons of product were removed/purged from wells during the active product removal; no measureable product volume was removed by passive product skimmers in the trench wells.

On April 22, 2013, Evergreen Oil, Inc. vacuumed and transported the 1,025 gallons of water to its recycling facility under manifest number 009434406 (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 have decreased as compared to both the previous quarter and the same quarter last year.

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 – March 28, 2013
6400 Christie Avenue, Emeryville, California

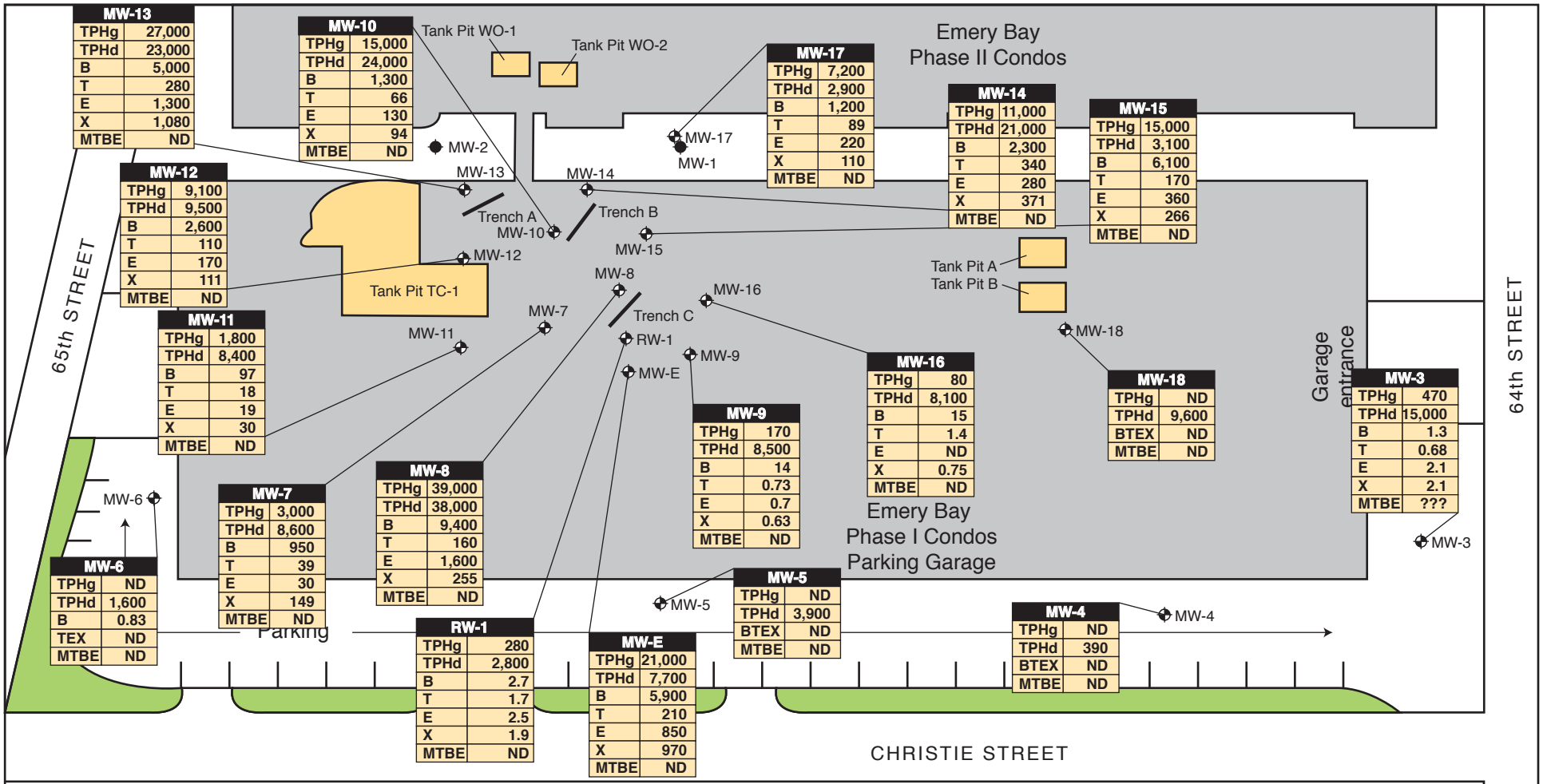
Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	**470**	**15,000**	1.3	0.68	2.1	2.1	8.6
MW-4	*<50*	**390**	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-5	*<50*	**3,900**	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-6	*<50*	**1,600**	0.83	<0.5	<0.5	<0.5	< 2.0
MW-7	**3,000**	**8,600**	**950**	39	30	**149**	<33
MW-8	**39,000**	**38,000**	**9,400**	**160**	**1,600**	**225**	<50
MW-9	170	**8,500**	14	0.73	0.7	0.63	<2.0
MW-10	**15,000**	**24,000**	**1,300**	66	**130**	94	<2.0
MW-11	**1,800**	**8,400**	**97**	18	19	30	<2.0
MW-12	**9,100**	**9,800**	**2,600**	110	**170**	**111**	<2.0
MW-13	**27,000**	**23,000**	**5,600**	**260**	**1,300**	**1,080**	<200
MW-14	**11,000**	**21,000**	**2,300**	**340**	**280**	**371**	<50
MW-15	**15,000**	**3,100**	**6,100**	**170**	**360**	**266**	<67
MW-16	80	**8,100**	15	1.4	*<0.5*	0.75	<2.0
MW-17	**7,200**	**2,900**	**1,200**	89	**220**	110	<25
MW-18	<50	**11,000**	<0.5	<0.5	<0.5	<0.5	<2.0
MW-E	**21,000**	**7,700**	**5,900**	**210**	**850**	**970**	<50
RW-1	**280**	**2,800**	2.7	1.7	2.5	1.9	<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)

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GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER MONITORING WELL ANALYTICAL RESULTS

6400 Christie Ave., Emeryville, CA

Figure 5

by: MJC | APRIL 2013

2007-65-65

Hydrocarbon Contaminants

During the March 2013 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) are possible due to this occurrence. In addition, the introduction of a surfactant (see Section 5) into wells MW-8, MW-12, MW-13 and MW-14 with the goal of reducing the accumulated heavy product fraction in those wells is likely to affect dissolved concentrations.

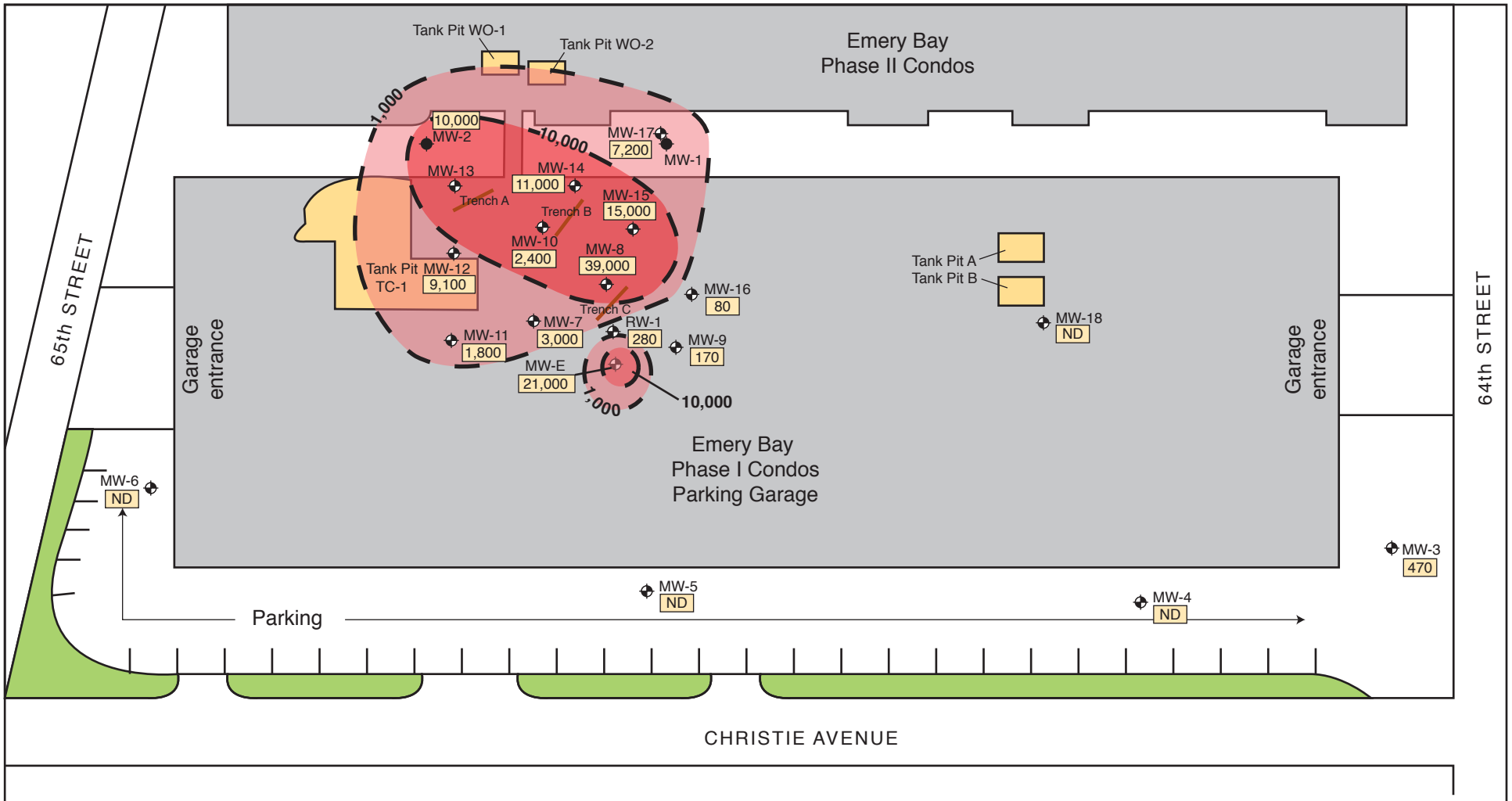
Increases in March 2013 TVHg concentrations compared to the March 2012 monitoring event were observed in wells MW-3, MW-7, MW-8, MW-9, MW-16, MW-17 and MW-E. This represents seven wells exhibiting an increase in TVHg as compared to seven wells for the March 2012 sampling event. The remaining wells either remained below laboratory detection limits (in wells MW-4, MW-5, MW-6 and MW-18) or exhibited a decrease in TVHg concentrations.

Gasoline was detected in MW-3, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-E and RW-1 above the ESL where groundwater is not a likely drinking water resource (210 micrograms per liter [µg/L]). Gasoline was also detected in MW-9 and MW-16 but at concentrations below the ESL. This result is the same as for the March 1012 sampling event.

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 5 of the 18 wells sampled as compared to 9 of 18 wells in the March 2012 sampling event.

The highest concentrations of TVHg (39,000 µg/L) and TEHd (38,000 µg/L) observed during this event were in MW-8, compared to concentrations of 380 µg/L TVHg and 9,800 µg/L TEHd observed in this well in March 2012. The concentration of hydrocarbons in well MW-13 has decreased significantly below the March 2012 concentrations of 260,000 µg/L TVHg and 1,100,000 µg/L TEHd, with March 2013 concentrations in MW-13 being 27,000 µg/L TVHg and 23,000 µg/L TEHd. Fluctuating concentrations of TVHg and TEHd in wells MW-8 and MW-13, may be attributed to LNAPL recovery and introduction of surfactant in those wells in March 2013.

The average concentration of TEHd and TVHg has deceased for the current event as compared to March 2012 concentrations, which is primarily attributable to reduction of persistent LNAPL in MW-13. While not as significant in percent reduction as the difference observed in well MW-13, wells MW-6, MW-9, MW-12, MW-13, MW-14 and MW-15 showed decreased hydrocarbon concentrations in March 2013 compared to March 2012. Figures 6 and 7 are isoconcentration maps of TPHg and TEHd concentrations in groundwater based on the March 2013 analytical results.



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- 1,000 Gasoline concentration contour
- 170 Total petroleum hydrocarbons as gasoline concentration in micrograms per liter (µg/L)

N

0 60

SCALE: 1/2" = 60 FEET

STELLAR ENVIRONMENTAL SOLUTIONS, INC
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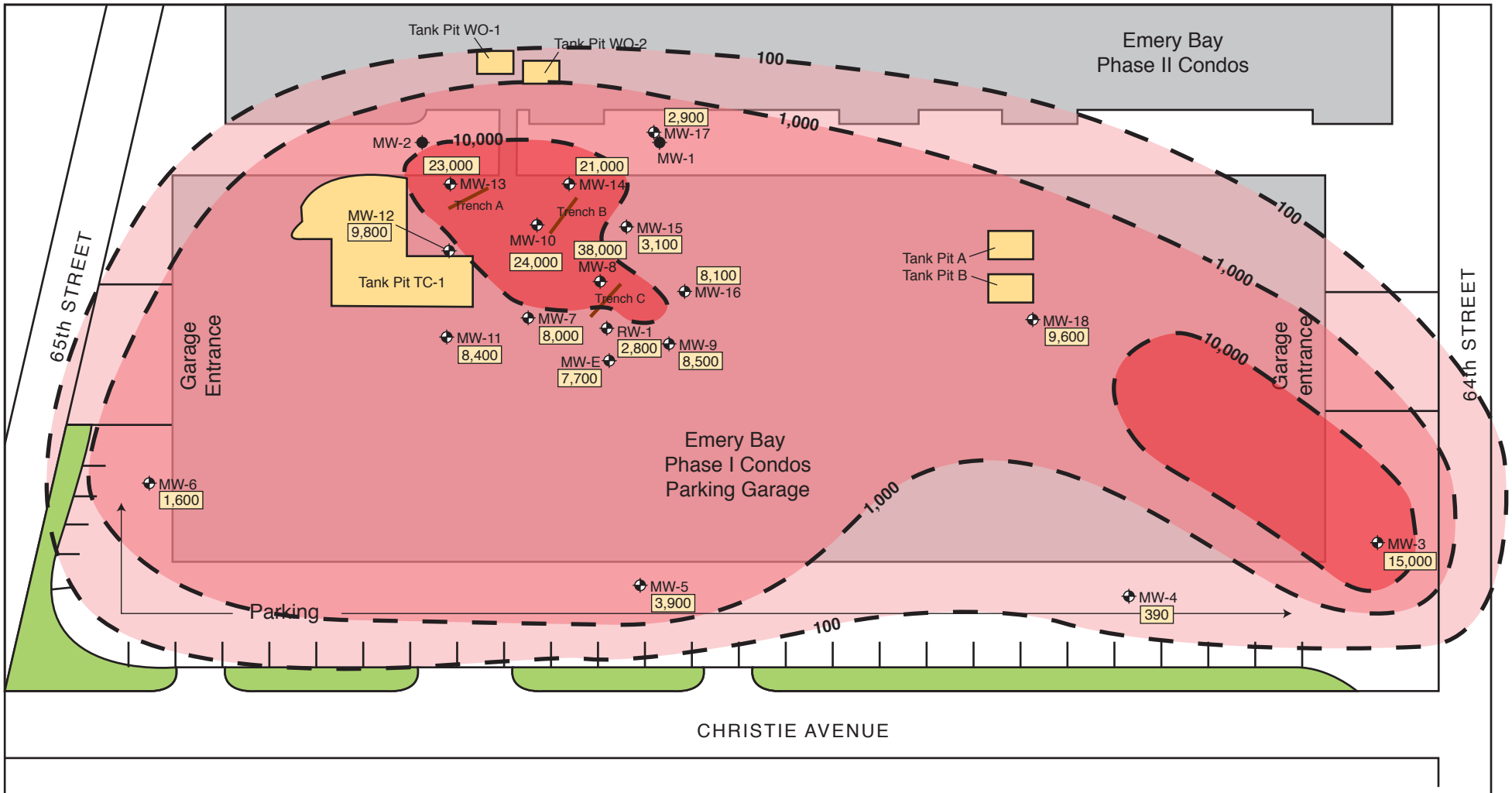
TOTAL PETROLEUM HYDROCARBON PLUME AS GASOLINE

6400 Christie Ave., Emeryville, CA

Figure 6

by: MJC | MAY 2013

2007-65-66



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- 1,000 Diesel concentration contour
- 390 Total petroleum hydrocarbons as diesel concentration in micrograms per liter (µg/L)

N

0 60

SCALE: 1/2" = 60 FEET

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

TOTAL PETROLEUM HYDROCARBON PLUME AS DIESEL

6400 Christie Ave., Emeryville, CA

Figure 7

by: MJC | MAY 2013

2007-65-67

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.

In monitoring wells MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E concentrations of benzene exceeded the ESL of 46 µg/L where groundwater is not a drinking water resource. Comparing March 212 results to March 2013 results showed a decrease in benzene in wells MW-3, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and RW-1. An increase in Benzene was detected in MW-7, MW-8, MW-9, MW-10, MW-16, and MW-E. Benzene was detected in MW-3, MW-6, MW-9, MW-16 and RW-1, but at concentrations below the ESL. The biggest changes in benzene concentrations were seen in wells MW-13 (decrease from 23,000 µg/L to 5,600 µg/L, and well MW-8 with increased benzene from 100 µg/L to 9,400 µg/L.

Toluene was detected at or above the ESL of 130 µg/L in monitoring wells MW-8, MW-13, MW-14, MW-15 and MW-15. Toluene was also detected in wells MW-7, MW-9, MW-10, MW-11, MW-12, MW-16, MW-17 and RW-1 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-10, MW-12, MW-13, MW-14, MW-15, MW-17 and MW-E. Ethylbenzene was also detected in MW-3, MW-7, MW-9, MW-11, MW-17, MW-E and RW-1 but at levels below the ESL.

Total xylene concentrations in monitoring wells MW-7, MW-8, MW-12, MW-13, MW-14, MW-15, MW-17 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-16, and RW-1 but below the ESL.

MTBE was not detected above the ESL of 1,800 µg/L in any of the monitoring wells. MTBE was detected in MW-3, but below the ESL. This result is the same as in the March 2012 monitoring event.

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 - March 2013

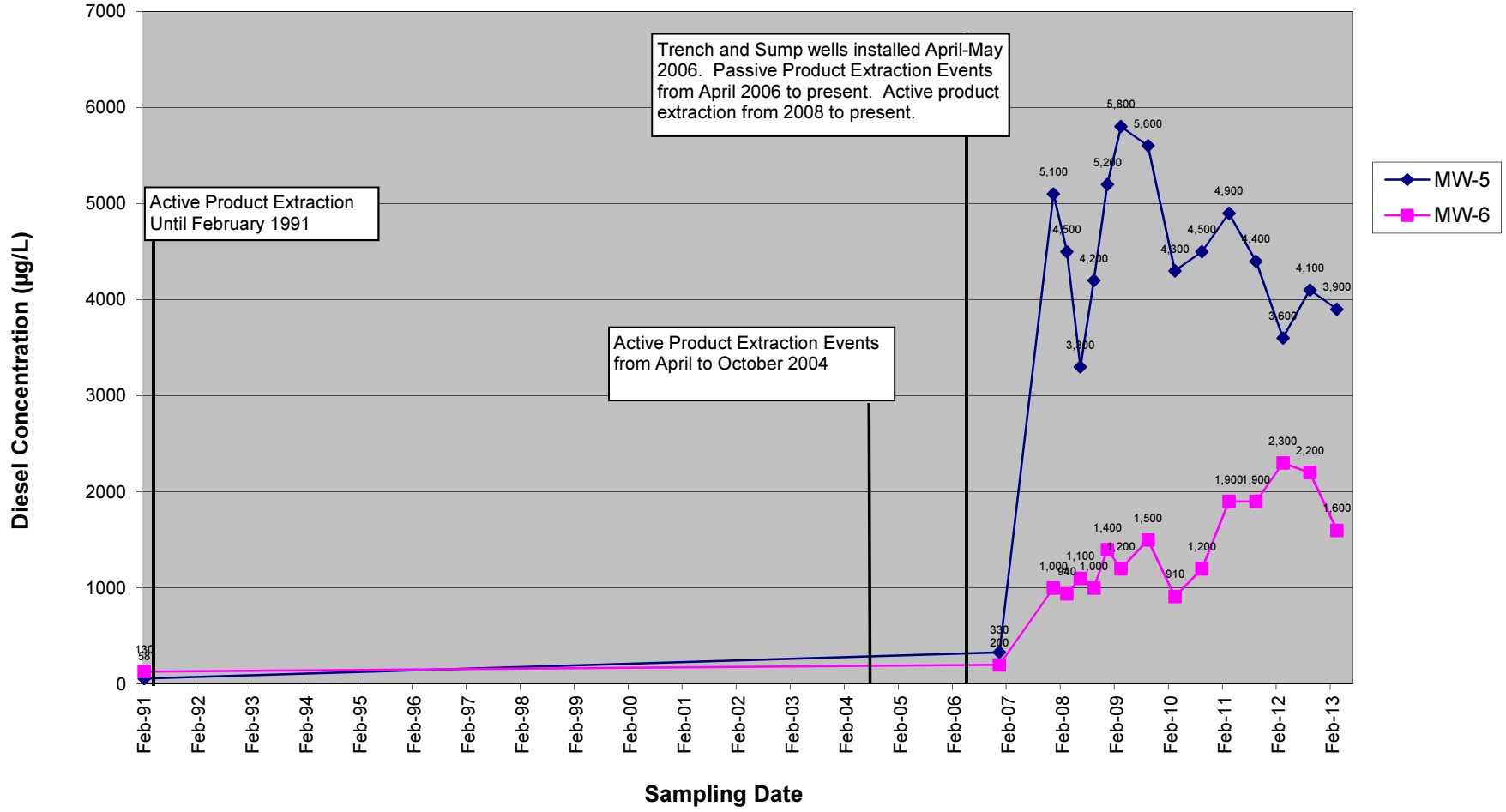


Figure 9
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Source Wells MW-11 and MW-12
December 2006 - March 2013

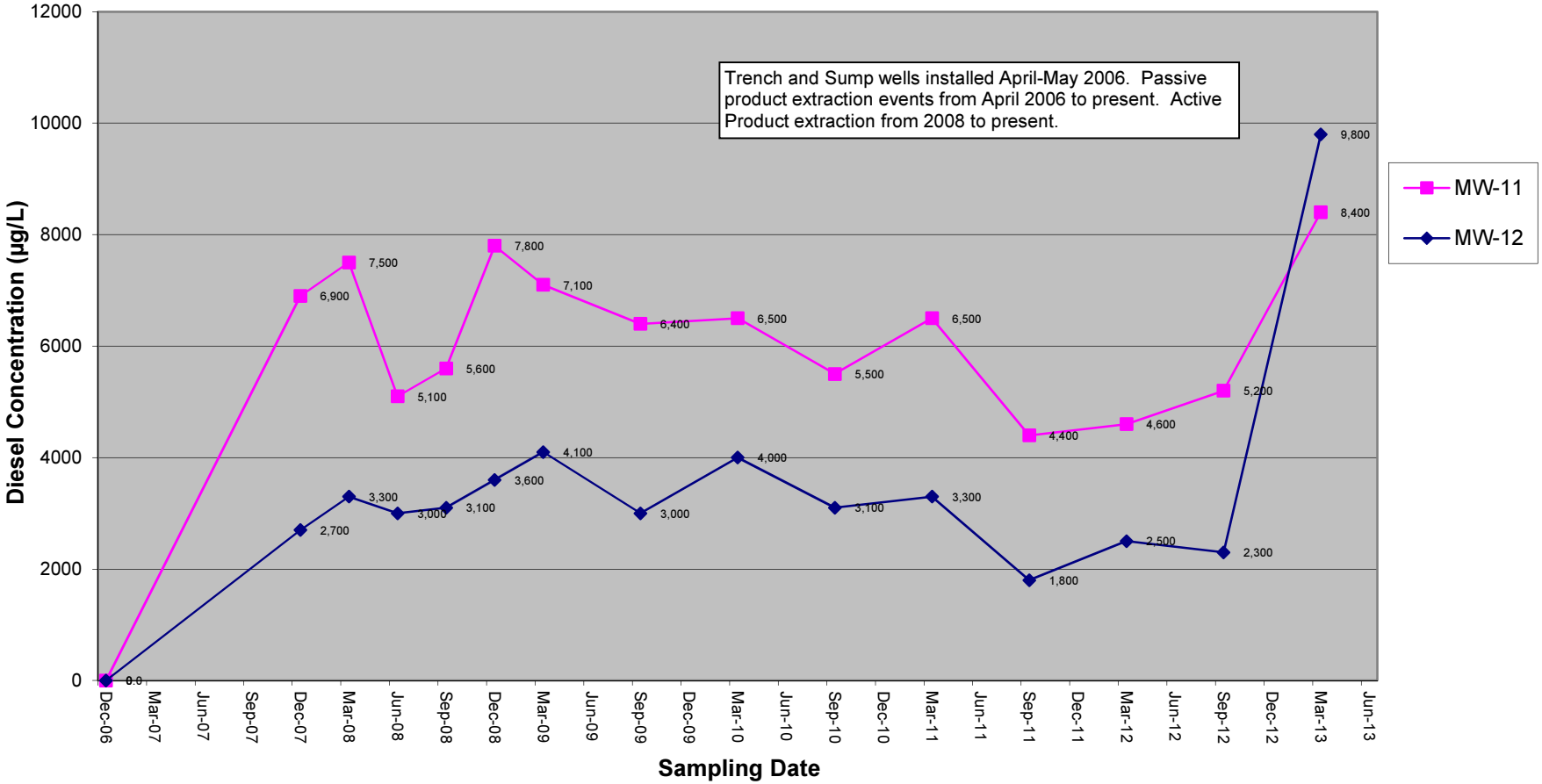
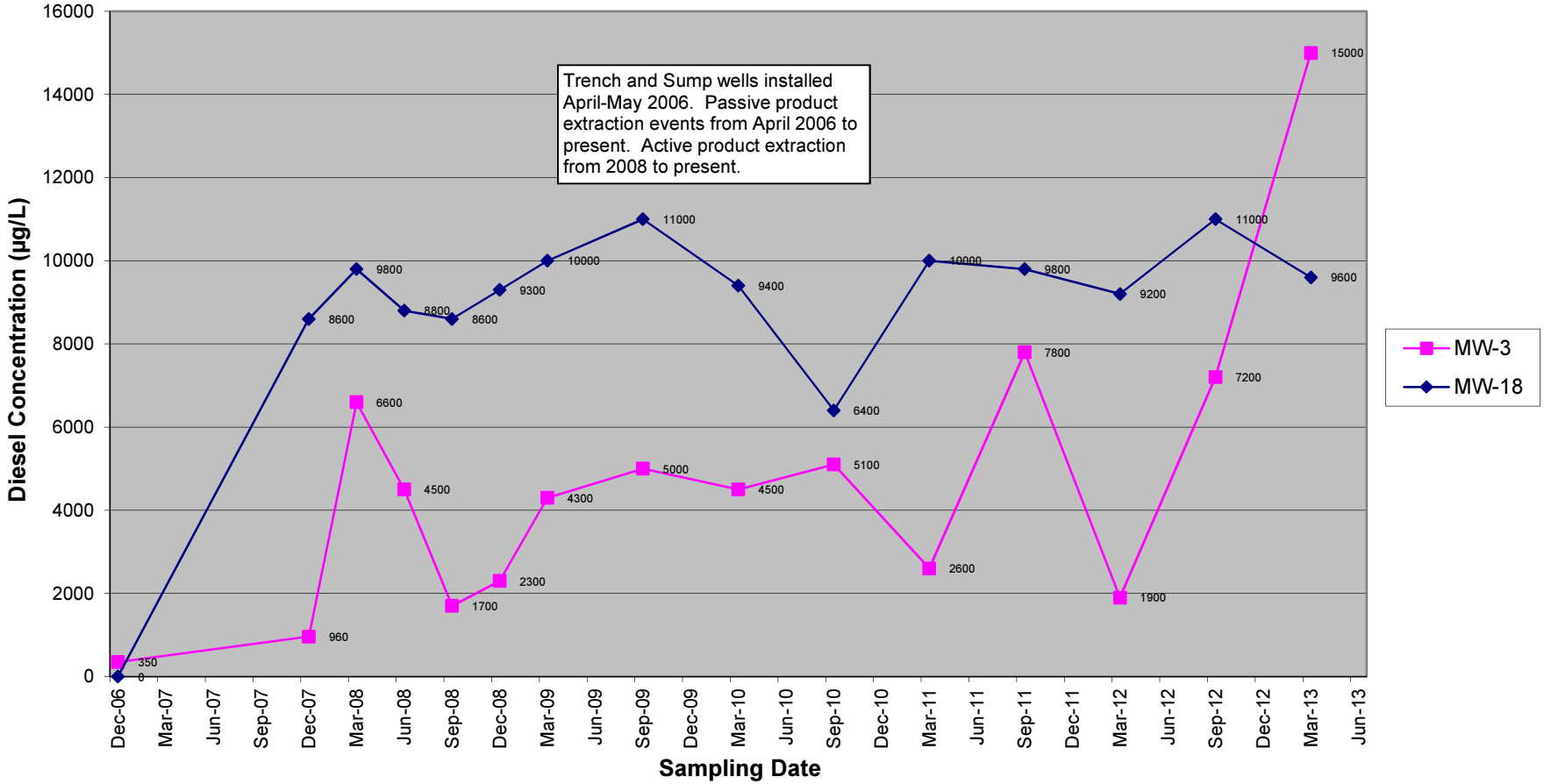


Figure 10
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Crossgradient Wells MW-3 and MW-18
December 2006 - March 2013



5.0 FREE-PHASE HYDROCARBON PRODUCT REMEDIATION 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 March 25 and 26, 2012 (immediately prior to the sampling event on March 28). 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.

HISTORICAL FREE PRODUCT 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.

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 2011 the volume of free product indicated to have been recovered during 2004 and 2006 appears unrealistically high, suggesting that free-phase project mixed with water was reported as free-phase product recovery.

MARCH 2013 SURFACTANT INJECTION

For the first time in this semi-annual monitoring event, the injection of a some limited (non-hazardous) surfactant into wells MW-8, MW-12, MW-13 and MW-14 was used to test the surfactant ability to re-dissolving the viscous hydrocarbon buildup in a number of key wells. This was also being done to see if the surfactant would result if significant decreases in the dissolve concentrations in key wells and better recover could be achieved at key downgradient wells that showed more elevated concentrations as a result of an adjacent (to the south) 2012 construction phase dewatering.

Many of the centrally located wells on the site contain thick, sticky, degraded product that has made well purging and sampling increasingly difficult. Equipment lowered down into the well casings come back out coated with a tar like substance that is difficult or impossible to clean, and may account for low water yield in some wells due to sand pack and well screen fouling. Four of the worst wells in this regard are MW-8, MW-12, MW-13 and MW-14. All these wells are constructed with ¾-inch diameter PVC casing, and are screened to total depth across the same interval of 5 to 20 feet bgs, except for MW-8 which is screened from 5 to 16 feet bgs. In order to attempt to clean the well casings and emulsify the tar thought to exist in the well pack, a surfactant was chosen as a solution. Surfactants are designed to change the interfacial tension between the water and NAPL and desorb the residual LNAPLs entrained in the soil matrix by micro-emulsifying the organic particles, and forming a micelle. In the case of weathered LNAPLs, surfactants have been used to decrease the viscosity of the material, resulting in increased and more efficient recovery. Surfactants can also be considered bioremediation enhancing and vapor suppression agents. The use of mobile multi-phase extraction such as has been occurring at the site twice-yearly since 2008 allows a focused remediation effort at a targeted area of the site, and increases the effective radius of influence of the pumping. This combined approach involves the in-situ application of a surfactant mixture, under pressure, into the site subsurface. The injection is followed by high-vacuum induced multi-phase recovery from an extraction well, via a mobile vacuum truck.

On March 13, 2013 Stellar Environmental mobilized to the site in order to inject EnviroClean® supplied by Enviro Clean Services LLC, into wells MW-8, MW-12, MW-13 and MW-14. EnviroClean® is described the manufacturer as a non-flammable, non-toxic, water-based, proprietary blend of non-ionic ethoxylated octylphenolic surfactants that has been specifically engineered as a cleanup/mitigation agent for a wide range of hydrocarbon products. EnviroClean® product information is included in Appendix F. A working solution of 4% EnviroClean® was mixed per manufacturer recommendations using clean water. Approximately 5 gallons of the solution was introduced each well using a funnel. The well casing and screen in each well were then scrubbed using a stiff bristle brush attached to an extension. After the scrubbing, approximately 15 gallons of the working EnviroClean® solution was injected under pressure into each well using a dual-diaphragm pump. The wells were then undisturbed until the product removal phase of the current monitoring event took place on March 25 and 26, 2013.

MARCH 2013 PRODUCT REMOVAL EVENT

Historical product 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 from the collection skimmers in Trenches A and C.

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

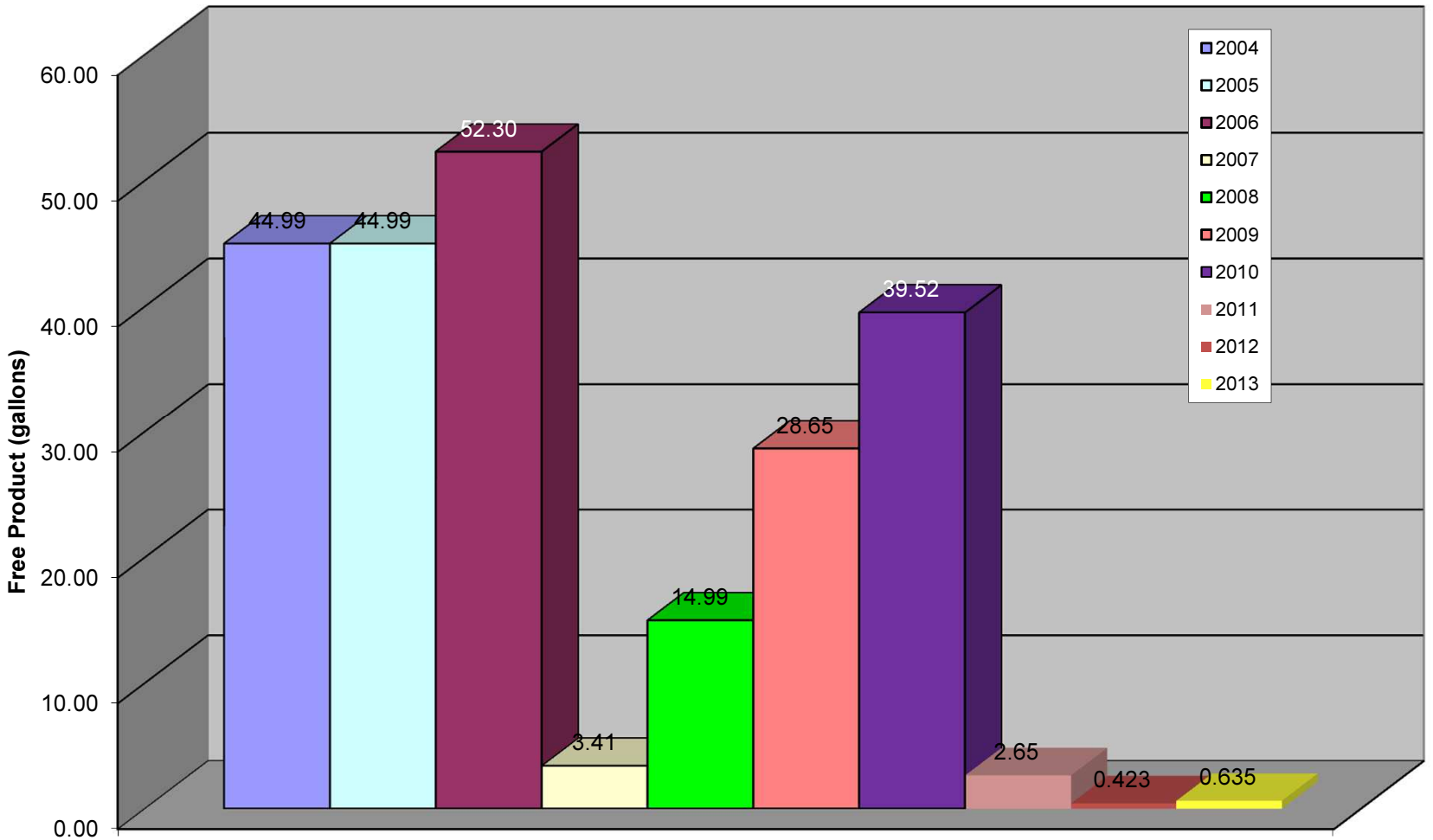


Table 3
Passive Skimmer Product Extraction in Trenches– March 26 and 27, 2013
6400 Christie Avenue, Emeryville, California

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.

Stellar Environmental conducted both passive and active product removal events during the 2 days prior (March 26 and 27) to the groundwater sampling event (March 28) to determine the recharge rate of free product in wells. A total of approximately 1,025 gallons of groundwater yielding approximately 0.635 gallons (Table 4) of free product were removed during the March 2013 active product removal event.

Table 4
Active Product Extraction – March 27, 2012
6400 Christie Avenue, Emeryville, California

Well	Total Gallons of Product Removed	Well	Total Gallons of Product Removed
MW-3	0.06	MW-17	0
MW-4	0	MW-18	0
MW-5	0	MW-E	0.01
MW-6	0	RW-1	0.06
MW-7	0	TA-E	0.05
MW-8	0.08	TA-M	0.12
MW-9	0	TA-W	0.07
MW-10	0.015	TB-E	0
MW-11	0	TB-M	0
MW-12	0	TB-W	0
MW-13	0.08	TC-E	0.03
MW-14	0	TC-M	0.03
MW-15	0	TC-W	0.03
MW-16	0		
		Total	**0.635**

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 (0.635 gallons total)

The removal activities can be summarized as follows:

- On March 26-27, 2013 Stellar Environmental removed a total 475 gallons of groundwater from TA-W, TA-E and TA-M along with 0.24 gallons of product. The skimmers were filled with water with little or no free product. Stellar Environmental removed a total of 80 gallons of water from trench wells TB-E, TB-M and TB-W with a trace of free product. Stellar Environmental removed a total of 105 gallons of water from trench wells TC-E, TC-M and TC-W along with about 0.09 gallons of product. 75 gallons of water with 0.06 gallons of free product were removed actively from recovery well RW-1.

- On March 27-28, 2012, a total of approximately 0.635 gallons of petroleum product was removed along with the 1,025 gallons of liquid that was pumped from all of the monitoring wells, trench wells and former extraction wells. The product volume was estimated based on free-product accumulation in the extraction drum after pumping each well. Higher product removal was realized from the individual product purging of the site wells and trench wells through pumping from the water surface prior to the sampling event than was recovered from the "skimmers" designed for the product removal. Product removal from monitoring and recovery wells was most pronounced at MW-3, MW-8, MW-10, MW-13 and RW-1.
- 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 April 22, 2013, 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.

DISCUSSION

As mentioned under the "Historical Free Product Extraction" subsection of this chapter, no product extraction was conducted by PES in 2005. "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. The PES report provides 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. In addition, there had been no removal of free product from well RW-1 since 2004, at which time approximately 50 gallons of free-floating product was reportedly (PES, 2004c) removed by active pumping although antidotal evince suggests that much was purge water versus pure free product. The majority of petroleum product appears in fact to have been removed by active pumping and removal activities rather than from the trench well skimmers. Much of this may also have been a mixture of water and hydrocarbons. Thus, we conclude that the trench recovery system on its own has never been particularly 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. Since 2011, the skimmers have contained only water and a trace of oil when checked. 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 gallons in 2012 indicating that the active pumping of site wells to be an effective means of product removal as compared to the passive skimmer system.

Differences in volumes recovered can be attributed to fluctuations in groundwater levels and to an overall reduction of free product as active pumping continues year to year.

As demonstrated by the analytical data, active pumping on certain wells has generally reduced gasoline concentrations; however, wells not included in the pumping schedule showed a lesser or no decrease. Diesel concentrations seem to be less affected by active pumping, even in wells that were included in the pumping schedule, such as RW-1. The very high hydrocarbon concentrations detected in well MW-13 in former monitoring events compared to the March 2103 sampling is likely due to that sample containing LNAPL which was likely at least partially emulsified with the surfactant injection, reducing the possibility that the sample would contain LNAPL. Inconsistent trends in the hydrocarbon/BTEX concentrations in wells MW-13 and MW-8 showing a marked decrease in MW-13 and a marked increase in MW-8 after the surfactant injection in those wells may show more consistent trend lines after subsequent sampling events. In addition to the above factors, the increase of diesel concentrations observed in well MW-3 for the past two monitoring events may be due to the de-watering activities that until recently had been on-going at the construction site across 64th Street, which may have affected the groundwater flow direction and magnitude. Residual hydrocarbons left in the soil after the USTs were removed from the site in the 1980's, is likely to continue to be a source of contamination to groundwater at the site. More active remediation, including introduction of bio-remedial enhancing products into selected wells may be useful to reduce the concentrations to levels acceptable to the regulatory community and to achieve eventual regulatory closure.

The outward effect of the surfactant injection to the four monitoring wells, (MW-8, MW-12, MW-13 and MW-14), based on observations made during product removal for the current monitoring event, was an apparent reduction in the viscous hydrocarbon substance in those wells. A significant increase in water yield from those wells was not observed. The measured recovery volume of product (in gallons) from the four wells for the March 2012 monitoring event, compared to the current monitoring event was 0.015/0.08 (MW-8), 0.0/0.0 (MW12), 0.06/0.08 (MW-13 and 0.0/0.0 (MW-14) representing a slight increase in recovery from two wells. The total measured recovery volume of product (in gallons) from the 18 wells for the March 2012 monitoring event, compared to the current monitoring event increased from 0.375 gallons to 0.635 gallons.

6.0 SUMMARY, CONCLUSIONS, AND PROPOSED ACTIONS

FINDINGS AND CONCLUSIONS.

- For the first time in the on-going semi-annual monitoring at the site, the injection of a (non-hazardous) surfactant into wells MW-8, MW-12, MW-13 and MW-14 was used to test the surfactant ability to re-dissolve the viscous hydrocarbon buildup in a number of key wells. This was also being done to see if the surfactant would result in significant decreases in the dissolved concentrations in key wells and if better recovery could be achieved at key downgradient wells that showed elevated concentrations as a result of adjacent (to the south) 2012 construction dewatering. A significant decrease in TVHg and TEHd concentrations in well MW-13 was observed. An increase of TVHg and TEHg in well MW-8 also occurred. Benzene has increased in well MW-8 but has decreased overall. Upcoming monitoring events may establish a trend and will enable decisions regarding adding additional surfactant in wells that contain heavy, degraded product.
- The subject property parcel was developed as early as 1958 with the 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. In 1986, the building was demolished, and 12 UFSTs containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels. Soil and groundwater contamination was discovered.
- In response to the contamination, a 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. This is the 19th 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 west to southwest in the northern portion of the site with a component to the south in the southern portion of the site that may be influenced by the dewatering that has occurred at the construction site across 64th Street.
- Groundwater elevations during the March 2013 event ranged from 5.38 to 9.22 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 detected in MW-3, during this event; however, the concentration was well below the applicable ESL.
- The highest concentrations of TVHg (39,000 µg/L) and TEHd (38,000 µg/L) were observed in MW-8, which represents an increase in TVHg and a decrease in TEHd from the previous sampling event. This may be attributable to emulsification of heavy product in that well as a result of surfactant injection. Overall, the concentration of hydrocarbons in well MW-8 has decreased significantly from the historic high concentrations of 73,000 µg/L TVHg and 140,000 µg/L TVHd observed in this well. The decrease is attributed to the effective LNAPL recovery in 2008 through 2013. Overall, the average concentration of TEHd and TVHg in the remaining site wells has remained about the same compared to March 2012.
- The concentration of hydrocarbons in well MW-13 has decreased significantly from 260,000 µg/L TVHg and 1,100,000 µg/L TEHd observed in this well in March 2012, to the current concentrations of 27,000 µg/L TVHg and 23,000 µg/L TEHd. The decrease is attributed to the effect of the surfactant injection in this well reducing LNAPL.
- Increases in March 2013 TVHg concentrations compared to the March 2012 monitoring event were observed in wells MW-3, MW-7, MW-8, MW-9, MW-16, MW-17 and MW-E. This represents seven wells exhibiting an increase in TVHg as compared to seven wells for the March 2012 sampling event. The remaining wells either remained below laboratory detection limits (in wells MW-4, MW-5, MW-6 and MW-18) or exhibited a decrease in TVHg concentrations.
- TVHg was detected in MW-3, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-E and RW-1 above the ESL where groundwater is not a likely drinking water resource (210 micrograms per liter [µg/L]). TVHg was also detected in MW-9 and MW-16 but at concentrations below the ESL. This result is the same as for the March 2012 sampling event. This pattern is nearly identical to the March 2011 sampling event with the exception of well MW-18 which decreased from 68 µg/L TVHg to <50 µg/L TVHg.

- 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 5 of the 18 wells sampled as compared to 9 of 18 wells in the March 2012 sampling event.
- In monitoring wells MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E concentrations of benzene exceeded the ESL of 46 µg/L where groundwater is not a drinking water resource. Comparing March 212 results to March 2013 results showed a decrease in benzene in wells MW-3, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and RW-1. An increase in benzene was detected in MW-7, MW-8, MW-9, MW-10, MW-16, and MW-E. Benzene was detected in MW-3, MW-6, MW-9, MW-16 and RW-1, but at concentrations below the ESL. The biggest changes in benzene concentrations were seen in wells MW-13 (decrease from 23,000 µg/L to 5,600 µg/L, and well MW-8 with increased benzene from 100 µg/L to 9,400 µg/L.
- Toluene was detected at or above the ESL of 130 µg/L in monitoring wells MW-8, MW-13, MW-14, MW-15 and MW-15. Toluene was also detected in wells MW-7, MW-9, MW-10, MW-11, MW-12, MW-16, MW-17 and RW-1 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-10, MW-12, MW-13, MW-14, MW-15, MW-17 and MW-E. Ethylbenzene was also detected in MW-3, MW-7, MW-9, MW-11, MW-17, MW-E and RW-1 but at levels below the ESL.
- Total xylene concentrations in monitoring wells MW-7, MW-8, MW-12, MW-13, MW-14, MW-15, MW-17 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-16, and RW-1 but below the ESL.
- MTBE was not detected above the ESL of 1,800 µg/L in any of the monitoring wells. MTBE was detected in MW-3, but below the ESL. This result is the same as in the March 2012 monitoring event.
- Stellar Environmental conducted passive skimmer product removal on the trench wells during the March 2013 removal event. The skimmers in all trench wells so equipped 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 March 2013 event. A total of approximately 1,025 gallons of groundwater that includes approximately 0.635 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 ineffective in removing free product. Active pumping at various wells appears to have some effect in lowering gasoline concentrations, and appears to be affecting the concentrations of diesel.

RECOMMENDATIONS

- Use limited surfactant at the interior wells where free-floating product is apparent to dissolve the product and allow better recovery of remnant hydrocarbons.
- Complete limited oxygen releasing bioremediation compound placement into the downgradient well MW-3 to mitigate against the effects of having the plume pulled to the southeast by the prolonged construction dewatering across 64th Street site during 2012.
- Groundwater monitoring should be continued on a semiannual basis to document contaminant concentrations over time.
- 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 is being conducted on a semiannual basis immediately prior to the sampling event. Passive product removal from the skimmers is also being conducted on a semiannual basis.
- Continue to evaluate emergent best available technologies to cost-effectively remediate the site to move it toward full regulatory site closure.
- Electronic uploads to ACEH's ftp system and the State Water Board's GeoTracker system should be continued as required.

7.0 REFERENCES AND BIBLIOGRAPHY

Aqua Science Engineers (Aqua), 1986a. Hydrocarbon Contamination Abatement Plan for Bay Center, Emeryville, CA. May 23.

Aqua Science Engineers (Aqua), 1986b. Report – Soil Sampling and Determination of Hydrocarbon Contamination from Tank Removal at the Bay Port Development, 64th and Lacoste Street, Emeryville, CA. May 27.

Aqua Science Engineers (Aqua), 1986c. A Proposal for Installing a Fuel Contamination and Recovery System. August 27.

Aqua Science Engineers (Aqua), 1986d. Phase II – Extent of Groundwater Contamination Investigation, Bay Center. August 27.

Aqua Science Engineers (Aqua), 1986e. Project Report – Soils Gas Investigation, Bay Center. August 27.

Aqua Science Engineers (Aqua), 1986f. Request for Additional Information Regarding Aeration and Sampling Soils Contaminated with Motor Fuel Hydrocarbons. Information addressed to the Alameda County Health Care Services, Hazardous Materials Unit. July 28.

Aqua Science Engineers (Aqua), 1986g. Additional Information Regarding Aeration and Sampling Soils Contaminated with Motor Fuel Hydrocarbons. July 11.

Bay Area Air Quality Management District (BAAQMD), 1987. Letter to the Martin Company authorizing the contaminated groundwater and oil recovery system. April 13.

Chan, Barney, 2007. Project Officer, Alameda County Department of Environmental Health. Personal communication to Richard Makdisi of Stellar Environmental Solutions, Inc. April 10.

Creps, Rob, 2007. PES Environmental, Inc. Project Manager for the Phase I Apartment Complex Remediation. Personal communication to Teal Glass and Richard Makdisi of Stellar Environmental Solutions, Inc. April 19.

Earth Metrics, Inc., 1986a. Draft Soils Contamination Characterization for Garret Freight Lines Emeryville Site, 64th Street and Lacoste, Emeryville, CA. March 14.

Earth Metrics, Inc., 1986b. Environmental Assessment for the Proposed Bay Center Apartment Complex in the Redevelopment Project Area of the City of Emeryville. May.

Earth Metrics, Inc., 1986c. Draft Work Plan for Soils Contamination Characterization of Bay Center Site, Emeryville, CA. May 19.

Earth Metrics, Inc., 1986d. Soils and Groundwater Contamination Characterization of Bay Center Site, Emeryville, CA. August 20.

Earth Metrics, Inc., 1987. Safety Plan for Bay Center Offices and Apartments in Emeryville, CA. September 15.

Geomatrix, 1988. Observation and Testing of Earthwork Construction, Bay Center Apartments. May 20.

Groundwater Technology, Inc. (GTI), 1987a. Letter to Alameda County Health Department Hazardous Materials Division citing irregularities in the Aqua Science Laboratory Results. August 19.

Groundwater Technology, Inc. (GTI), 1987b. Report of Further Subsurface Hydrocarbon Investigation, Emeryville, CA, Bay Center Project. September 8.

Groundwater Technology, Inc. (GTI), 1989a. Well Replacement and Groundwater Assessment Report, Bay Center Project, Emeryville, CA. June.

Groundwater Technology, Inc. (GTI), 1989b. Water Treatment System Start-Up Report, Bay Center Project, Christie and 64th Streets, Emeryville, CA. April 10.

Groundwater Technology, Inc. (GTI), 1990a. First Quarter Sampling Event. Laboratory Analyses at the Bay Center Project. July 24.

Groundwater Technology, Inc. (GTI), 1990b. Letter to the Bay Center Apartment Associates detailing problems with the groundwater extraction system. August 14.

Groundwater Technology, Inc. (GTI), 1990c. Quarterly Report, Bay Center Apartment Associates, Bay Center Project, Christie and 64th Streets, Emeryville, CA. October 31.

Groundwater Technology, Inc. (GTI), 1991a. Quarterly Report, Bay Center Project, Christie and 64th Streets, Emeryville, CA. January.

Groundwater Technology, Inc. (GTI), 1991b. Quarterly Status Report. April 15.

Harding Lawson Associates (HLA), 1991. Preliminary Hazardous Materials Site Assessment. December 16.

Harding Lawson Associates (HLA), 1992a. Results of Soil and Groundwater Investigation. May 6.

Harding Lawson Associates (HLA), 1992b. Hazardous Waste Management Plan. May 26.

Harding Lawson Associates (HLA), 1992c. Conceptual Design of Venting System, Emerybay II Apartments. November 24.

Harding Lawson Associates (HLA), 1993. Results of Soil Sampling, Emerybay II Apartments. April 21.

Harding Lawson Associates (HLA), 1994. Results of Services During Construction, Emerybay Apartments – Phase II. May 19.

Johnson, Mark, 2007. Project Officer, Regional Water Quality Control Board. Personal communication to Teal Glass of Stellar Environmental Solutions, Inc. April 11.

Martin Company, 1986a. Letter to Lowell Miller of Alameda County Health Care Services documenting agreements for the construction workplan involving contaminated soil. June 5.

Martin Company, 1986b. Letter to Tom Owens of Emeryville Community Developers, Inc. documenting recognized contamination issues. May 21.

Martin Company, 1986c. Letter to Rafat Shahid of Alameda County Health Care Services documenting agreement of drum removal. May 16.

Martin Company, 1986d. Letter to the State Water Resources Control Board documenting unused underground storage tanks. December 11.

PES Environmental, Inc. (PES), 2004a. Status Report, Investigation of Subsurface Petroleum Hydrocarbon Residuals. Bay Center Apartments, Christie Avenue and 64th Street, Emeryville, CA. April 5.

PES Environmental, Inc. (PES), 2004b. Investigation for Missing Wells. April 5.

PES Environmental, Inc. (PES), 2004c. Status Report. August 30.

PES Environmental, Inc. (PES), 2007. Construction Implementation and Semi-Annual Operations Report. Free-Phase Hydrocarbon Product Remediation System. EmeryBay Commercial Association, Christie Avenue and 64th Street, Emeryville, CA. March 30.

Regional Water Quality Control Board (Water Board), 1999. East Bay Plain Groundwater Basin Beneficial Use Evaluation Report.

Regional Water Quality Control Board (Water Board), 2008. Environmental Screening Levels for residential properties on shallow soils where groundwater is a drinking water resource / is not a drinking water resource. Written February 2005, revised May 2008.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2007. Phase I Environmental Site Assessment – 6425-6475 Christie Avenue, Emeryville, CA. April 17.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2008a. 2007 Annual Groundwater Monitoring and Product Extraction Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. January 28.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2008b. Quarter One 2008 Groundwater Monitoring and Product Extraction Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. May 7.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2008c. Second Quarter 2008 Groundwater Monitoring and Product Extraction Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. July 18.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2008d. Third Quarter 2008 Groundwater Monitoring and Product Extraction Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. October 15.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2009a. Fourth Quarter 2008 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. January 16.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2009b. Indoor Air and Preferential Pathway Survey Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. April 4.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2009c. First Semiannual 2009 Groundwater Monitoring Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. April 29.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2009d. Second Semiannual 2009 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. December 31.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011a. Indoor Air Sampling Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. April 6, 2010.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2010b. First Semiannual 2010 Groundwater Monitoring Report. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. April 21.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011. Second Semiannual 2010 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. January 4.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011. First Semiannual 2011 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. May 6.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011. Second Semiannual 2011 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. October 27.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011. First Semiannual 2012 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. June 11.

Stellar Environmental Solutions, Inc. (Stellar Environmental), 2011. Second Semiannual 2012 Groundwater Monitoring, Product Extraction Report, and Annual Summary. EmeryBay Condo Phase I Parking Garage – 6400 Christie Avenue, Emeryville, CA. November 12.

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 site investigations conducted by SES in 2007, 2008, and 2009. 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		8,600	940	250	570	NA
2	May-89	130	24,000		16,000	2,100	300	1,200	NA
3	Feb-91	<10	22,000		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		0	0	0	0	
2	May-89	40	18		0	0	0	0	
3	Feb-91	83	0		0	0	0	0	
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		77	1,400	140	560	
2	May-89	110	1,800		64	250	61	110	
3	Feb-91	NS							
4	Mar-04	3,400	440	3,900	0	0	1.5	0	9.7
5	Dec-06	350	280	230	0	0	0	0	2.0
6	Dec-07	960	150		0	0	0	0	0
7	Mar-08	6,600	450		0	0	1.8	0	4.3
8	Jun-08	4,500	440		0	0	4.0	0	9.5
9	Sep-08	1,700	280		0	0	1.0	0.0	0
10	Dec-08	2,300	240		0	0	1.1	0.0	0
11	Mar-09	4,300	260		1.3	0	1.8	0.5	2.9
12	Sep-09	5,000	330		2.5	0	0.0	0.0	0
13	Mar-10	4,500	230	670	1.7	0	1.0	0.0	2.7
14	Sep-10	5,100	470		0	0.64	0.0	1.6	2.9
15	Mar-11	2,600	540		47	28	7.6	11.8	17
16	Sep-11	7,800	290		13	1.5	0.0	2.0	9.5
17	Mar-12	1,900	430		3.3	0	0.0	2.5	2.7
18	Sep-12	7,200	380		18	14	6.0	25.3	0
19	Mar-13	15,000	470	NA	1.3	0.68	2.1	2.1	8.6

MW-4									
Sampling Event No.	**Date Sampled**	**TEH-d**	**TVH-g**	**TEH-mo**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**MTBE**
1	Dec-88	0	100		2.0	1.0	0	2.0	
2	May-89	60	18		1.0	0.0	0	0	
3	Feb-91	0	0		0	0	0	0	
4	Mar-04								
5	Dec-06	0	50	0	0	0	0	0	0
6	Dec-07	710	0		0	0	0	0	0
7	Mar-08	680	57		0	0	0	0	0
8	Jun-08	620	0		0	0	0	0	0
9	Sep-08	440	0		0	0	0	0	0
10	Dec-08	730	0		0	0	0	0	0
11	Mar-09	940	0		0	0	0	0	0
12	Sep-09	660	0		0	0	0	0	0
13	Mar-10	680	0	380	0	0	0	0	0
14	Sep-10	770	71		0	0	0	0	0
15	Mar-11	590	0		0	0	0	0	2.4
16	Sep-11	380	0		0	0	0	0	0
17	Mar-12	340	0		0	0	0	0	0
18	Sep-12	350	0		0	0	0	0	0
19	Mar-13	390	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		0.0	0.0	1.0	3.0	
2	May-89	90	5.0		1.0	0	0	0	
3	Feb-91	58	0		0.6	0	0	0	
5	Dec-06	330	0	0	0.60	0	0	0	0
6	Dec-07	5,100	1.3		1.3	0	0	1.23	0
7	Mar-08	4,500	0		0.53	0	0	0	0
8	Jun-08	3,300	0		0.64	0	0	0	0
9	Sep-08	4,200	0		0	0	0	0	0
10	Dec-08	5,200	0		0.61	0	0	0	0
11	Mar-09	5,800	0		0	0	0	0	0
12	Sep-09	5,600	0		0	0	0	0	0
13	Mar-10	4,300	0	5,400	4.9	0	0.0	0.0	0
14	Sep-10	4,500	0		0.58	0	0	0	2.0
15	Mar-11	4,900	0		1.3	0	0	0	5.9
16	Sep-11	4,400	0		0	0	0	0	0.0
17	Mar-12	3,600	0		0	0	0	0	0.0
18	Sep-12	4,100	0		0	0	0	0	0.0
19	Mar-13	3,900	<50	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	0	52		1.0	0	0	0	
2	May-89	140	31		1.0	0	0	0	
3	Feb-91	130	40		0.8	0	0	0	
5	Dec-06	200	43	0	1.1	0	0	0	0
6	Dec-07	1,000	0		0.98	0.81	0	0.5	0
7	Mar-08	940	0		0.87	1.0	0	0	0
8	Jun-08	1,100	56		0.92	0	0	0	2.9
9	Sep-08	1,000	0		0.91	0	0	0	0
10	Dec-08	1,400	0		1	0	0	0	0
11	Mar-09	1,200	0		0	0	0.0	0.0	0
12	Sep-09	1,500	0		0.79	0	0.0	0.0	0
13	Mar-10	910	0	1,500	1.9	0	0.0	0.0	0
14	Sep-10	1,200	72		1.0	0	0	0	0
15	Mar-11	1,900	0		1.3	0	0	0	3.9
16	Sep-11	1,900	0		1.8	0	0	0	0
17	Mar-12	2,300	0		0.82	0	0	0	0
18	Sep-12	2,200	0		0.85	0	0	0	0
19	Mar-13	1,600	<50	NA	0.83	<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	0
2	Dec-06	420	0	470	0	0	0	0	0
3	Dec-07	6,300	3,100		640	28	48	231	0
4	Mar-08	7,000	360		140	5.8	11	58	0
5	Jun-08	5,400	1,700		480	15	28	139	0
6	Sep-08	9,400	1,200		330	12	21	88	0
7	Dec-08	8,700	2,200		640	100	43	185	0
8	Mar-09	8,700	1,700		510	33	47	220	0
9	Sep-09	6,800	540		310	9.5	27	117	0
10	Mar-10	8,700	330	6,800	68	2.2	10	31.6	0
11	Sep-10	10,000	1,300		580	54	35	163	0
12	Mar-11	8,100	630		160	5.3	14	65	0
13	Sep-11	8,000	2,900		900	46	51	284	0
14	Mar-12	7,900	740		220	150	14	140	0
15	Sep-12	10,000	1,700		660	35	32	137	0
16	Mar-13	8,600	3,000	NA	950	39	30	149	<33

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	0
2	Dec-06	2,400	29,000	0	13,000	0	640	500	0
3	Dec-07	5,900	30,000		11,000	180	650	561	0
4	Mar-08	21,000	47,000		10,000	260	1,200	458	0
5	Jun-08	7,300	27,000		9,300	140	790	290	0
6	Sep-08	13,000	35,000		11,000	190	900	402	0
7	Dec-08	7,600	19,000		6,800	110	380	236	0
8	Mar-09	10,000	22,000		9,400	200	640	358	0
9	Sep-09	9,200	26,000		8,600	100	630	230	170
10	Mar-10	11,000	19,000	1,900	6,200	120	830	149	0
11	Sep-10	7,600	7,800		8,800	110	620	212	0
12	Mar-11	8,800	19,000		8,100	130	890	149	0
13	Sep-11	18,000	13,000		8,000	140	860	178	0
14	Mar-12	9,800	380		100	3	5.9	20	0
15	Sep-12	24,000	73,000		18,000	520	2,300	670	0
16	Mar-13	38,000	39,000	NA	9,400	160	1,600	255	<50

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	1,500	4.7	0.68	0	0	0
2	Dec-06	Jan-00	92	0	2.8	0	0	0	0
3	Dec-07	8,400	84		4.7	1.1	0	1.9	0
4	Mar-08	8,600	100		4.1	1.1	0	0	2.0
5	Jun-08	5,900	98		4.9	0	0	0	2.3
6	Sep-08	9,300	130		4.6	0	0	0	0
7	Dec-08	7,800	95		4	0.54	0	0	0
8	Mar-09	9,400	130		4.6	0	0	0	0
9	Sep-09	8,200	100		4	0	0.0	0.0	0
10	Mar-10	6,500	140	4,000	5.2	0	0.0	0.0	0
11	Sep-10	6,400	170		4.8	0.77	0.0	0.0	0
12	Mar-11	11,000	150		5.9	0.61	0.0	0.5	0
13	Sep-11	9,400	62		4.2	0	0	0	0
14	Mar-12	9,400	140		6.2	0.61	0	0.51	0
15	Sep-12	10,000	130		7.2	0	0.53	0.92	0
16	Mar-13	8,500	170	NA	14.0	0.73	0.7	0.63	<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	0	4,000	77	200	120	0
2	Dec-06	19,000	12,000	0	4,600	42	90	52	0
3	Dec-07	4,700	13,000		5,300	96	42	86	0
4	Mar-08	280,000	10,000		2,600	50	37	58.7	0
5	Jun-08	4,800	10,000		3,800	62	24	61	0
6	Sep-08	4,700	1,200		350	11	3.4	11	0
7	Dec-08	3,200	2,900		550	45	15	56	0
8	Mar-09	6,200	8,200		890	46	78	130	0
9	Sep-09	6,100	1,700		1,200	35	19	31	0
10	Mar-10	3,900	7,800	960	1,200	46	34	56	54
11	Sep-10	3,500	3,400		1,500	47	18	44	0
12	Mar-11	4,500	3,700		1,200	81	25	46.4	0
13	Sep-11	3,800	4,600		720	49	26	52.4	0
14	Mar-12	3,500	2,400		240	27	10	33.6	0
15	Sep-12	13,000	6,600		1,800	89	130	46	2
16	Mar-13	24,000	15,000	NA	1,300	66	130	94	<50

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	0.0	920	0.0	26	4.5	1.8	5.4	0.0
2	Dec-07	6,900	1,500		320	44	53	140	0
3	Mar-08	7,500	1,200		120	7.6	10	24.9	3.0
4	Jun-08	5,100	2,000		190	11	7.7	16.3	0.0
5	Sep-08	5,600	2,200		260	20	34	60	0.0
6	Dec-08	7,800	2,100		270	14	7.6	15.6	0.0
7	Mar-09	7,100	1,400		200	6.4	7.3	10.4	0.0
8	Sep-09	6,400	1,900		320	13	9.8	15.2	2.0
9	Mar-10	6,500	1,600	6,900	150	0	3.9	12.8	2.9
10	Sep-10	5,500	1,300		330	15	9.2	17.3	0.0
11	Mar-11	6,500	3,400		1300	22	9.6	19.9	0.0
12	Sep-11	4,400	3,600		1200	36	16	39.1	0.0
13	Mar-12	4,600	5,700		2100	27	12	16.7	0.0
14	Sep-12	5,200	4,100		1,500	33	0	18	0.0
15	Mar-13	8,400	1,800	NA	97	18	19	30	<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	0	19,000	0	9,100	51	0	110	0
2	Dec-07	2,700	17,000		8,000	110	25	115	0
3	Mar-08	3,300	33,000		9,200	140	85	116	0
4	Jun-08	3,000	17,000		6,600	95	50	110	0
5	Sep-08	3,100	14,000		6,200	79	18	83	0
6	Dec-08	3,600	19,000		7,900	140	72	124	0
7	Mar-09	4,100	14,000		6,100	150	130	111	0
8	Sep-09	3,000	2,000		4,500	80	14	51	0
9	Mar-10	4,000	15,000	1,900	6,200	110	73	101	0
10	Sep-10	3,100	4,900		5,900	97	47	73	0
11	Mar-11	3,300	15,000		7,900	180	200	127	0
12	Sep-11	1,800	8,600		2,700	85	31	63	0
13	Mar-12	2,500	17,000		6,300	160	180	124	0
14	Sep-12	2,300	10,000		4,600	160	210	85	0
15	Mar-13	9,800	9,100	NA	2,600	110	170	111	<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	0
2	Dec-07		68,000		19,000	650	1,700	2,440	0
3	Mar-08	1,100,000	98,000		19,000	820	2,300	3,190	0
4	Jun-08	71,000	44,000		12,000	510	1,600	1,950	0
5	Sep-08	440,000	52,000		0	500	1,600	1,500	0
6	Dec-08	1,100,000	2,700,000		23,000	0	40,000	45,000	0
7	Mar-09	2,000,000	330,000		25,000	1,300	6,400	8,500	0
8	Sep-09	38,000	1,400,000		19,000	2,500	19,000	21,300	0
9	Mar-10	15,000	43,000	670	12,000	310	1,600	1,140	0
10	Sep-10	3,100,000	1,700,000		21,000	2,300	30,000	17,200	7,000
11	Mar-11	13,000	86,000		44,000	400	3,200	912	7,000
12	Sep-11	15,000	49,000		16,000	380	1900	850	0
13	Mar-12	1,100,000	260,000		23,000	1500	5700	4100	0
14	Sep-12	7,200,000	60,000		22,000	580	2,100	1,700	0
15	Mar-13	23,000	27,000	NA	5,600	260	1,300	1,080	<200

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	0.0	8,300	0	3,700	240	230	260	0
2	Dec-07	2,600	6,800		3,100	150	220	168	0
3	Mar-08	4,400	18,000		4,400	330	340	245	0
4	Jun-08	2,600	7,700		2,600	180	200	141	0
5	Sep-08	2,500	4,100		1,300	50	80	61	0
6	Dec-08	2,800	2,300		830	27	45	30.7	0
7	Mar-09	3,200	13,000		4,300	870	260	283	0
8	Sep-09	2,100	530		630	14	28	17	0
9	Mar-10	3,900	6,700	3,100	2,400	400	140	185	0
10	Sep-10	2,500	2,000		1,700	44	98	89	0
11	Mar-11	2,800	16,000		6,600	1600	450	600	0
12	Sep-11	5,900	20,000		6,600	690	550	740	0
13	Mar-12	4,400	13,000		3,000	1400	340	870	0
14	Sep-12	9,900	31,000		4,800	2400	740	2450	0
15	Mar-13	21,000	11,000	NA	2,300	340	280	371	<50

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	0	9,200	0	3,700	0	60	57	0
2	Dec-07	3,300	8,100		3,000	48	28	44.5	0
3	Mar-08	3,000	13,000		3,600	66	210	59.5	0
4	Jun-08	2,900	15,000		5,800	61	230	56.4	0
5	Sep-08	3,400	18,000		7,800	73	270	59.9	0
6	Dec-08	3,000	20,000		7,600	95	300	84.2	0
7	Mar-09	3,400	17,000		7,200	91	170	60	0
8	Sep-09	2,700	2,400		6,200	71	68	42	0
9	Mar-10	3,700	14,000	910	5,900	74	170	69	0
10	Sep-10	3,500	5,800		8,100	95	170	71	0
11	Mar-11	3,200	11,000		5,600	88	110	66.1	0
12	Sep-11	2,200	15,000		6,400	100	71	77.7	0
13	Mar-12	3,500	16,000		7,200	110	160	177	0
14	Sep-12	3,500	28,000		12,000	300	380	297	0
15	Mar-13	3,100	15,000	NA	6,100	170	360	266	<67

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	0	190	0	11.0	1.4	0	0	0
2	Dec-07	8,500	71		13	2.6	0	1.46	0
3	Mar-08	12,000	60		11	0.73	0	0	0
4	Jun-08	10,000	120		13	2.2	0	0	2
5	Sep-08	8,200	64		9.9	1.9	0	0	0
6	Dec-08	8,800	60		11	2.8	0	0.53	0
7	Mar-09	14,000	78		12	2.3	0	0	0
8	Sep-09	10,000	0		9.3	1.6	0	0	2.2
9	Mar-10	12,000	70	4,700	12	2.1	0.56	1.35	0
10	Sep-10	9,800	77		12	1.9	0	0.55	2
11	Mar-11	9,900	64		13	1.6	0	2.3	16
12	Sep-11	10,000	74		17	2.3	0	1.33	0
13	Mar-12	8,400	66		12	1.8	0	1.07	0
14	Sep-12	7,700	84		17	1.5	0.57	0.69	0
15	Mar-13	8,100	80	NA	15	1.4	<0.5	0.75	<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	0	14,000	0	3,400	1,100	480	0	0
2	Dec-07	2,900	5,000		1,100	260	110	206	0
3	Mar-08	3,100	6,800		1,200	110	91	94	21
4	Jun-08	2,900	7,200		1,100	45	75	66	0
5	Sep-08	3,300	5,500		900	63	69	69	0
6	Dec-08	3,200	7,100		1,100	530	190	390	0
7	Mar-09	3,000	5,400		770	150	87	161	0
8	Sep-09	3,000	2,500		120	3.1	11	1.6	0
9	Mar-10	3,400	5,000	1,900	910	66	73	93	0
10	Sep-10	2,800	3,500		1,400	62	46	76	0
11	Mar-11	3,900	6,100		1,100	44	55	70	0
12	Sep-11	2,400	4,600		850	49	51	64	0
13	Mar-12	2,200	5,800		1,500	57	58	67	0
14	Sep-12	1,400	4,800		1,300	45	100	41	0
15	Mar-13	2,900	7,200	NA	1,200	89	220	110	<25

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	0	120	0	22	6.2	3.2	6.2	0
2	Dec-07	8,600	0		0.98	0	0	0	0
3	Mar-08	9,800	0		0.52	0	0	0	2.0
4	Jun-08	8,800	0		0	0	0	0	3.1
5	Sep-08	8,600	0		0	0	0	0	0.0
6	Dec-08	9,300	0		0	0	0	0	0.0
7	Mar-09	10,000	0		0	0	0	0	0.0
8	Sep-09	11,000	0		0	0	0.0	0.0	0
9	Mar-10	9,400	0	2,700	0	0	0.0	0.0	0
10	Sep-10	6,400	1,800		2200	45	64.0	78.0	0
11	Mar-11	10,000	68		5.5	1.1	0.0	1.3	17
12	Sep-11	9,800	0		0.58	0	0.0	0.0	0
13	Mar-12	9,200	0	0	0	0	0.0	0.0	0
14	Sep-12	11,000	160	0	5.1	0	5.7	0.6	0
15	Mar-13	9,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<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		3,200	690	97	330	
4	Mar-04	470	810	0	340	6.1	2.2	7.7	0
5	Dec-06	280	1,900	0	910	0	10	0	0
6	Dec-07	6,900	7,000		3,300	50	51	80	0
7	Mar-08	6,300	2,700		780	17	20	20.9	12
8	Jun-08	5,200	7,400		2,900	43	85	50	0
9	Sep-08	7,800	11,000		3,800	170	130	257	0
10	Dec-08	9,400	9,100		3,400	110	180	182	0
11	Mar-09	5,600	850		270	7.5	13	17.5	0
12	Sep-09	6,200	510		1,200	22	37	37.2	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		2,200	45	64	78	0
15	Mar-11	5,900	4,400		2,600	46	64	90	0
16	Sep-11	7,600	3,600		4,500	150	340	402	0
17	Mar-12	5,800	6,500		2,600	50	52	84	0
18	Sep-12	8,300	7,800		5,500	190	430	431	0
19	Mar-13	7,700	21,000	NA	5,900	210	850	970	<50

RW-1

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88								
2	May-89								
3	Feb-91								
4	Mar-04								
5	Dec-06	0	640	0	100	1.3	2	1.6	0
6	Dec-07	2,100	770		110	0	3.8	1.96	0
7	Mar-08	11,000	890		100	4.2	4.4	2.0	0
8	Jun-08	1,500	1,200		290	4.8	10	4.8	0
9	Sep-08	1,900	1,400		280	9.8	10	6.7	0
10	Dec-08	54,000	1,100,000		500	0	3,200	530	0
11	Mar-09	2,800	950		180	3.6	13	3	0
12	Sep-09	770	360		120	3.1	11	2	0
13	Mar-10	810	200	0	0	0	0	0	0
14	Sep-10	980	860		170	4.0	5.6	2.8	8.0
15	Mar-11	810	310		15	4.4	2.5	3.9	8.8
16	Sep-11	440	230		28	2.7	1.7	1.5	0.0
17	Mar-12	1,900	502		70	2.0	2.2	2.1	0.0
18	Sep-12	890	790		150	9.6	5.5	12.0	0.0
19	Mar-13	2,800	280	NA	2.7	1.7	2.5	1.9	<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 # 130328-J01 Date 3-28-13 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 TOC	Notes
MW-3	0844	2					11.27	—		
MW-4	0800	2					9.15	24.94		
MW-5	0804	2					10.63	24.87		
MW-6	0808	2					7.60	23.30		
MW-7	0802	3/4					11.30	19.91		
MW-8	0826	3/4	yes	9.59	0.36		9.95	—		
MW-9	0806	3/4					10.08	19.63		
MW-10	0830	3/4		9.33	0.97		10.30	—		
MW-11	0810	3/4					10.62	19.64		
MW-12	0814	3/4					9.39	19.00		
MW-13	0832	3/4		9.35	0.01		9.36	—		
MW-14	0836	3/4		9.17	0.01		9.18	—		
MW-15	0840	3/4					9.45	18.91		
MW-16	0818	3/4					9.60	19.07		
MW-17	0812	3/4					9.17	19.61		
MW-18	0820	3/4					9.92	19.62		
MW-E	0822	2					10.41	45.50		

WELL GAUGING DATA

Project # 130328-J01 Date 3-28-13 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 TOC	Notes
RW-1	0900	10	yes	9.99*			—	—	toc	
	*	thick	product	unable	to	get	depth	to	water	

WELLHEAD INSPECTION CHECKLIST

Client Stellar Date 3-28-13

Site Address 6400 Hollis St Ave Emeryville CA

Job Number 130328-J01 Technician JOI BSK

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
MW-3	X							
MW-4	X							
MW-5	X							
MW-6	X							
MW-7	X					~~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-8 1/2 Bolts missing, MW-9 1/2 Bolts missing, MW-15 1/2 Bolts missing, MW-16 1/2 Bolts missing, MW-17 2/2 Bolts missing

WELLHEAD INSPECTION CHECKLIST

Client Stellar Date 3-28-13

Site Address 6400 Christy Ave Emeryville CA

Job Number 130328-SQ1 Technician JD/SK

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
MW-E						X		
RW-1						X		

NOTES: MW-E 2/2 Bolts missing, RW-1 1/2 Bolts Stripped

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Bay center Apartments				PROJECT NUMBER 130328-501			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
Myron L Ultrameter II	6203098	0615 3-28-13	pH 7,4,10 Cal 3900us	6.99, 4.02, 9.99 3897us	Yes	14.2	SK
myron L ultra meter II	6222814	0615 3-28-13	7,10,4 3900us	7.01, 10.02, 3.99 3897 us	yes	15.0°	JD
myron L ultra meter II	6222914	0600 3-29-13	7,10.4 3900us	7.01, 10.01, 3.99 3900 us	yes	15.0	JD

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3/29/13
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8 2
Total Well Depth (TD): —	Depth to Water (DTW): —
Depth to Free Product: 11.27	Thickness of Free Product (feet): —
Referenced to: (PVC) 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 / (Peristaltic) / Extraction Pump / Other_____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: New Tubing

— (Gals.) X — = — Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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
1040	Started	Purge	150mL/min			
1046	Stopped	Purge.				
Product	very thick Unable to	get an accurate measurement.				

Did well dewater? Yes (No) Gallons actually evacuated: 900

Sampling Date: 3/29/13 Sampling Time: 1050 Depth to Water: —

Sample I.D.: MW-3 Laboratory: Curtis & Tompkins

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

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 #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3 / 28 / 13
Well I.D.: MW- 4	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 24.94	Depth to Water (DTW): 9.15
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.30	

Purge Method: Bailer; (Disposable Bailer); Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; (Disposable Bailer); Extraction Port; Dedicated Tubing; Other: _____

2.5	(Gals.) X	3	=	7.5	Gals.
1 Case Volume		Specified Volumes		Calculated Volume	

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
0930	17.8	7.38	936	212	2.5	
0933	17.8	7.32	1490	246	5.0	
0936	17.9	7.30	1493	277	7.5	

Did well dewater? Yes (No) Gallons actually evacuated: 7.5

Sampling Date: 3 / 28 / 13 Sampling Time: 0940 Depth to Water: 9.17

Sample I.D.: MW- 4 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3 / 28 / 13
Well I.D.: MW- 5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.87	Depth to Water (DTW): 10.63
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 13.47	

Purge Method: Bailer, (Disposable Bailer), Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other_____

Sampling Method: Bailer, (~~Disposable Bailer~~), Extraction Port, Dedicated Tubing, Other: _____

1 Case Volume		Specified Volumes		Calculated Volume
2.2	(Gals.) X	3	=	6.6 Gals.

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
0955	17.3	7.31	2397	>1000	2.2	
0957	17.3	7.34	2402	>1000	4.4	
0959	17.4	7.37	2407	>1000	6.6	
					Not @ 80%.	

Did well dewater? Yes (No) Gallons actually evacuated: 6.6

Sampling Date: 3 / 28 / 13 Sampling Time: 1330 Depth to Water: 10.77

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

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

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 #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3 / 28 / 13
Well I.D.: MW- 6	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.30	Depth to Water (DTW): 7.60
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 10.74	

Purge Method: Bailer / (Disposable Bailer) / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other_____

Sampling Method: ~~Bailer~~ / (Disposable Bailer) / Extraction Port / Dedicated Tubing / Other: _____

1 Case Volume		Specified Volumes		Calculated Volume
2.5	(Gals.) X	3	=	7.5 Gals.

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
1010	17.2	11.09	1597	287	2.5	
1013	17.3	11.07	1564	391	5.0	
1016	17.3	11.06	1572	404	7.5	
Bubble checked PH		w/ 2nd	ultra meter			

Did well dewater? Yes (No) Gallons actually evacuated: 7.5

Sampling Date: 3 / 28 / 13 Sampling Time: 1020 Depth to Water: 7.71

Sample I.D.: MW- 6 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / KS	Date: 3/28/13
Well I.D.: MW- 7	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.81	Depth to Water (DTW): 11.30
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 13.00	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.2	(Gals.) X	3	= 0.6	Gals.
1 Case Volume		Specified Volumes	Calculated Volume	

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
0931	14.7	8.02	11700	209	0.2	
0933	14.8	7.91	11630	176	0.4	
0935	14.9	7.87	11700	122	0.6	

Did well dewater? Yes No — Gallons actually evacuated: 0.6

Sampling Date: 3/28/13 — Sampling Time: 0945 — Depth to Water: 12.37

Sample I.D.: MW- 7 — 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3 / 28 / 13
Well I.D.: MW- 8	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): —	Depth to Water (DTW): 9.95
Depth to Free Product: 9.59	Thickness of Free Product (feet): 0.36
Referenced to: (PVC) 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; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.02

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

_____(Gals.) X 3 = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1305	start	purge		175ml/min		
~~1307~~						
~~1309~~						
1311	Stop	purge				
Unable to Gauge due to diameter of the well						

Did well dewater? Yes No — Gallons actually evacuated: 1050mL

Sampling Date: 3 / / 13 — Sampling Time: 1315 — Depth to Water: ~~1050mL~~ 10.02

Sample I.D.: MW- 8 — 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3 / 28 / 13
Well I.D.: MW- 9	Well Diameter: 2 3 4 6 8 (3/4")
Total Well Depth (TD): 19.63	Depth to Water (DTW): 10.08
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.00	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.2 (Gals.) X	3 =	0.6 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1010	14.6	9.26	2193	169	0.2	
1012	14.8	9.24	2300	114	0.4	
1014	15.0	9.21	2382	90	0.6	

Did well dewater? Yes (No) Gallons actually evacuated: 0.6

Sampling Date: 3 / 28 / 13 Sampling Time: 1025 Depth to Water: 11.30

Sample I.D.: MW- 9 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3/28/13
Well I.D.: MW- 10	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): —	Depth to Water (DTW): 10.30
Depth to Free Product: 9.53	Thickness of Free Product (feet): 0.97
Referenced to: (PVC) 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~~ Peristaltic; Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

_____(Gals.) X 3 = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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
1345	Started		purge	@ 300 ml/min		
1351	Stopped		purge			
* Unable to Gauge due to Small diameter well						

Did well dewater? Yes (No) Gallons actually evacuated: 1800ml

Sampling Date: 3/28/13 Sampling Time: 1400 Depth to Water: 10.44

Sample I.D.: MW- 10 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3 / 28 / 13
Well I.D.: MW- 11	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.64	Depth to Water (DTW): 10.62
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.42	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

0.2 (Gals.) X 3 = 0.6 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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
1043	14.5	7.75	2749	56	0.2	
1045	14.7	7.73	2636	48	0.4	
1046	14.9	7.70	2599	42	0.6	

Did well dewater? Yes ~~No~~ Gallons actually evacuated: 0.6

Sampling Date: 3 / 28 / 13 Sampling Time: 1055 Depth to Water: 11.64

Sample I.D.: MW- 11 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / KS	Date: 3/28/13
Well I.D.: MW-12	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.00	Depth to Water (DTW): 9.39
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.31	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: New Tubing

0.2 (Gals.) X 3 = 0.6 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1114	14.3	7.38	1160	49	0.2	
1116	14.7	7.22	1112	41	0.4	
1117	14.9	7.17	1088	32	0.6	

Did well dewater? Yes No Gallons actually evacuated: 0.6

Sampling Date: 3/28/13 Sampling Time: 1125 Depth to Water: 10.09

Sample I.D.: MW-12 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / KS	Date: 3/29/13
Well I.D.: MW- 13	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): —	Depth to Water (DTW): 9.36
Depth to Free Product: 9.35	Thickness of Free Product (feet): 0.01
Referenced to: (PVC) 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~~ (Peristaltic) Extraction Pump / Other_____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: New Tubing

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

—(Gals.) X — = — Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0952	Started		purge	150mL/min		
0959	Stop		purged			
Unable to measure SPH due to well Diameter.						

Did well dewater? Yes No — Gallons actually evacuated: 900mL

Sampling Date: 3/29/13 — Sampling Time: 0400 — Depth to Water: 9.40

Sample I.D.: MW- 13 — 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3 / 29 / 13
Well I.D.: MW- 14	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): —	Depth to Water (DTW): 9.18
Depth to Free Product: 9.17	Thickness of Free Product (feet): 0.01
Referenced to: (PVC) 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; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

— (Gals.) X — = — Gals.
1 Case Volume / Specified Volumes / Calculated Volume

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
0926	started	purge	150mL/min			
0932	stopped	purge.				
unable	to gauge	due	to well	diameter.		

Did well dewater? Yes (No) Gallons actually evacuated: 900

Sampling Date: 3 / 29 / 13 Sampling Time: 0935 Depth to Water: 9.23

Sample I.D.: MW- 14 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3/29/13
Well I.D.: MW- 15	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 18.91	Depth to Water (DTW): 9.45
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) 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, (Peristaltic), Extraction Pump, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: New tubing

0.2	(Gals.) X	3	=	0.6	Gals.
1 Case Volume		Specified Volumes		Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
~~0945~~ 1015	15.2	7.34	1146	29	0.2	odor
@ ~~1045~~ 1046	15.1	7.32	1139	26	0.4	" "
@ ~~1145~~ 1047	15.1	7.31	1138	24	0.6	" "

Did well dewater? Yes (No) Gallons actually evacuated: 0.6

Sampling Date: 3/29/13 Sampling Time: 1020 Depth to Water: 9.47

Sample I.D.: MW- 15 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / (KS)	Date: 3 / 28 / 13
Well I.D.: MW- 16	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 17.07	Depth to Water (DTW): 9.60
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.09	

Purge Method: Bailer / Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / (Peristaltic) / Extraction Pump / Other_____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: (New Tubing)

0.1 (Gals.) X 3 = 0.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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
1148	14.4	9.84	3487	114	0.1	
1150	14.6	9.75	3244	96	0.2	
1151	14.7	9.69	3189	93	0.3	

Did well dewater? Yes (No) Gallons actually evacuated: 0.3

Sampling Date: 3 / 28 / 13 Sampling Time: 1200 Depth to Water: 10.67

Sample I.D.: MW- 16 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3 /28 / 13
Well I.D.: MW- 17	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.61	Depth to Water (DTW): 9.17
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.26	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

1 Case Volume		Specified Volumes		Calculated Volume
0.2	(Gals.) X	3	=	0.6 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1035	17.0	8.32	671	29	0.2	
1037	12.0	8.29	662	38	0.4	
1039	17.1	8.26	659	34	0.6	

Did well dewater? Yes (No) Gallons actually evacuated: 0.6

Sampling Date: 3 /28/ 13 Sampling Time: 1045 Depth to Water: 9.19

Sample I.D.: MW- 17 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / KS	Date: 3/28/13
Well I.D.: MW- 18	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.62	Depth to Water (DTW): 9.92
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.96	

Purge Method: Bailer; Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: (New Tubing)

0.2 (Gals.) X	3	= 0.6 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1251	14.9	7.24	693	60	0.2	
1253	15.1	7.21	674	53	0.4	
1255	15.2	7.18	635	47	0.6	

Did well dewater? Yes (No) Gallons actually evacuated: 0.6

Sampling Date: 3/28/13 Sampling Time: 1305 Depth to Water: 10.25

Sample I.D.: MW- 18 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	

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: (JO) / KS	Date: 3 / 28 / 13
Well I.D.: MW- E	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 45.50	Depth to Water (DTW): 16.41
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 17.42	

Purge Method: Bailer / (Waterra) / Disposable Bailer / Peristaltic / Positive Air Displacement / Extraction Pump / Electric Submersible / Other____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: New Tubing

1 Case Volume	Specified Volumes	Calculated Volume
5.6 (Gals.) X	3	= ____ Gals.

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
1110	15.4	7.02	2691	>1000	5.6	
		well	dewatered	@	9.0 gallons	
1250	15.5	7.72	2704	762	—	

Did well dewater? (Yes) ~~No~~ Gallons actually evacuated: 9.0

Sampling Date: 3 / 28 / 13 Sampling Time: 1250 Depth to Water: 13.26

Sample I.D.: MW- E 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

WELL MONITORING DATA SHEET

Project #: 130328-JO1	Client: Stellar Environmental Solutions
Sampler: JO / KS	Date: 3 / 29 / 13
Well I.D.: MW-1	Well Diameter: 2 3 4 6 8 (10)
Total Well Depth (TD): —	Depth to Water (DTW): —
Depth to Free Product: 9.99	Thickness of Free Product (feet): —
Referenced to: (PVC) 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; (Peristaltic); Extraction Pump; Other_____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing

____(Gals.) X ____ = ____ Gals.
1 Case Volume — Specified Volumes — Calculated Volume

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
1100	Started	purge	@	150 ml/min		
1106	Stopped	purge				
If product is thick and unable to get accurate Depth						

Did well dewater? Yes (No)		Gallons actually evacuated:	900mL
Sampling Date: 3 / 29 / 13	Sampling Time: 1110	Depth to Water:	—
Sample I.D.: MW-1		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 244110
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2007-65
2198 6th Street	Location : Bay Center Apts
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-4	244110-001
MW-5	244110-002
MW-6	244110-003
MW-7	244110-004
MW-8	244110-005
MW-9	244110-006
MW-10	244110-007
MW-11	244110-008
MW-12	244110-009
MW-16	244110-010
MW-17	244110-011
MW-18	244110-012
MW-E	244110-013

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

Signature: Tracy Babjar Date: 04/04/2013

Tracy Babjar
Project Manager
(510) 204-2226

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**244110**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**03/28/13**
Samples Received:	**03/28/13**

This data package contains sample and QC results for thirteen water samples, requested for the above referenced project on 03/28/13. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
MW-7 (lab # 244110-004) and MW-18 (lab # 244110-012) had pH greater than 2. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
MW-8 (lab # 244110-005) was diluted due to the dark and viscous nature of the sample extract. No other analytical problems were encountered.

244110

Chain of Custody Record

Lab job no. _____
Date 3-29-13
Page 1 of 2

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

Project Owner _____
Site Address 6400 CHRISTIE AVE.
BERKELEY, CA
Project Name BAY CENTER APARTMENTS
Project Number 2007-65

Method of Shipment HAND DELIVERY or LAB COURIER
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager R. MAKDISI
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) _____

Analysis Required

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TEH-D (8015M)	TPH-G (8015M)	BTEX & MTBE	Remarks
1	MW-4		3-28-13	0940		Mixed		HCl/none			X	X	X	
2	MW-5			1330							X	X	X	
3	MW-6			1020							X	X	X	
4	MW-7			0945							X	X	X	
5	MW-8			1315							X	X	X	
6	MW-9			1025							X	X	X	
7	MW-10			1400							X	X	X	
8	MW-11			1055							X	X	X	
9	MW-12			1125							X	X	X	
10	MW-16			1200							X	X	X	
11	MW-17			1045							X	X	X	
12	MW-18			1305							X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature [signature]	3-28-13	Signature Pat Hamby	3/29/13	Signature		Signature	
Printed J. ORTIZ	Time 1505	Printed Pat Gonzalez	Time 1505	Printed	Time	Printed	Time
Company Blaine Tech		Company CET		Company		Company	

Turnaround Time: STANDARD
Comments: EDF REQUIRED
GLOBAL ID # SLT2005561

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

244110

Chain of Custody Record

Lab job no. _____
Date 3-28-13
Page 2 of 2

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

Method of Shipment HAND DELIVERY or LAB COURIER
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager R. MAKDISI
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) _____

Project Owner _____
Site Address 6400 CHRISTIE AVE.
BERKELEY, CA
Project Name BAY CENTER APARTMENTS
Project Number 2007-65

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TEH-D (8015M)	TPH-G (8015M)	BTEX & MTBE	Remarks
13 MW-E		3-28-13	1250		mixed		HCL/None			X	X	X	

Relinquished by: Signature _____ Printed S. Ortiz Company Blaine Tech — Date 3-28-13 Time 1505
Received by: Signature Pat Gonzalez Printed Pat Gonzalez Company CET — Date 3/28/13 Time 1505
Relinquished by: Signature _____ Printed _____ Company _____ — Date _____ Time _____
Received by: Signature _____ Printed _____ Company _____ — Date _____ Time _____
Relinquished by: Signature _____ Printed _____ Company _____ — Date _____ Time _____
Received by: Signature _____ Printed _____ Company _____ — Date _____ Time _____

Turnaround Time: STANDARD
Comments: EDF REQUIRED
GLOBAL ID # SLT2005561

2000-00-01

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 24410 Date Received 3/28/13 Number of coolers 2
Client Stellar Environmental Project Bay Center Apartment

Date Opened 3/28/13 By (print) AMC (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

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

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.5, 5.1

☑ 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

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Field ID:	MW-4	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-001	Analyzed:	03/29/13

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)	95	76-128	EPA 8015B
Bromofluorobenzene (PID)	98	70-136	EPA 8021B

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-002	Analyzed:	03/29/13

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)	99	76-128	EPA 8015B
Bromofluorobenzene (PID)	102	70-136	EPA 8021B

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-003	Analyzed:	03/29/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	0.83	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)	98	76-128	EPA 8015B
Bromofluorobenzene (PID)	101	70-136	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Field ID:	MW-7	Diln Fac:	16.67
Type:	SAMPLE	Batch#:	196908
Lab ID:	244110-004	Analyzed:	04/02/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,000	830	EPA 8015B
MTBE	ND	33	EPA 8021B
Benzene	950	8.3	EPA 8021B
Toluene	39	8.3	EPA 8021B
Ethylbenzene	30	8.3	EPA 8021B
m,p-Xylenes	130	8.3	EPA 8021B
o-Xylene	19	8.3	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	96	76-128	EPA 8015B
Bromofluorobenzene (PID)	100	70-136	EPA 8021B

Field ID:	MW-8	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-005	Analyzed:	03/30/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	39,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	9,400	13	EPA 8021B
Toluene	160	13	EPA 8021B
Ethylbenzene	1,600	13	EPA 8021B
m,p-Xylenes	220	13	EPA 8021B
o-Xylene	35	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	101	76-128	EPA 8015B
Bromofluorobenzene (PID)	100	70-136	EPA 8021B

Field ID:	MW-9	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-006	Analyzed:	03/29/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	170	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	14	0.50	EPA 8021B
Toluene	0.73	0.50	EPA 8021B
Ethylbenzene	0.70	0.50	EPA 8021B
m,p-Xylenes	0.63	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	76-128	EPA 8015B
Bromofluorobenzene (PID)	99	70-136	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Field ID:	MW-10	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-007	Analyzed:	03/30/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	15,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	1,300	13	EPA 8021B
Toluene	66	13	EPA 8021B
Ethylbenzene	130	13	EPA 8021B
m,p-Xylenes	70	13	EPA 8021B
o-Xylene	24	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	104	76-128	EPA 8015B
Bromofluorobenzene (PID)	99	70-136	EPA 8021B

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196854
Lab ID:	244110-008	Analyzed:	03/29/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,800	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	97	0.50	EPA 8021B
Toluene	18	0.50	EPA 8021B
Ethylbenzene	19	0.50	EPA 8021B
m,p-Xylenes	23	0.50	EPA 8021B
o-Xylene	6.9	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	101	76-128	EPA 8015B
Bromofluorobenzene (PID)	100	70-136	EPA 8021B

Field ID:	MW-12	Lab ID:	244110-009
Type:	SAMPLE		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	9,100	1,300	25.00	196908	04/02/13	EPA 8015B
MTBE	ND	2.0	1.000	196854	03/29/13	EPA 8021B
Benzene	2,600	13	25.00	196908	04/02/13	EPA 8021B
Toluene	110	0.50	1.000	196854	03/29/13	EPA 8021B
Ethylbenzene	170	0.50	1.000	196854	03/29/13	EPA 8021B
m,p-Xylenes	94	13	25.00	196908	04/02/13	EPA 8021B
o-Xylene	17	0.50	1.000	196854	03/29/13	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	99	76-128	1.000	196854	03/29/13	EPA 8015B
Bromofluorobenzene (PID)	97	70-136	1.000	196854	03/29/13	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Field ID: MW-16 Lab ID: 244110-010
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	80	50	196854	03/29/13	EPA 8015B
MTBE	ND	2.0	196990	04/03/13	EPA 8021B
Benzene	15	0.50	196990	04/03/13	EPA 8021B
Toluene	1.4	0.50	196990	04/03/13	EPA 8021B
Ethylbenzene	ND	0.50	196990	04/03/13	EPA 8021B
m,p-Xylenes	0.75	0.50	196990	04/03/13	EPA 8021B
o-Xylene	ND	0.50	196990	04/03/13	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	99	76-128	196854	03/29/13	EPA 8015B
Bromofluorobenzene (PID)	100	70-136	196990	04/03/13	EPA 8021B

Field ID: MW-17 Diln Fac: 12.50
Type: SAMPLE Batch#: 196908
Lab ID: 244110-011 Analyzed: 04/02/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	7,200	630	EPA 8015B
MTBE	ND	25	EPA 8021B
Benzene	1,200	6.3	EPA 8021B
Toluene	89	6.3	EPA 8021B
Ethylbenzene	220	6.3	EPA 8021B
m,p-Xylenes	92	6.3	EPA 8021B
o-Xylene	18	6.3	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	97	76-128	EPA 8015B
Bromofluorobenzene (PID)	102	70-136	EPA 8021B

Field ID: MW-18 Diln Fac: 1.000
Type: SAMPLE Batch#: 196854
Lab ID: 244110-012 Analyzed: 03/29/13

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)	99	76-128	EPA 8015B
Bromofluorobenzene (PID)	102	70-136	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Field ID:	MW-E	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	196990
Lab ID:	244110-013	Analyzed:	04/04/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	21,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	5,900	13	EPA 8021B
Toluene	210	13	EPA 8021B
Ethylbenzene	850	13	EPA 8021B
m,p-Xylenes	720	13	EPA 8021B
o-Xylene	150	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	76-128	EPA 8015B
Bromofluorobenzene (PID)	99	70-136	EPA 8021B

Type:	BLANK	Batch#:	196854
Lab ID:	QC682023	Analyzed:	03/29/13
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)	95	76-128	EPA 8015B
Bromofluorobenzene (PID)	99	70-136	EPA 8021B

Type:	BLANK	Batch#:	196908
Lab ID:	QC682237	Analyzed:	04/01/13
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)	98	76-128	EPA 8015B
Bromofluorobenzene (PID)	94	70-136	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13

Type:	BLANK	Batch#:	196990
Lab ID:	QC682626	Analyzed:	04/03/13
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)	91	76-128	EPA 8015B
Bromofluorobenzene (PID)	97	70-136	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	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:	QC682022	Batch#:	196854
Matrix:	Water	Analyzed:	03/29/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,127	113	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	76-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196854
Units:	ug/L	Analyzed:	03/29/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682024

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	11.25	113	71-134
Benzene	10.00	11.39	114	80-120
Toluene	10.00	10.88	109	80-120
Ethylbenzene	10.00	11.15	111	80-120
m,p-Xylenes	10.00	11.37	114	80-120
o-Xylene	10.00	11.27	113	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	99	70-136

Type: BSD Lab ID: QC682025

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	11.36	114	71-134	1	50
Benzene	10.00	11.15	111	80-120	2	20
Toluene	10.00	10.68	107	80-120	2	20
Ethylbenzene	10.00	10.99	110	80-120	1	20
m,p-Xylenes	10.00	11.17	112	80-120	2	20
o-Xylene	10.00	11.04	110	80-120	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	98	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-4	Batch#:	196854
MSS Lab ID:	244110-001	Sampled:	03/28/13
Matrix:	Water	Received:	03/28/13
Units:	ug/L	Analyzed:	03/29/13
Diln Fac:	1.000		

Type: MS Lab ID: QC682026

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	22.12	2,000	2,069	102	76-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	76-128

Type: MSD Lab ID: QC682027

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,022	100	76-120	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	102	76-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196908
Units:	ug/L	Analyzed:	04/01/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682238

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.78	108	71-134
Benzene	10.00	10.33	103	80-120
Toluene	10.00	9.978	100	80-120
Ethylbenzene	10.00	10.38	104	80-120
m,p-Xylenes	10.00	10.15	102	80-120
o-Xylene	10.00	10.09	101	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	94	70-136

Type: BSD Lab ID: QC682239

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.35	103	71-134	4	50
Benzene	10.00	10.26	103	80-120	1	20
Toluene	10.00	9.845	98	80-120	1	20
Ethylbenzene	10.00	10.01	100	80-120	4	20
m,p-Xylenes	10.00	10.61	106	80-120	4	20
o-Xylene	10.00	10.36	104	80-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196990
Units:	ug/L	Analyzed:	04/03/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682623

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.92	109	71-134
Benzene	10.00	11.13	111	80-120
Toluene	10.00	10.61	106	80-120
Ethylbenzene	10.00	10.89	109	80-120
m,p-Xylenes	10.00	11.08	111	80-120
o-Xylene	10.00	11.15	112	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	101	70-136

Type: BSD Lab ID: QC682624

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.81	108	71-134	1	50
Benzene	10.00	10.55	106	80-120	5	20
Toluene	10.00	10.18	102	80-120	4	20
Ethylbenzene	10.00	10.49	105	80-120	4	20
m,p-Xylenes	10.00	10.68	107	80-120	4	20
o-Xylene	10.00	10.49	105	80-120	6	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	100	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	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:	QC682625	Batch#:	196990
Matrix:	Water	Analyzed:	04/03/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,044	104	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	76-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	196990
MSS Lab ID:	244215-001	Sampled:	04/01/13
Matrix:	Water	Received:	04/02/13
Units:	ug/L	Analyzed:	04/04/13
Diln Fac:	1.000		

Type: MS Lab ID: QC682627

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	14.83	2,000	1,902	94	76-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	76-128

Type: MSD Lab ID: QC682628

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,917	95	76-120	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	76-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	196908
Units:	ug/L	Analyzed:	04/01/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682772

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,119	112	80-120

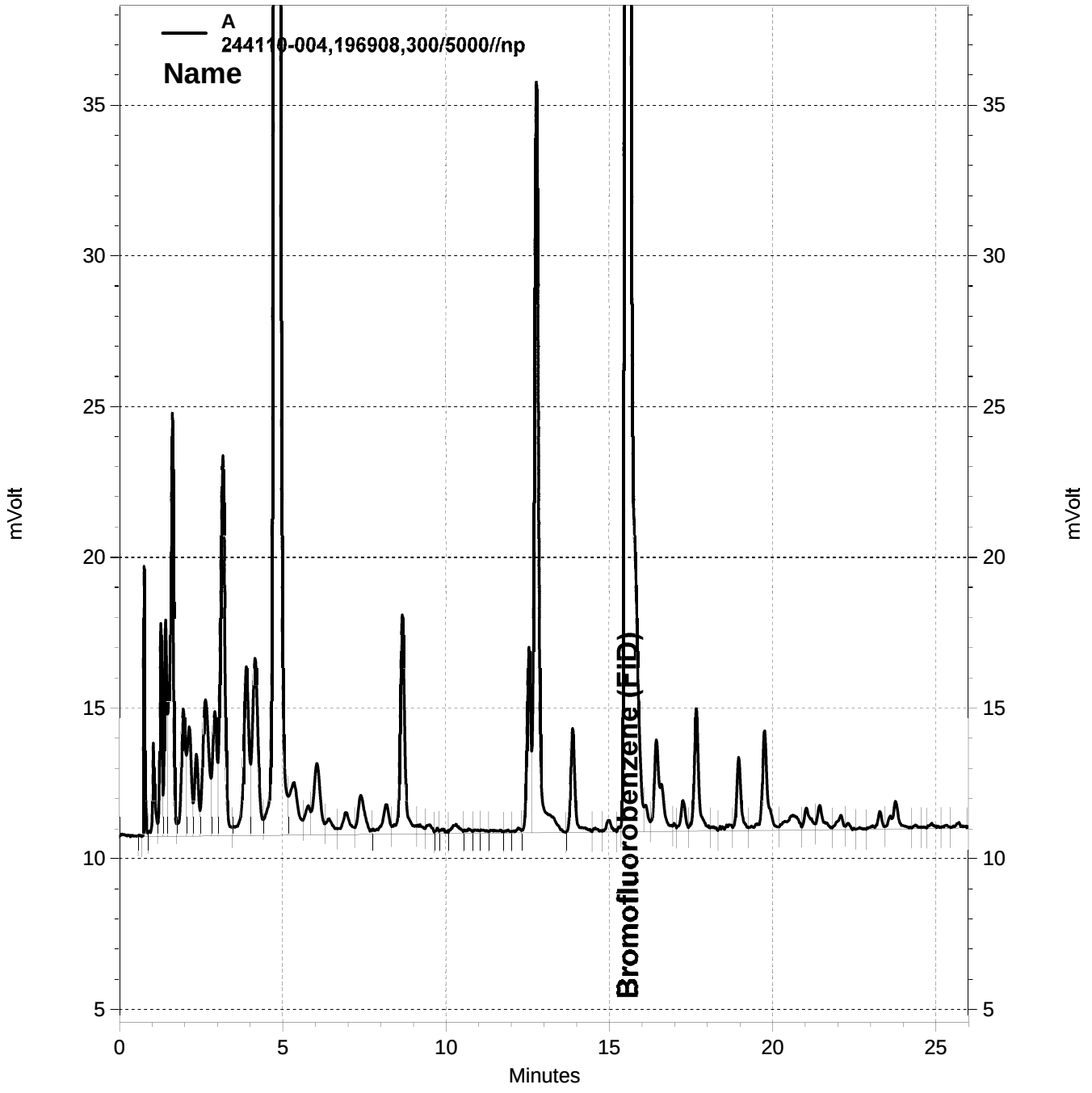
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	76-128

Type: BSD Lab ID: QC682773

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,031	102	80-120	10	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	76-128

RPD= Relative Percent Difference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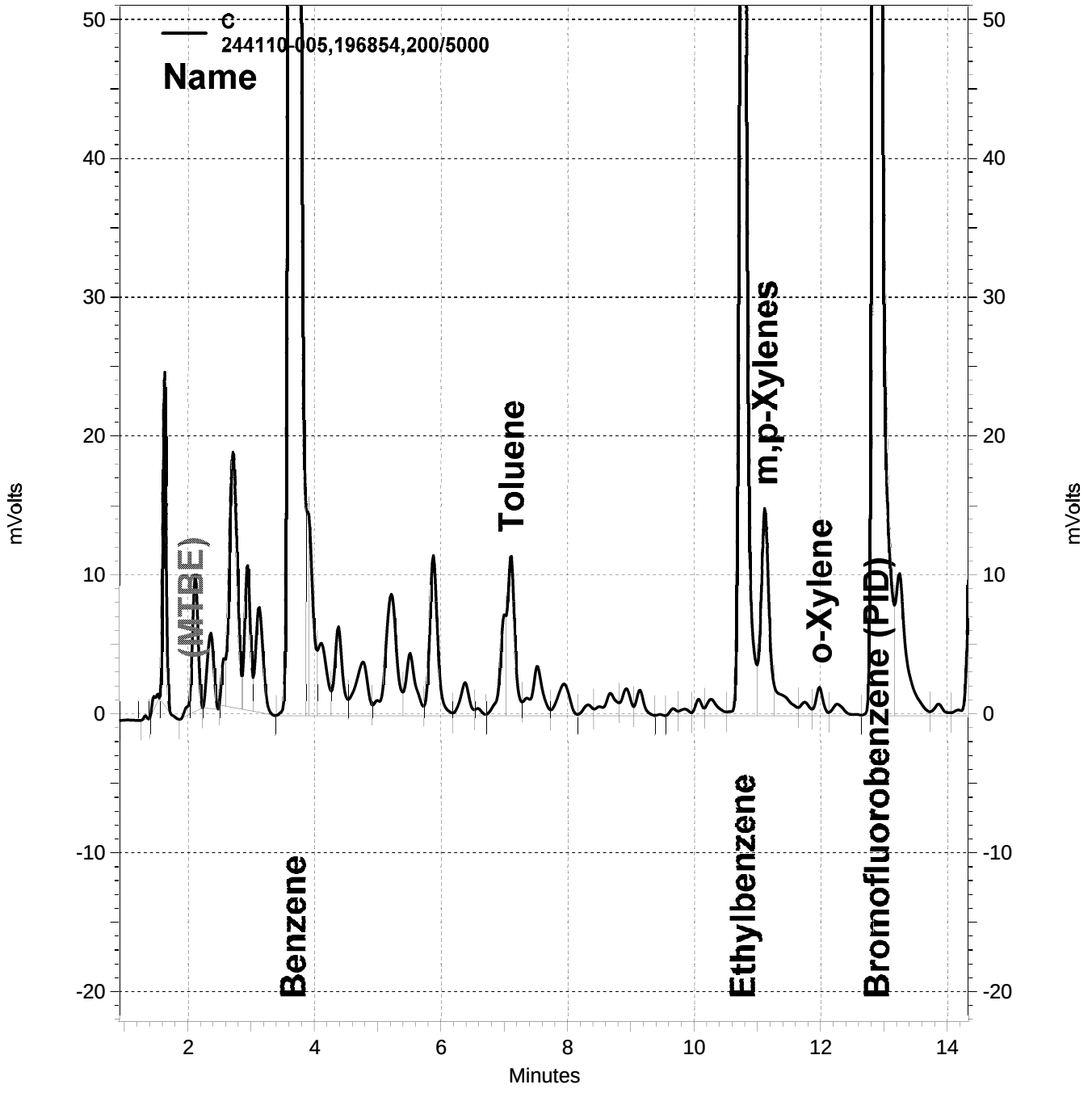

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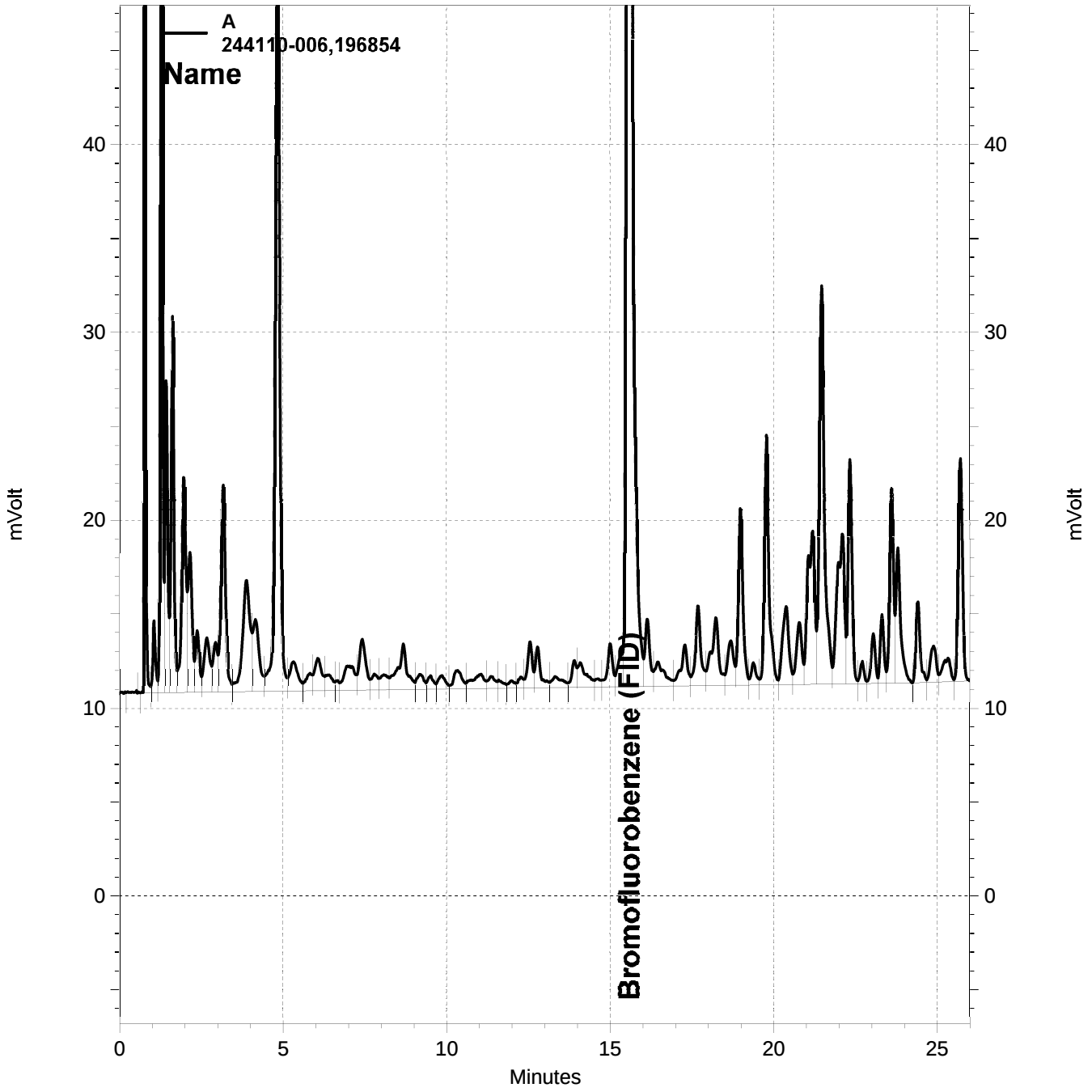

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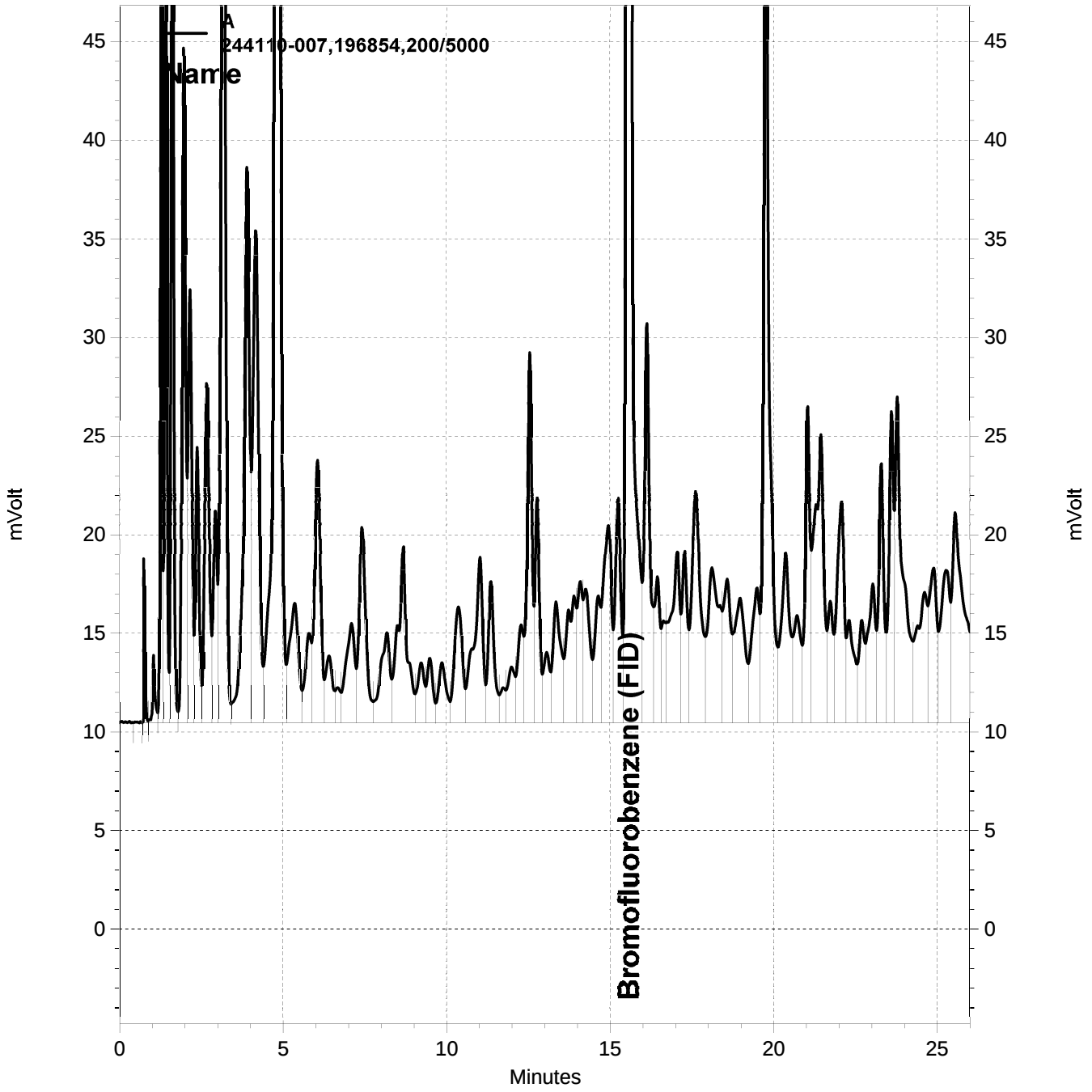

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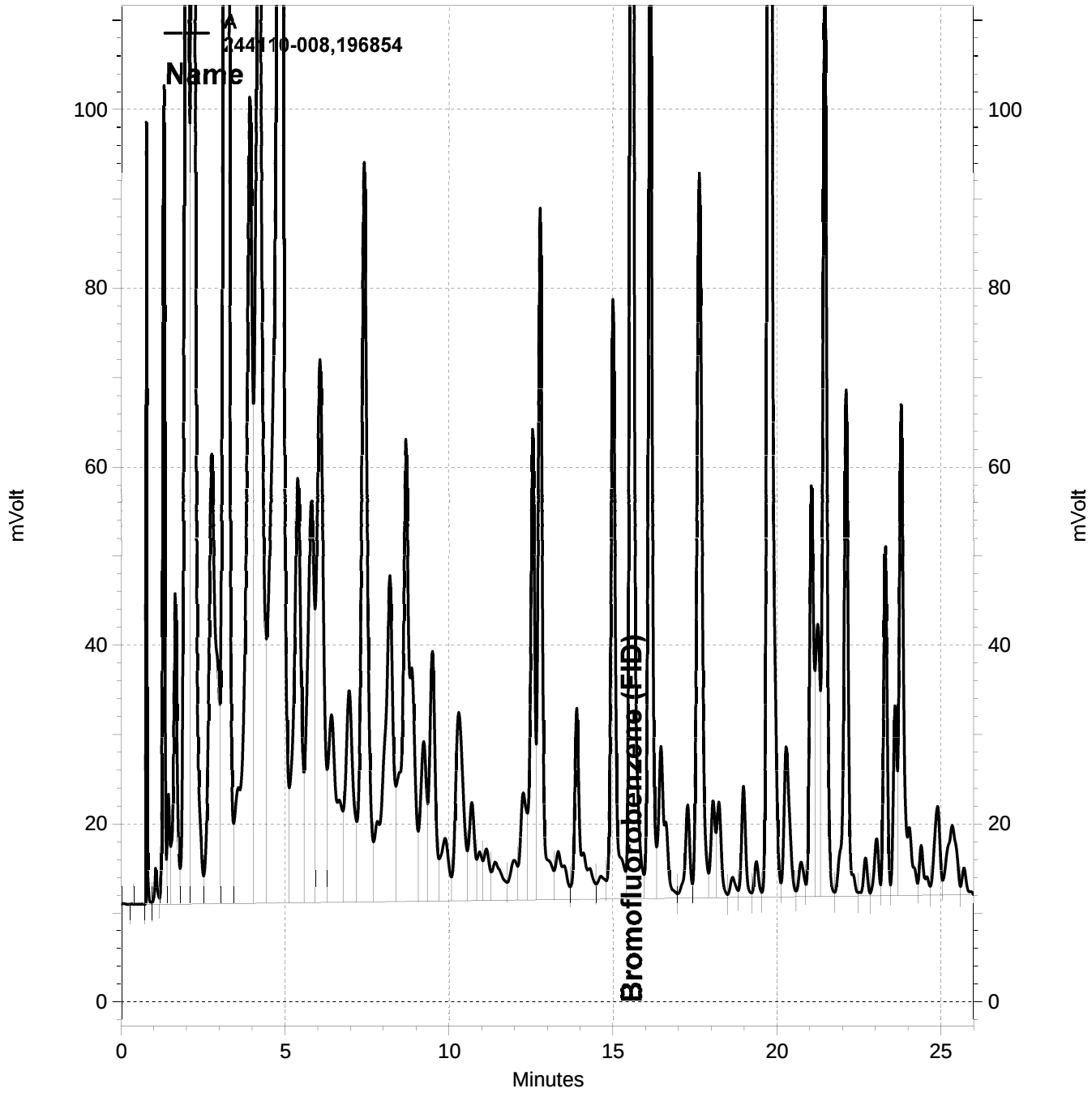
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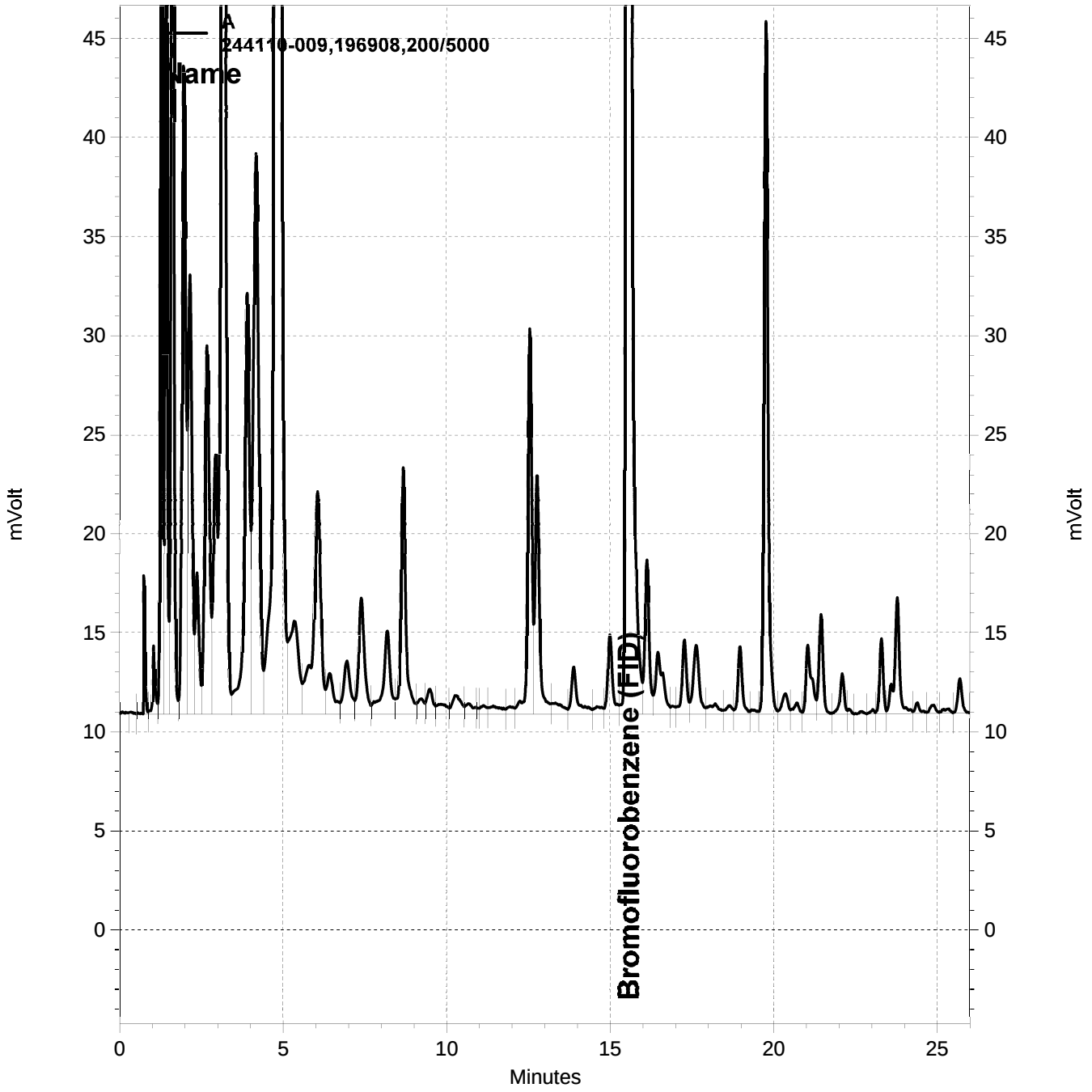

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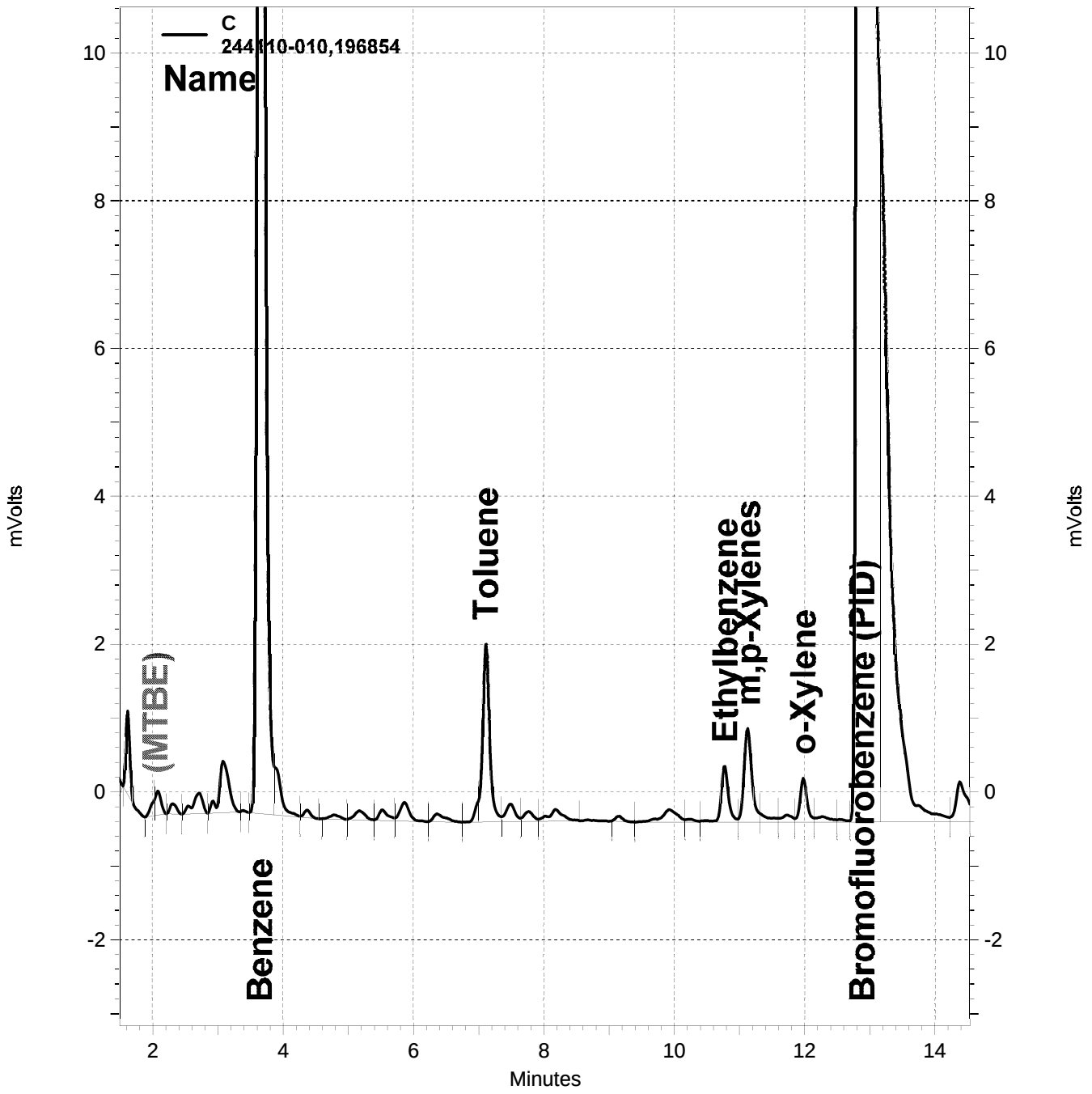

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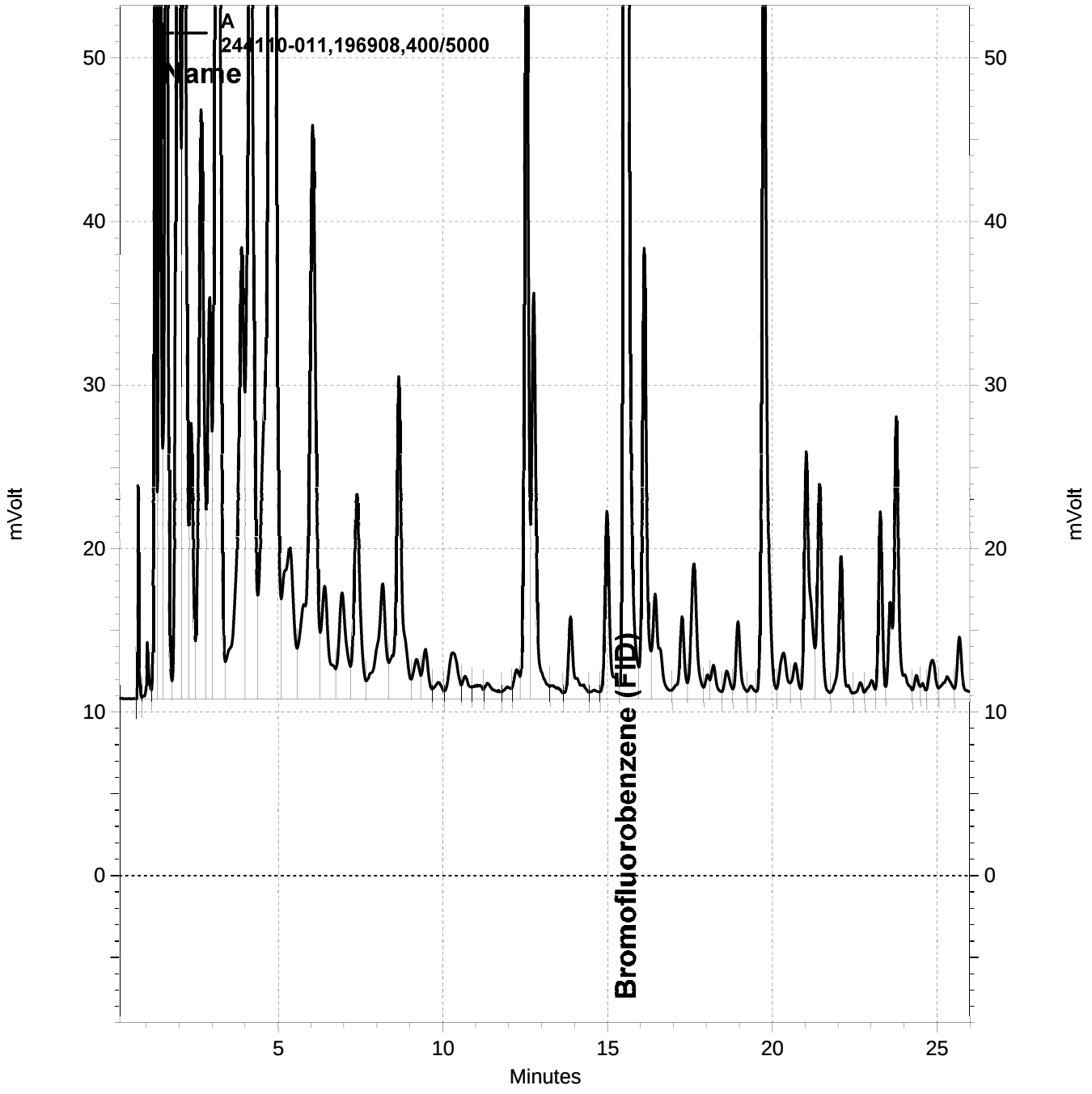

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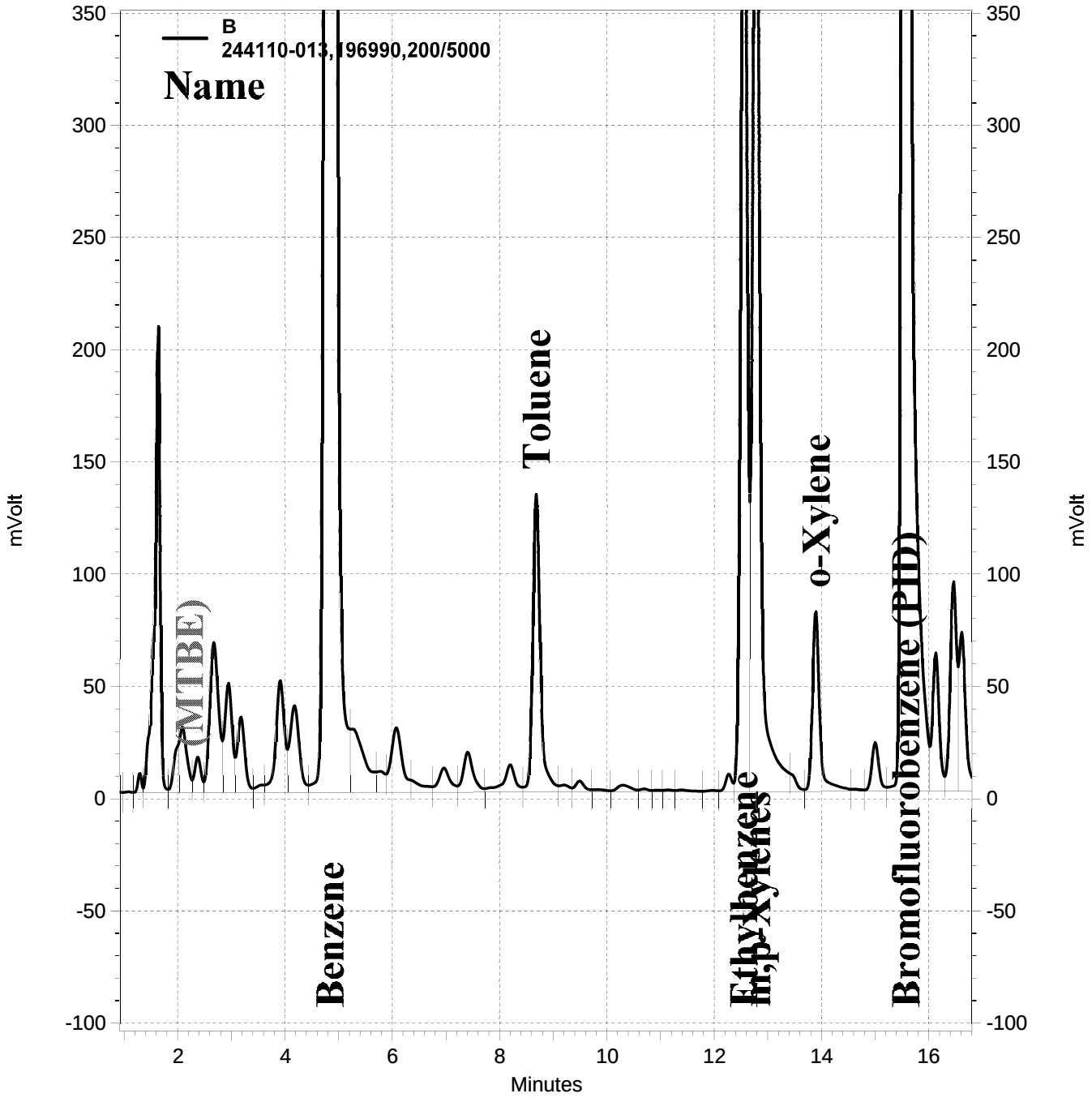
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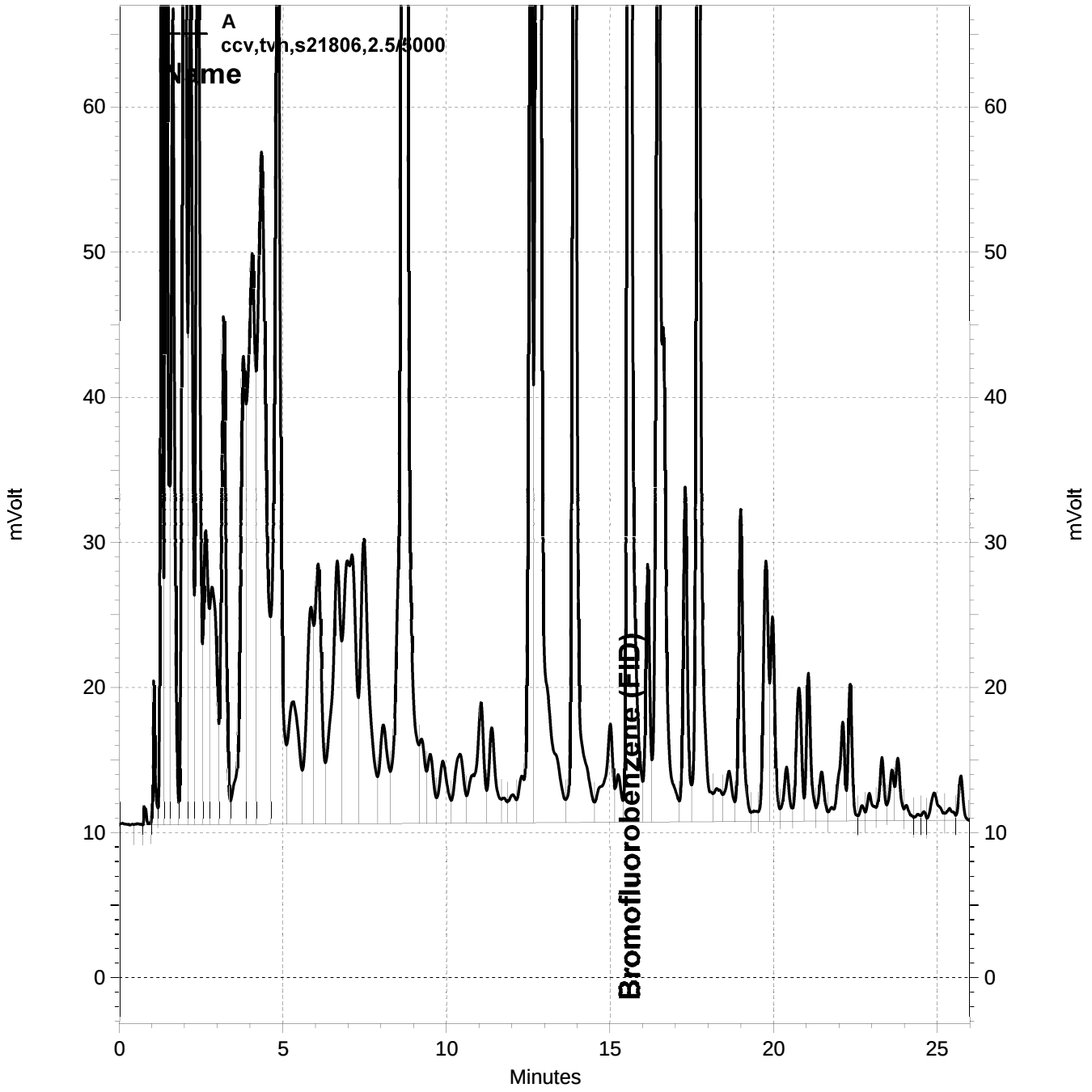

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13
Batch#:	196869	Prepared:	03/29/13

Field ID: MW-4 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/01/13
Lab ID: 244110-001

Analyte	Result	RL
Diesel C10-C24	390	50

Surrogate	%REC	Limits
o-Terphenyl	107	62-133

Field ID: MW-5 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/01/13
Lab ID: 244110-002

Analyte	Result	RL
Diesel C10-C24	3,900	50

Surrogate	%REC	Limits
o-Terphenyl	110	62-133

Field ID: MW-6 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-003

Analyte	Result	RL
Diesel C10-C24	1,600	50

Surrogate	%REC	Limits
o-Terphenyl	103	62-133

Field ID: MW-7 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-004

Analyte	Result	RL
Diesel C10-C24	8,600	50

Surrogate	%REC	Limits
o-Terphenyl	90	62-133

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13
Batch#:	196869	Prepared:	03/29/13

Field ID: MW-8 Diln Fac: 10.00
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-005

Analyte	Result	RL
Diesel C10-C24	38,000	500

Surrogate	%REC	Limits
o-Terphenyl	DO	62-133

Field ID: MW-9 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-006

Analyte	Result	RL
Diesel C10-C24	8,500	50

Surrogate	%REC	Limits
o-Terphenyl	102	62-133

Field ID: MW-10 Diln Fac: 5.000
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-007

Analyte	Result	RL
Diesel C10-C24	24,000	250

Surrogate	%REC	Limits
o-Terphenyl	107	62-133

Field ID: MW-11 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/13
Lab ID: 244110-008

Analyte	Result	RL
Diesel C10-C24	8,400	50

Surrogate	%REC	Limits
o-Terphenyl	118	62-133

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13
Batch#:	196869	Prepared:	03/29/13

Field ID: MW-12 | Diln Fac: 1.000
Type: SAMPLE | Analyzed: 04/02/13
Lab ID: 244110-009

Analyte	Result	RL
Diesel C10-C24	9,800	50

Surrogate	%REC	Limits
o-Terphenyl	115	62-133

Field ID: MW-16 | Diln Fac: 1.000
Type: SAMPLE | Analyzed: 04/02/13
Lab ID: 244110-010

Analyte	Result	RL
Diesel C10-C24	8,100	50

Surrogate	%REC	Limits
o-Terphenyl	94	62-133

Field ID: MW-17 | Diln Fac: 1.000
Type: SAMPLE | Analyzed: 04/02/13
Lab ID: 244110-011

Analyte	Result	RL
Diesel C10-C24	2,900	50

Surrogate	%REC	Limits
o-Terphenyl	113	62-133

Field ID: MW-18 | Diln Fac: 1.000
Type: SAMPLE | Analyzed: 04/02/13
Lab ID: 244110-012

Analyte	Result	RL
Diesel C10-C24	9,600	50

Surrogate	%REC	Limits
o-Terphenyl	116	62-133

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/13
Units:	ug/L	Received:	03/28/13
Batch#:	196869	Prepared:	03/29/13

Field ID:	MW-E	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	04/02/13
Lab ID:	244110-013		

Analyte	Result	RL
Diesel C10-C24	7,700	50

Surrogate	%REC	Limits
o-Terphenyl	124	62-133

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC682084	Analyzed:	04/01/13

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	100	62-133

DO= Diluted Out
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC682085	Batch#:	196869
Matrix:	Water	Prepared:	03/29/13
Units:	ug/L	Analyzed:	04/01/13

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,177	87	59-120

Surrogate	%REC	Limits
o-Terphenyl	112	62-133

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	244110	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	196869
MSS Lab ID:	244084-001	Sampled:	03/26/13
Matrix:	Water	Received:	03/27/13
Units:	ug/L	Prepared:	03/29/13
Diln Fac:	1.000	Analyzed:	04/01/13

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC682086

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<15.94	2,500	2,154	86	61-120

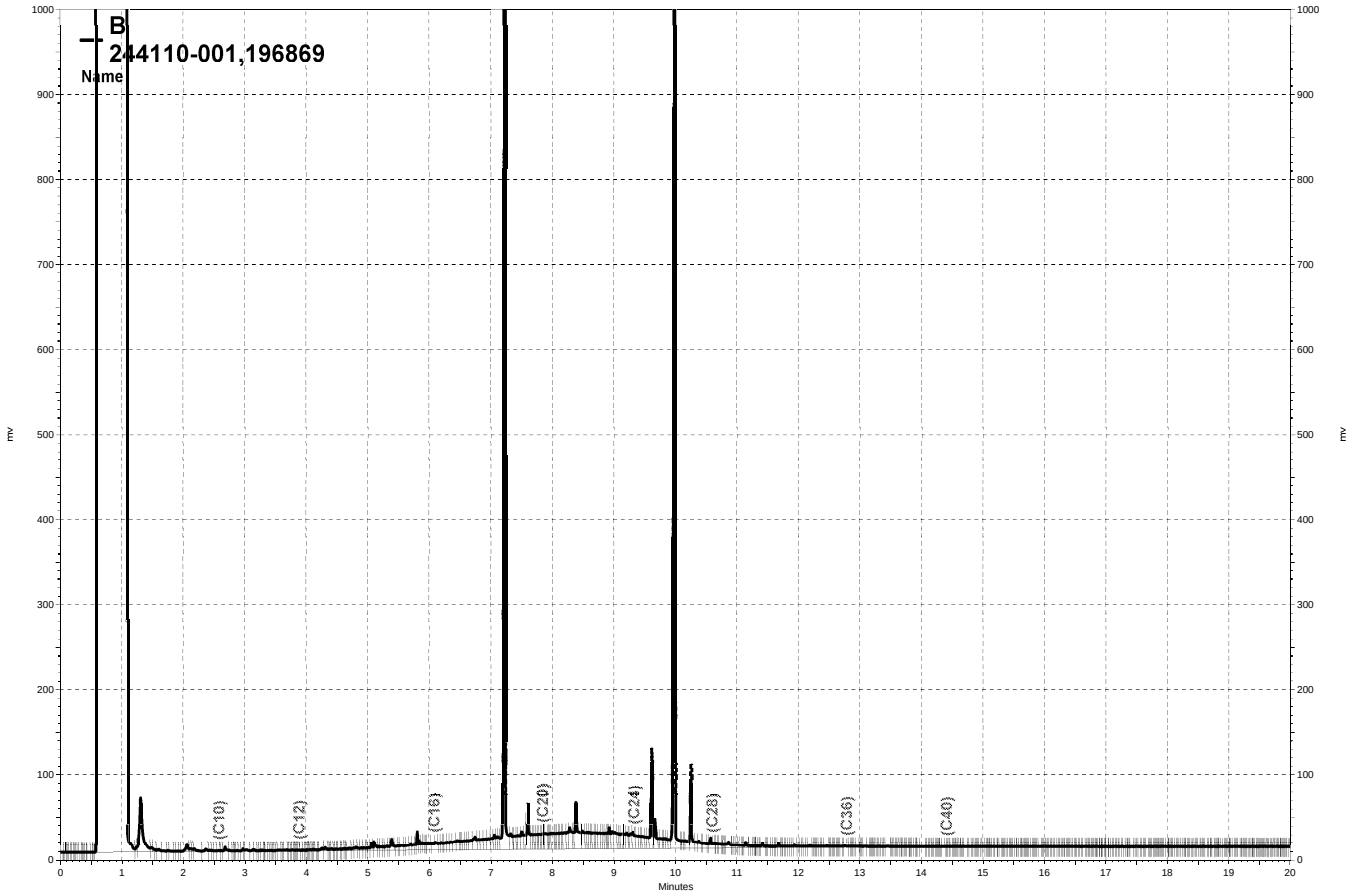
Surrogate	%REC	Limits
o-Terphenyl	112	62-133

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC682087

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,258	90	61-120	5	43

Surrogate	%REC	Limits
o-Terphenyl	118	62-133

RPD= Relative Percent Difference



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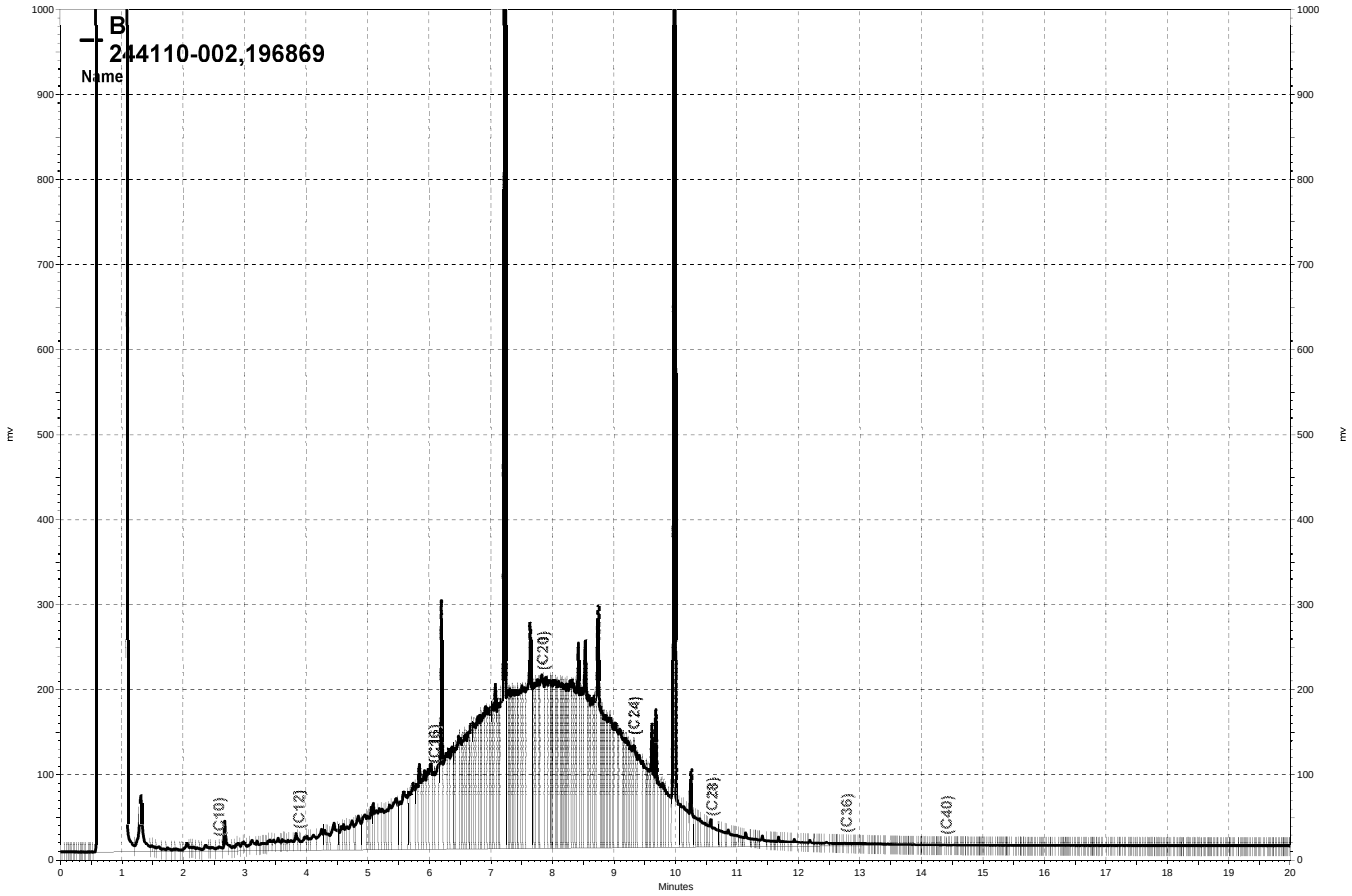

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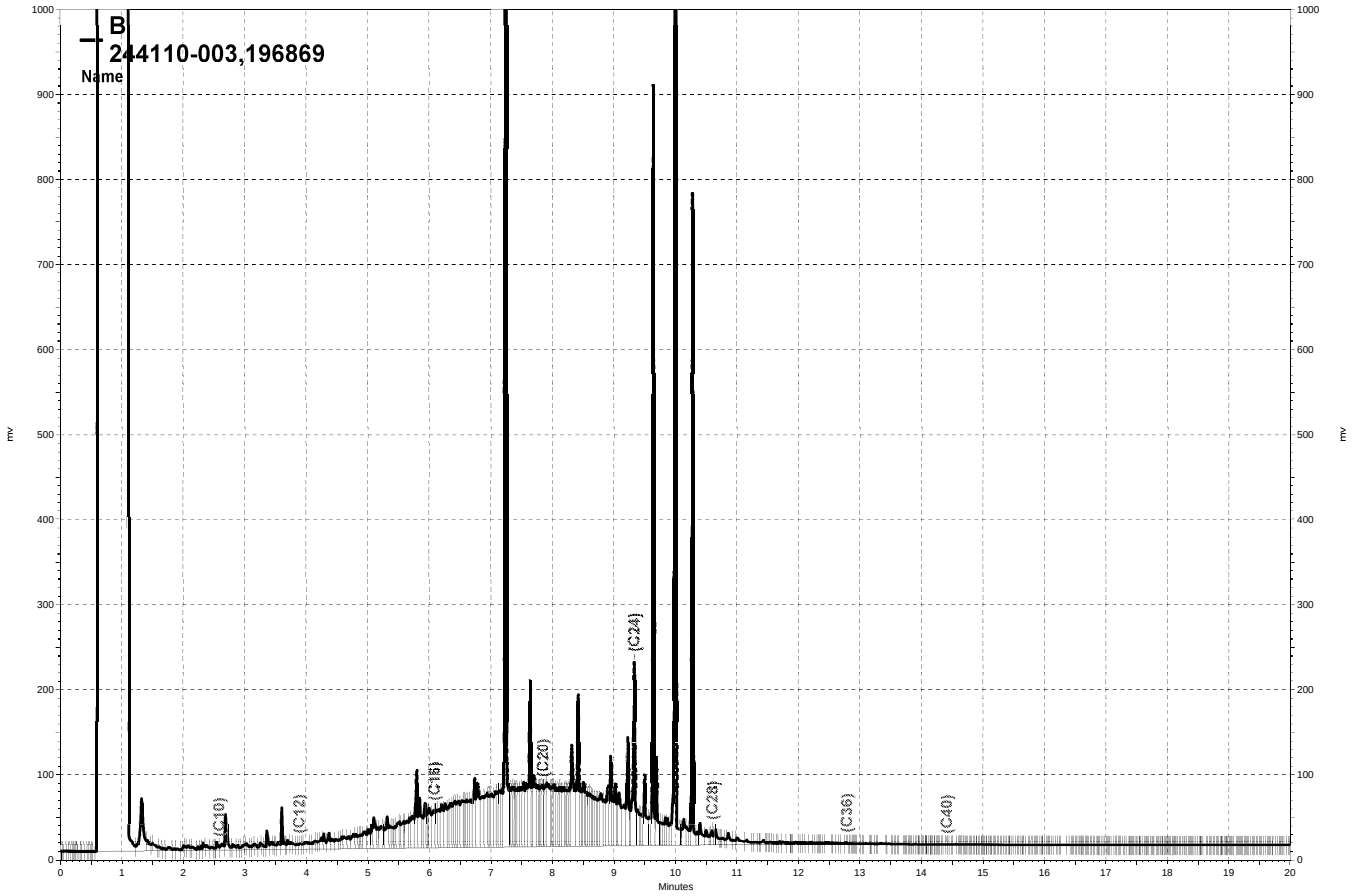

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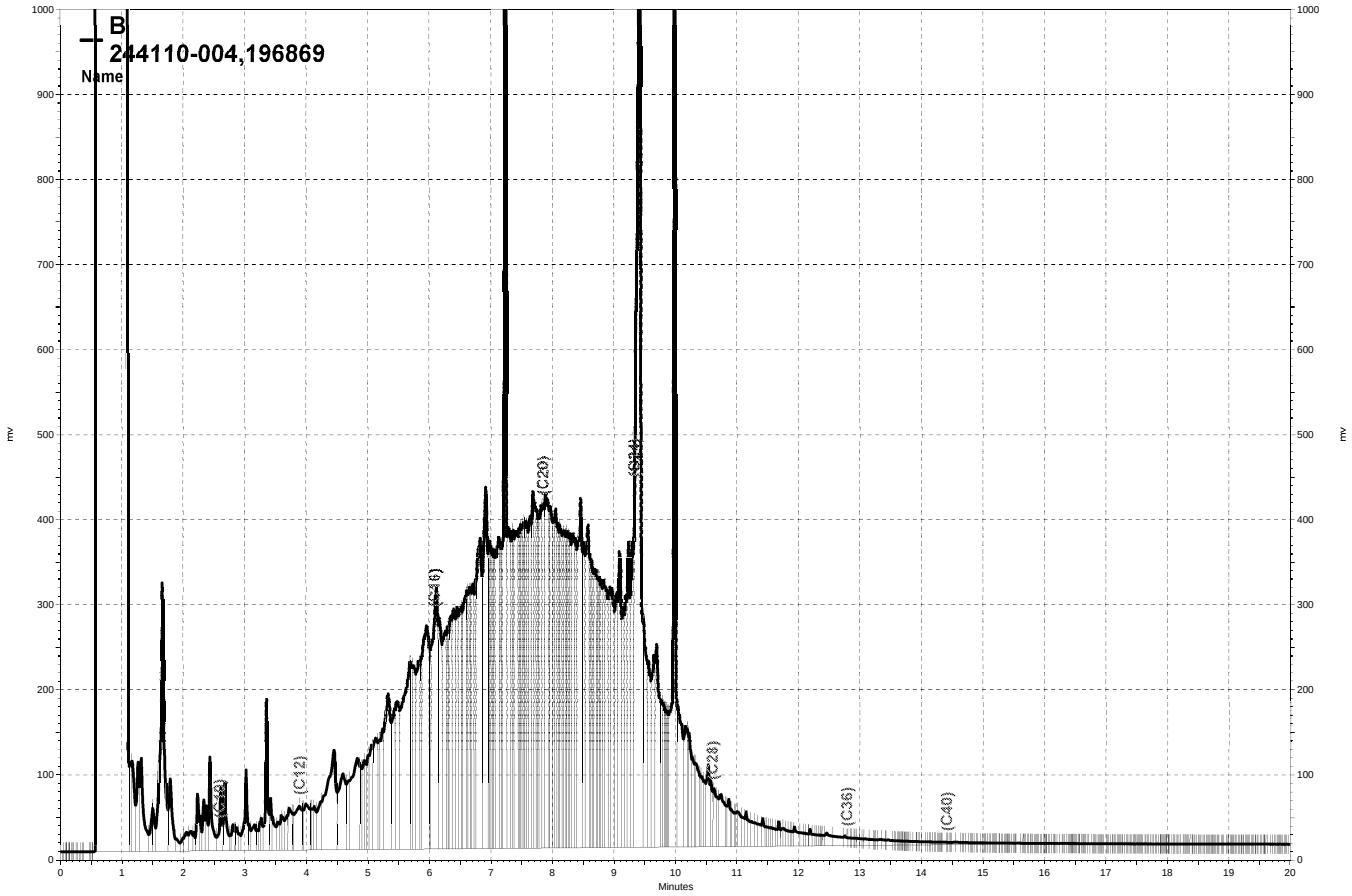

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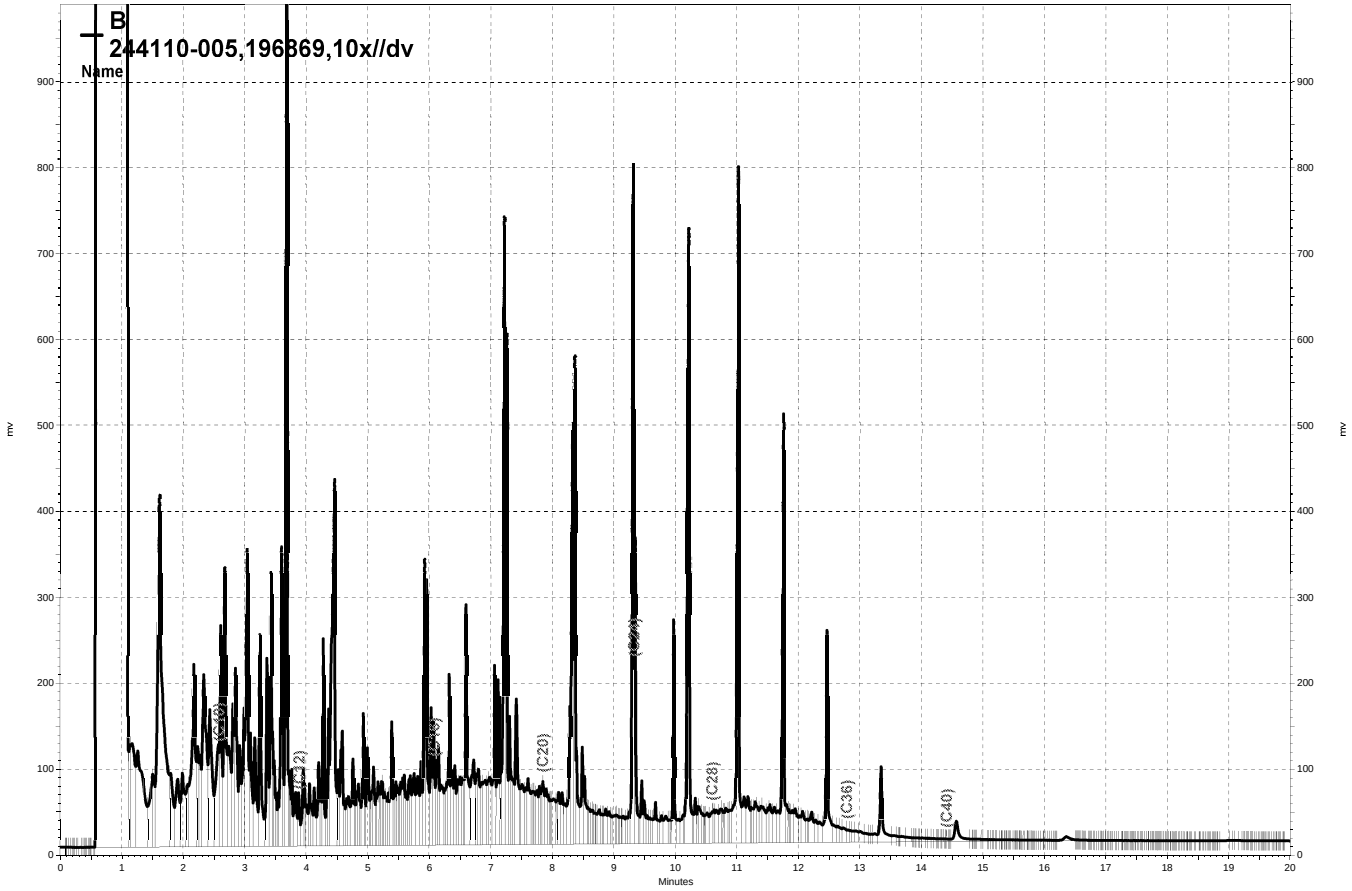

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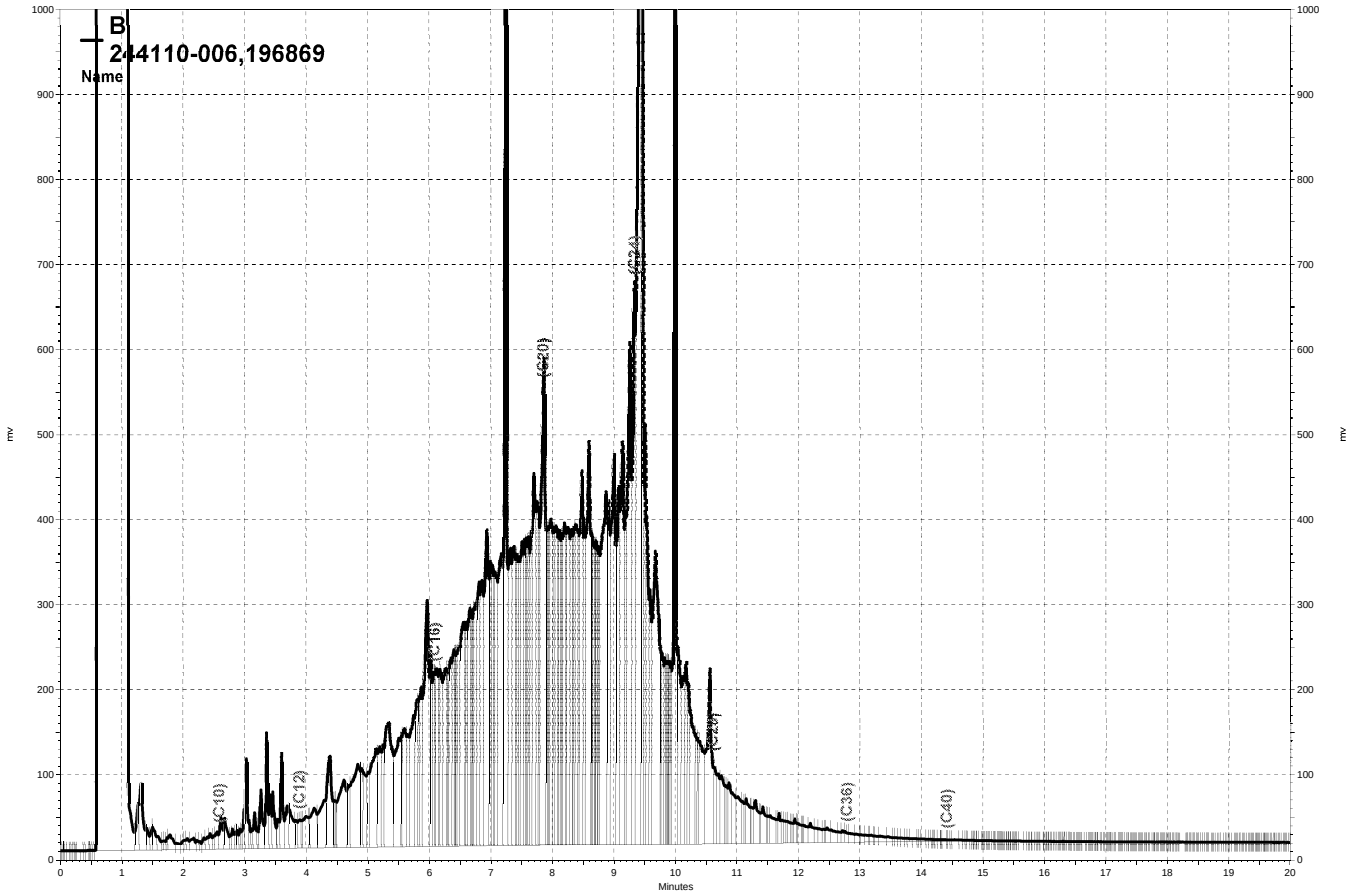

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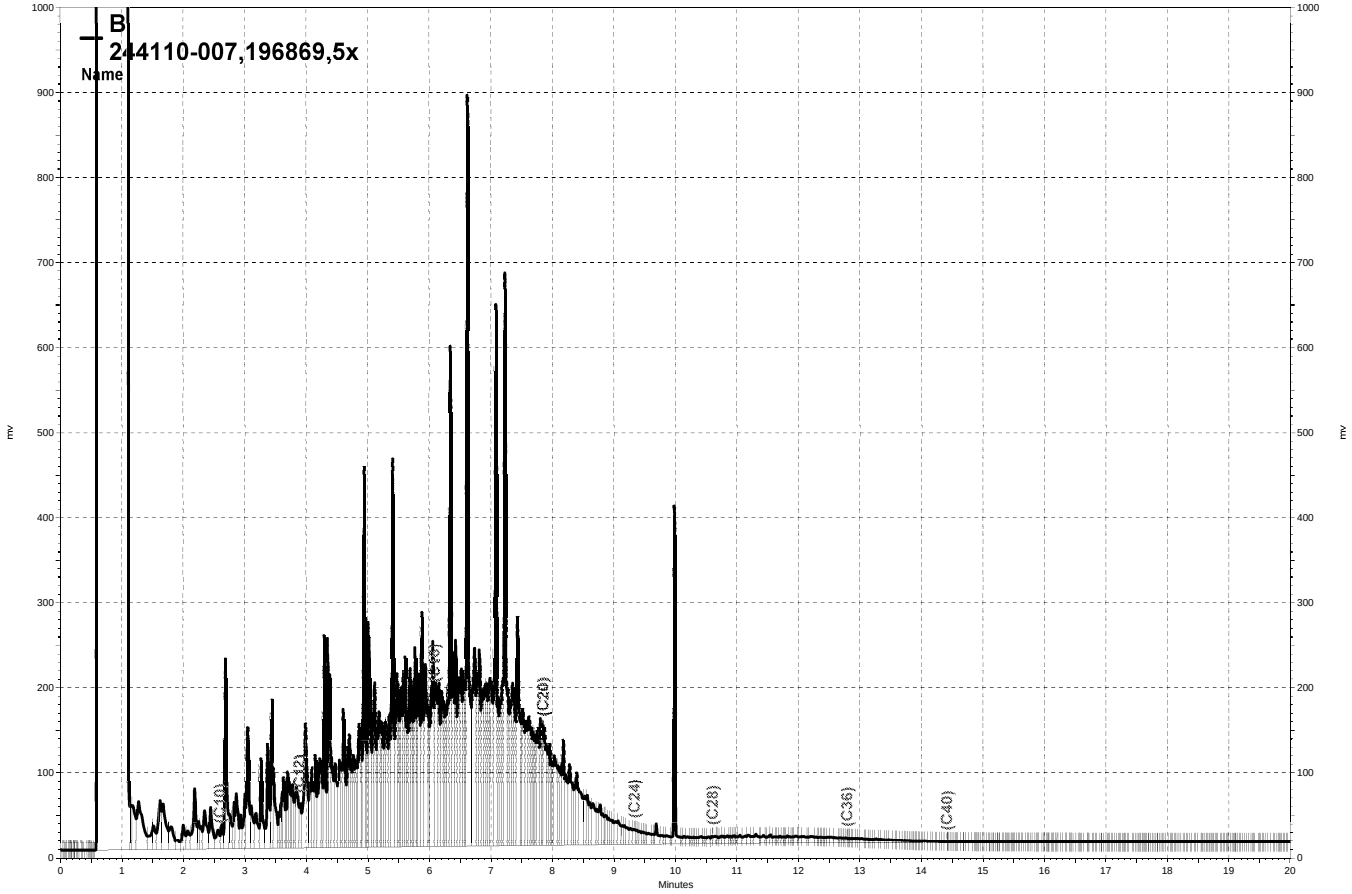

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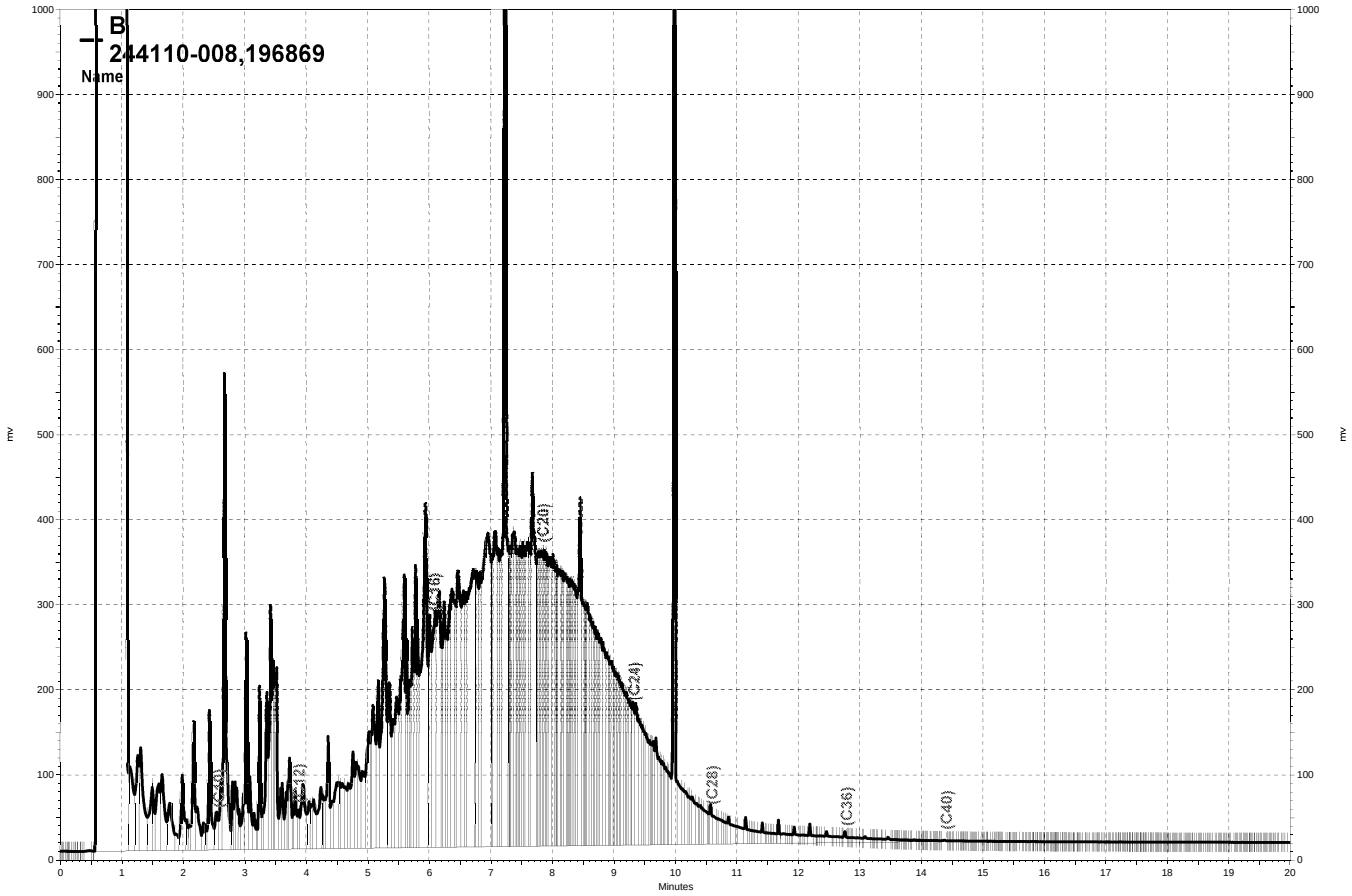

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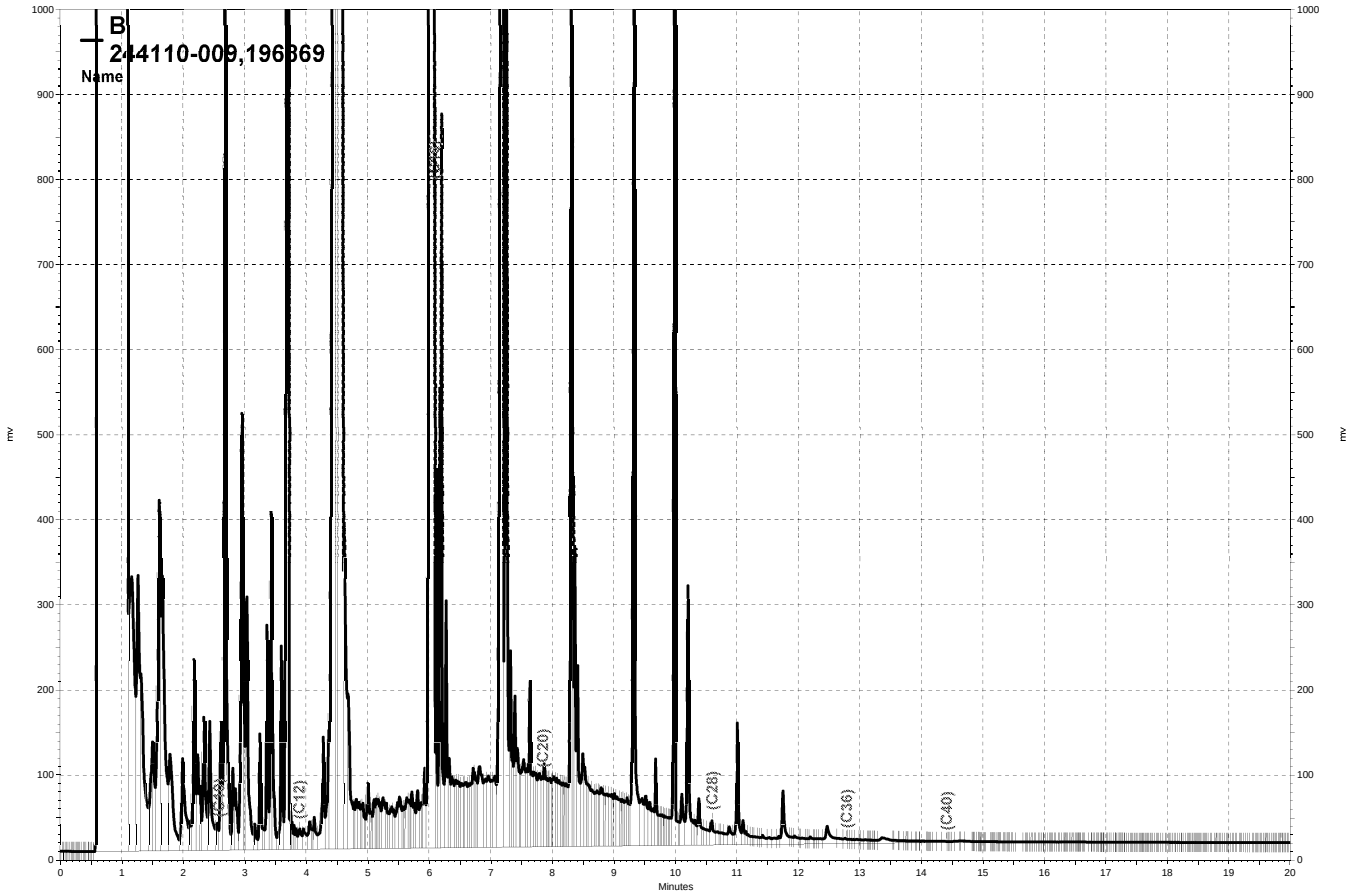

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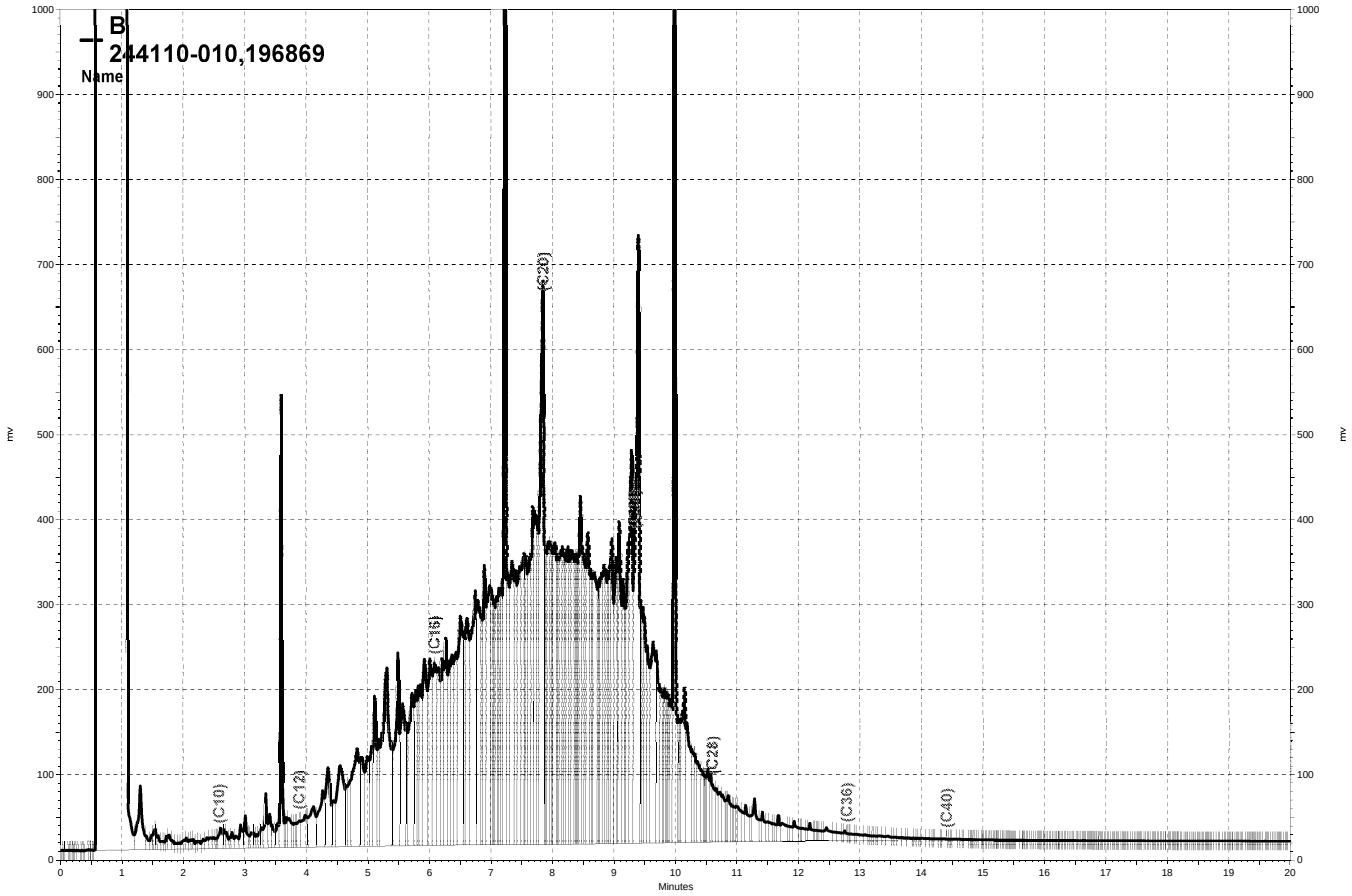

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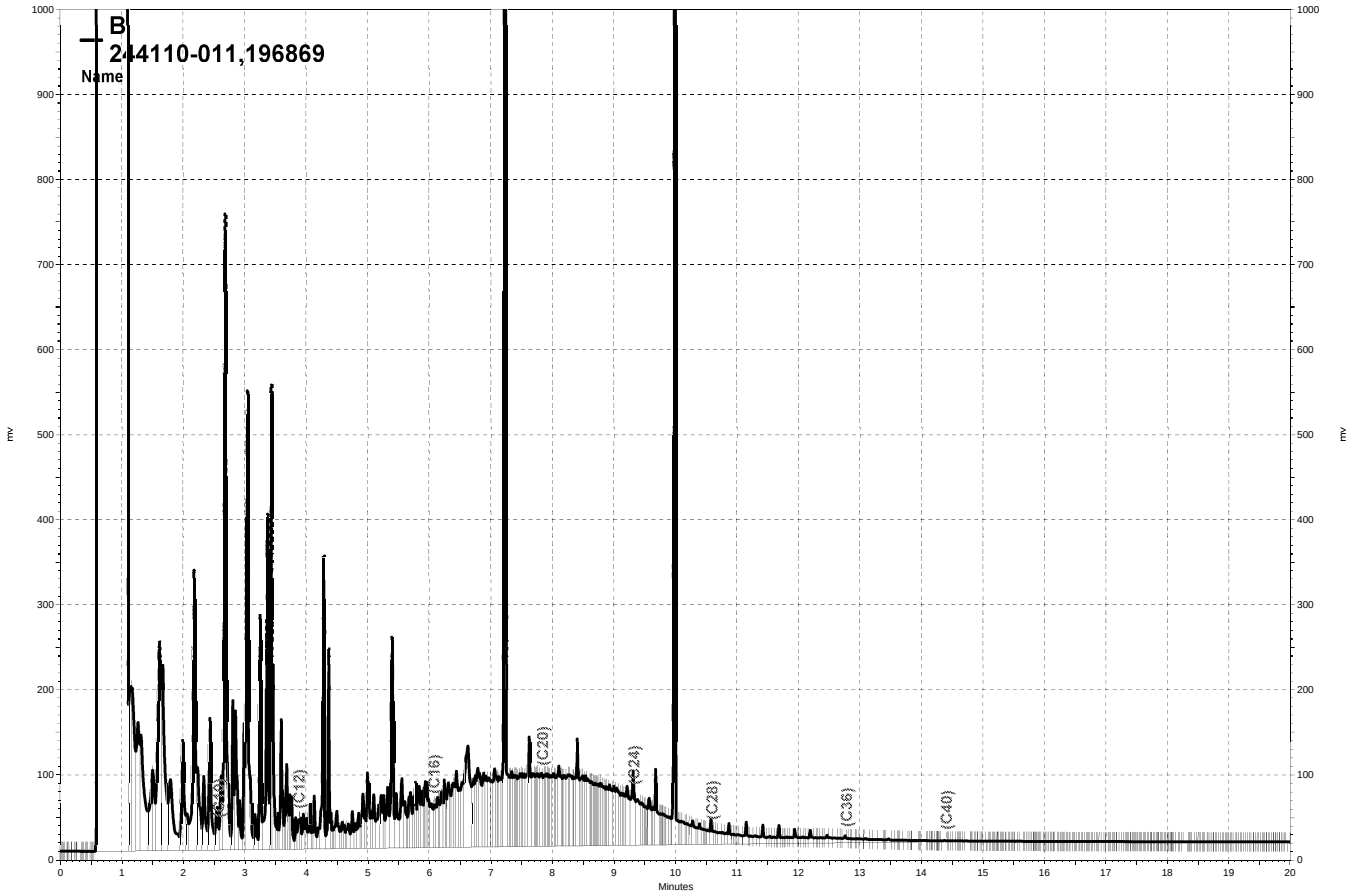

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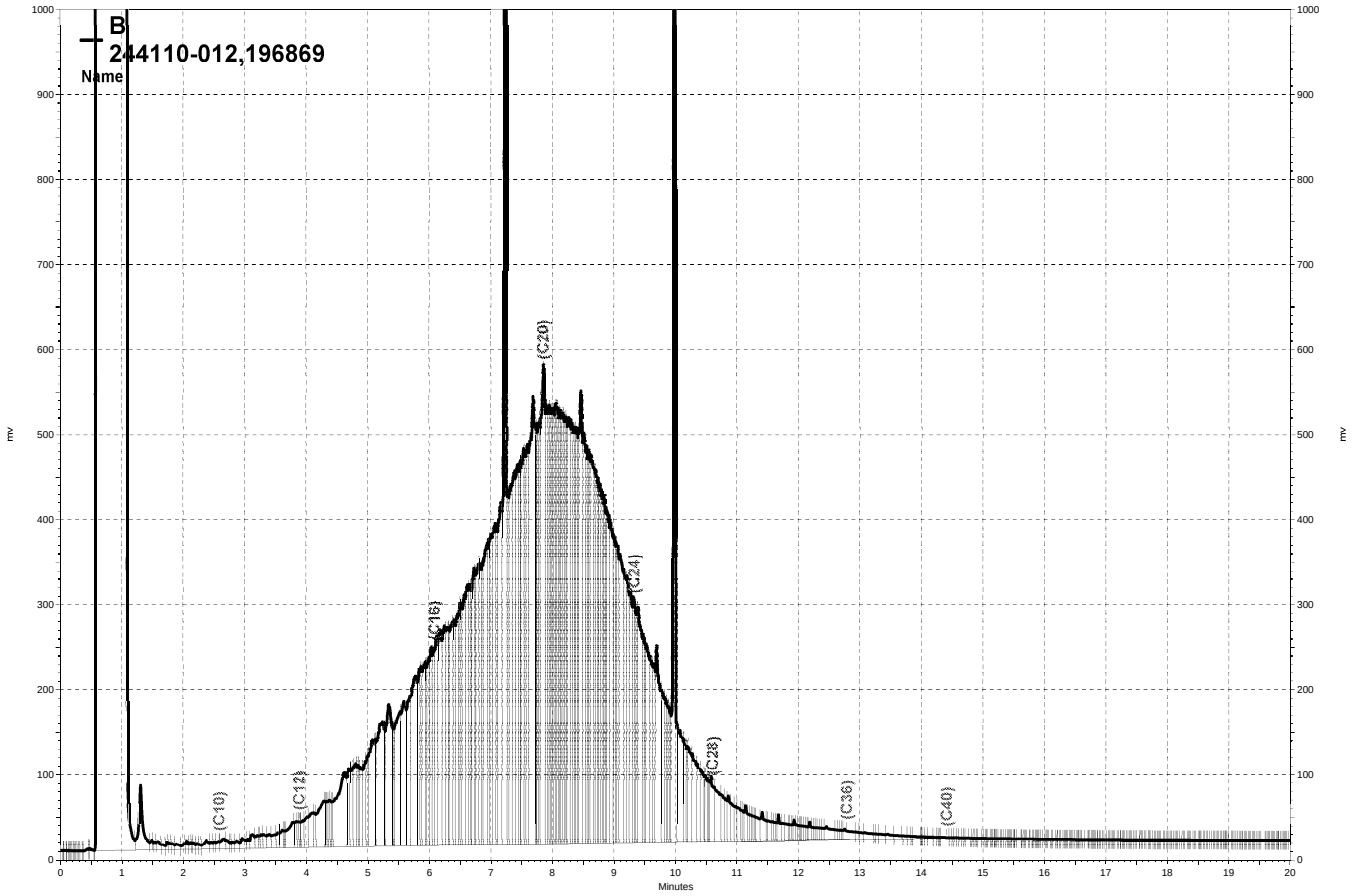

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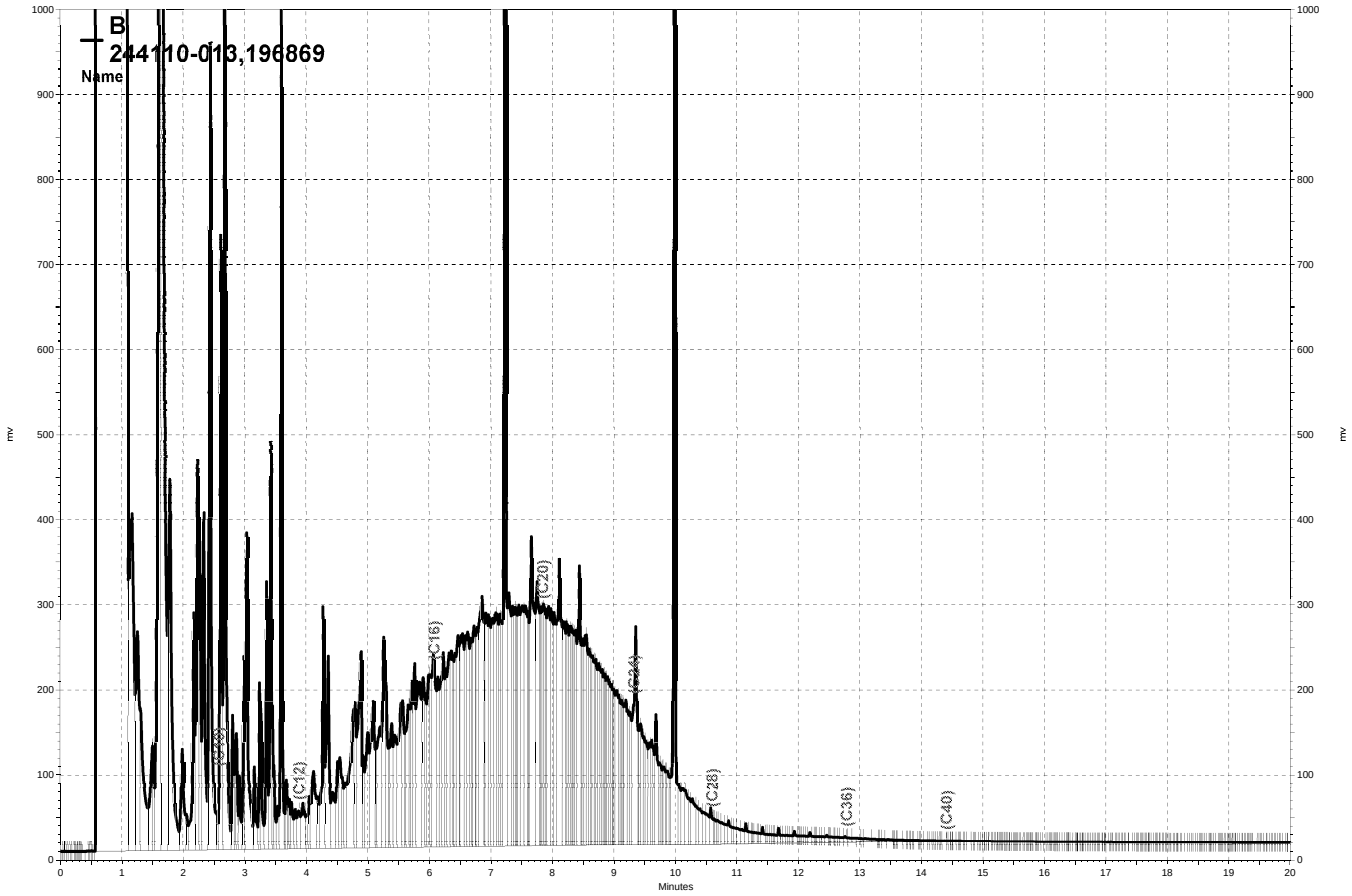

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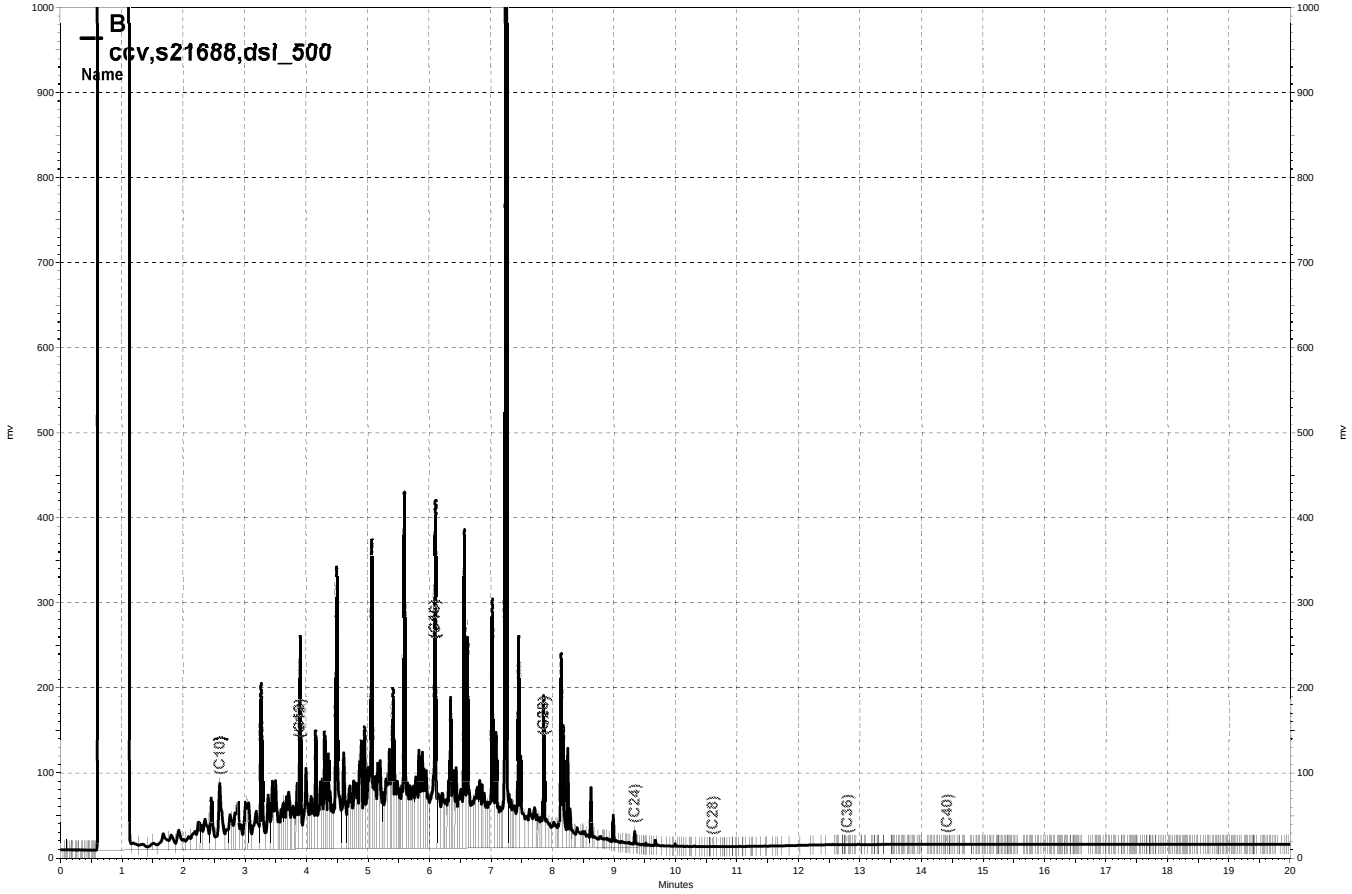

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 244135
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2007-65
2198 6th Street	Location : Bay Center Apts
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-13	244135-001
MW-14	244135-002
MW-15	244135-003
MW-3	244135-004
RW-1	244135-005

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

Signature: Tracy Babjar Date: 04/05/2013

Tracy Babjar
Project Manager
(510) 204-2226

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**244135**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**03/29/13**
Samples Received:	**03/29/13**

This data package contains sample and QC results for five water samples, requested for the above referenced project on 03/29/13. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
No analytical problems were encountered.

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

Chain of Custody Record

244135

Lab job no. _____
Date 3-29-13
Page 1 of 1

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

Method of Shipment HAND DELIVERY or LAB COURIER
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager R. MAKDISI
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: *(Signature)* _____

Project Owner _____
Site Address 6400 CHRISTIE AVE.
BERKELEY, CA
Project Name BAY CENTER APARTMENT
Project Number 2007-65

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TEH-D (8015M)	TPH-G (8015M)	BTEX + MTBE	Remarks
1	MW-13		3-29-13	0900				HCl/None			X	X	X	
2	MW-14			0935							X	X	X	
3	MW-15			1020							X	X	X	
4	MW-3			1050							X	X	X	
5	RW-1			1110							X	X	X	

Analysis Required

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	3-29-13	Signature	3-29-13	Signature		Signature	
Printed		Printed Will Rice		Printed		Printed	
Company Blaine Tech	Time 1227	Company C&T	Time 1227	Company	Time	Company	Time

Turnaround Time: STANDARD
Comments: EDF REQUIRED
GLOBAL ID # SLT2005561

Relinquished by:	Date	Received by:	Date
Signature		Signature	
Printed	Time	Printed	Time
Company		Company	

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 244135 Date Received 3/29/13 Number of coolers 1
Client SES Project Bay Center Apartment

Date Opened 3/29/13 By (print) MM (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.0

☒ 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
15 Samples - 001, -003, -004, -005, 1 of 4 VOAs w/ bubble >6mm.

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13

Field ID:	MW-13	Diln Fac:	100.0
Type:	SAMPLE	Batch#:	196990
Lab ID:	244135-001	Analyzed:	04/04/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	27,000	5,000	EPA 8015B
MTBE	ND	200	EPA 8021B
Benzene	5,600	50	EPA 8021B
Toluene	260	50	EPA 8021B
Ethylbenzene	1,300	50	EPA 8021B
m,p-Xylenes	910	50	EPA 8021B
o-Xylene	170	50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	76-128	EPA 8015B
Bromofluorobenzene (PID)	97	70-136	EPA 8021B

Field ID:	MW-14	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	196990
Lab ID:	244135-002	Analyzed:	04/03/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	11,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	2,300	13	EPA 8021B
Toluene	340	13	EPA 8021B
Ethylbenzene	280	13	EPA 8021B
m,p-Xylenes	280	13	EPA 8021B
o-Xylene	91	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	95	76-128	EPA 8015B
Bromofluorobenzene (PID)	98	70-136	EPA 8021B

Field ID:	MW-15	Lab ID:	244135-003
Type:	SAMPLE	Diln Fac:	33.33

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	15,000	1,700	197041	04/05/13	EPA 8015B
MTBE	ND	67	196937	04/03/13	EPA 8021B
Benzene	6,100	17	196937	04/03/13	EPA 8021B
Toluene	170	17	196937	04/03/13	EPA 8021B
Ethylbenzene	360	17	196937	04/03/13	EPA 8021B
m,p-Xylenes	220	17	196937	04/03/13	EPA 8021B
o-Xylene	46 C	17	196937	04/03/13	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	94	76-128	197041	04/05/13	EPA 8015B
Bromofluorobenzene (PID)	82	70-136	196937	04/03/13	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, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13

Field ID:	MW-3	Lab ID:	244135-004
Type:	SAMPLE	Diln Fac:	1.000

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	470 Y	50	196954	04/02/13	EPA 8015B
MTBE	8.6	2.0	196954	04/02/13	EPA 8021B
Benzene	1.3	0.50	196937	04/03/13	EPA 8021B
Toluene	0.68 C	0.50	196937	04/03/13	EPA 8021B
Ethylbenzene	2.1 C	0.50	196937	04/03/13	EPA 8021B
m,p-Xylenes	2.1 C	0.50	196937	04/03/13	EPA 8021B
o-Xylene	ND	0.50	196937	04/03/13	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	110	76-128	196954	04/02/13	EPA 8015B
Bromofluorobenzene (PID)	98	70-136	196937	04/03/13	EPA 8021B

Field ID:	RW-1	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	196990
Lab ID:	244135-005	Analyzed:	04/03/13

Analyte	Result	RL	Analysis
Gasoline C7-C12	280	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	2.7	0.50	EPA 8021B
Toluene	1.7	0.50	EPA 8021B
Ethylbenzene	2.5 C	0.50	EPA 8021B
m,p-Xylenes	1.0	0.50	EPA 8021B
o-Xylene	0.90	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	100	76-128	EPA 8015B
Bromofluorobenzene (PID)	101	70-136	EPA 8021B

Type:	BLANK	Batch#:	196937
Lab ID:	QC682375	Analyzed:	04/02/13
Diln Fac:	1.000	Analysis:	EPA 8021B

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

Surrogate	Result	%REC	Limits
Bromofluorobenzene (FID)	NA		
Bromofluorobenzene (PID)		86	70-136

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, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13

Type: BLANK Batch#: 196954
Lab ID: QC682459 Analyzed: 04/02/13
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)	95	76-128	EPA 8015B
Bromofluorobenzene (PID)	89	70-136	EPA 8021B

Type: BLANK Batch#: 196990
Lab ID: QC682626 Analyzed: 04/03/13
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)	91	76-128	EPA 8015B
Bromofluorobenzene (PID)	97	70-136	EPA 8021B

Type: BLANK Batch#: 197041
Lab ID: QC682839 Analyzed: 04/04/13
Diln Fac: 1.000

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

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	76-128	EPA 8015B
Bromofluorobenzene (PID)	100	70-136	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 #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196937
Units:	ug/L	Analyzed:	04/02/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682376

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.95	109	71-134
Benzene	10.00	9.866	99	80-120
Toluene	10.00	10.95	110	80-120
Ethylbenzene	10.00	10.12	101	80-120
m,p-Xylenes	10.00	10.63	106	80-120
o-Xylene	10.00	10.35	103	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	98	70-136

Type: BSD Lab ID: QC682377

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	11.43	114	71-134	4	50
Benzene	10.00	10.02	100	80-120	2	20
Toluene	10.00	11.40	114	80-120	4	20
Ethylbenzene	10.00	10.35	104	80-120	2	20
m,p-Xylenes	10.00	10.79	108	80-120	1	20
o-Xylene	10.00	10.42	104	80-120	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	86	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196954
Units:	ug/L	Analyzed:	04/02/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682456

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	11.31	113	71-134

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	101	70-136

Type: BSD Lab ID: QC682457

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	11.23	112	71-134	1	50

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	103	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	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:	QC682458	Batch#:	196954
Matrix:	Water	Analyzed:	04/02/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,098	110	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	98	76-128

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Field ID:	ZZZZZZZZZZ	Batch#:	196954
MSS Lab ID:	244171-011	Sampled:	03/28/13
Matrix:	Water	Received:	03/29/13
Units:	ug/L	Analyzed:	04/02/13
Diln Fac:	1.000		

Type: MS Lab ID: QC682460

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.5740	20.00	20.36	102	62-161

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	93	70-136

Type: MSD Lab ID: QC682461

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	21.55	108	62-161	6	60

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	94	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	196990
Units:	ug/L	Analyzed:	04/03/13
Diln Fac:	1.000		

Type: BS Lab ID: QC682623

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.92	109	71-134
Benzene	10.00	11.13	111	80-120
Toluene	10.00	10.61	106	80-120
Ethylbenzene	10.00	10.89	109	80-120
m,p-Xylenes	10.00	11.08	111	80-120
o-Xylene	10.00	11.15	112	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	101	70-136

Type: BSD Lab ID: QC682624

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.81	108	71-134	1	50
Benzene	10.00	10.55	106	80-120	5	20
Toluene	10.00	10.18	102	80-120	4	20
Ethylbenzene	10.00	10.49	105	80-120	4	20
m,p-Xylenes	10.00	10.68	107	80-120	4	20
o-Xylene	10.00	10.49	105	80-120	6	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	100	70-136

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	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:	QC682625	Batch#:	196990
Matrix:	Water	Analyzed:	04/03/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,044	104	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	76-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	196990
MSS Lab ID:	244215-001	Sampled:	04/01/13
Matrix:	Water	Received:	04/02/13
Units:	ug/L	Analyzed:	04/04/13
Diln Fac:	1.000		

Type: MS Lab ID: QC682627

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	14.83	2,000	1,902	94	76-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	76-128

Type: MSD Lab ID: QC682628

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,917	95	76-120	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	76-128

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	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:	QC682838	Batch#:	197041
Matrix:	Water	Analyzed:	04/04/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,055	106	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	76-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	197041
MSS Lab ID:	244268-001	Sampled:	04/03/13
Matrix:	Water	Received:	04/03/13
Units:	ug/L	Analyzed:	04/04/13
Diln Fac:	1.000		

Type: MS Lab ID: QC682840

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	611.6	2,000	2,500	94	76-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	102	76-128

Type: MSD Lab ID: QC682841

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,569	98	76-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	119	76-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

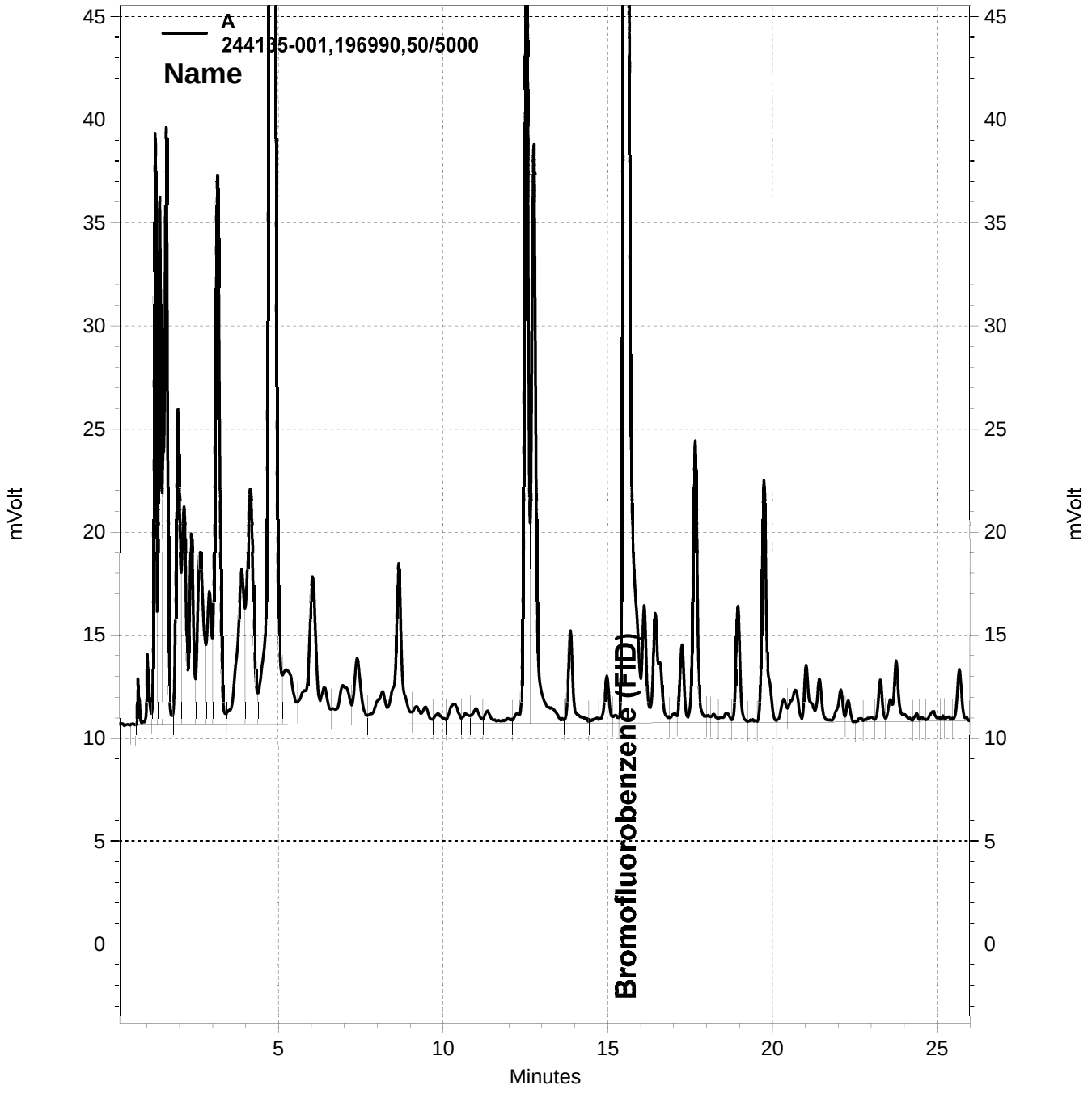
Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	244135	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:	QC682847	Batch#:	196937
Matrix:	Water	Analyzed:	04/02/13
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	11.43	114	71-134
Benzene	10.00	10.02	100	80-120
Toluene	10.00	11.40	114	80-120
Ethylbenzene	10.00	10.35	104	80-120
m,p-Xylenes	10.00	10.79	108	80-120
o-Xylene	10.00	10.42	104	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	86	70-136



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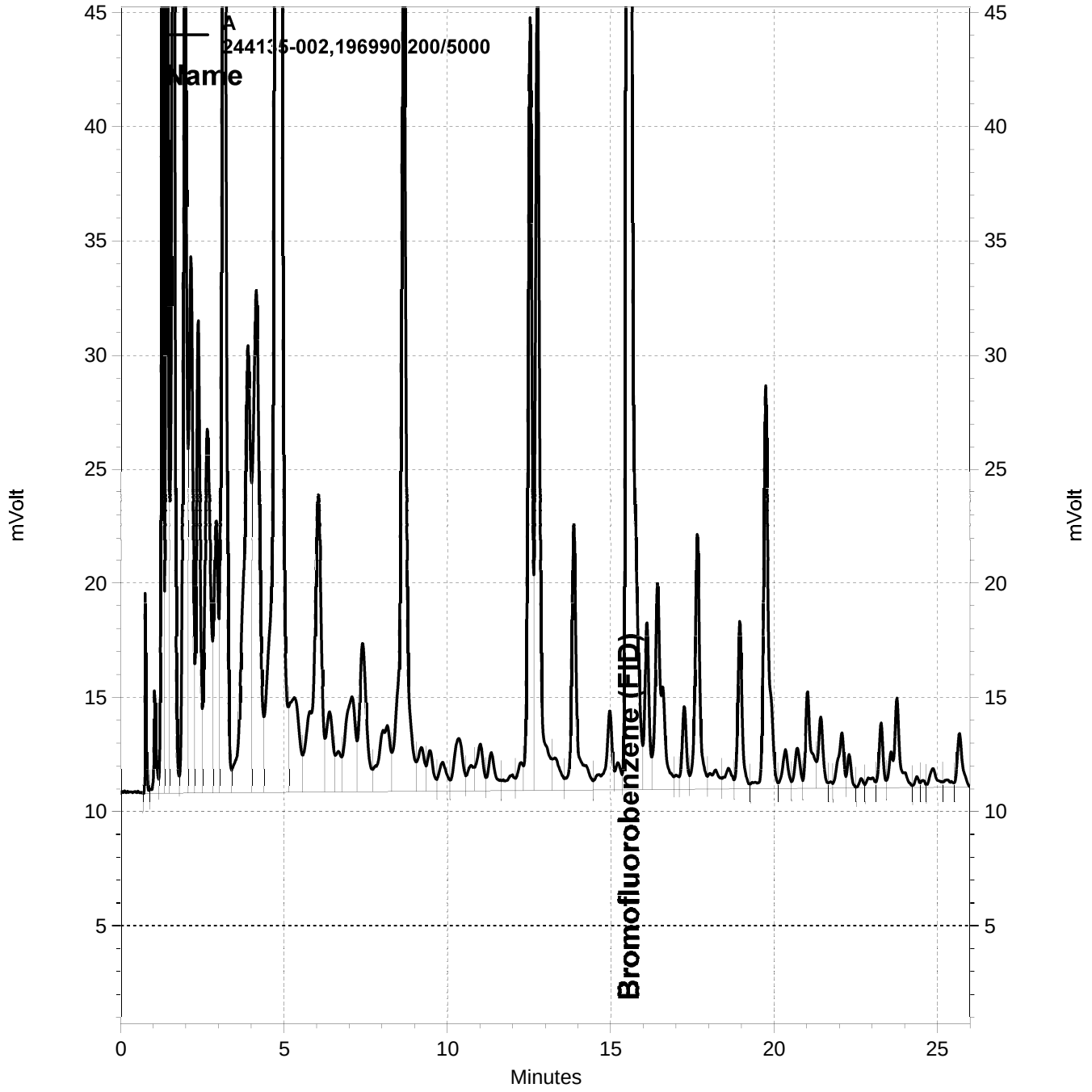

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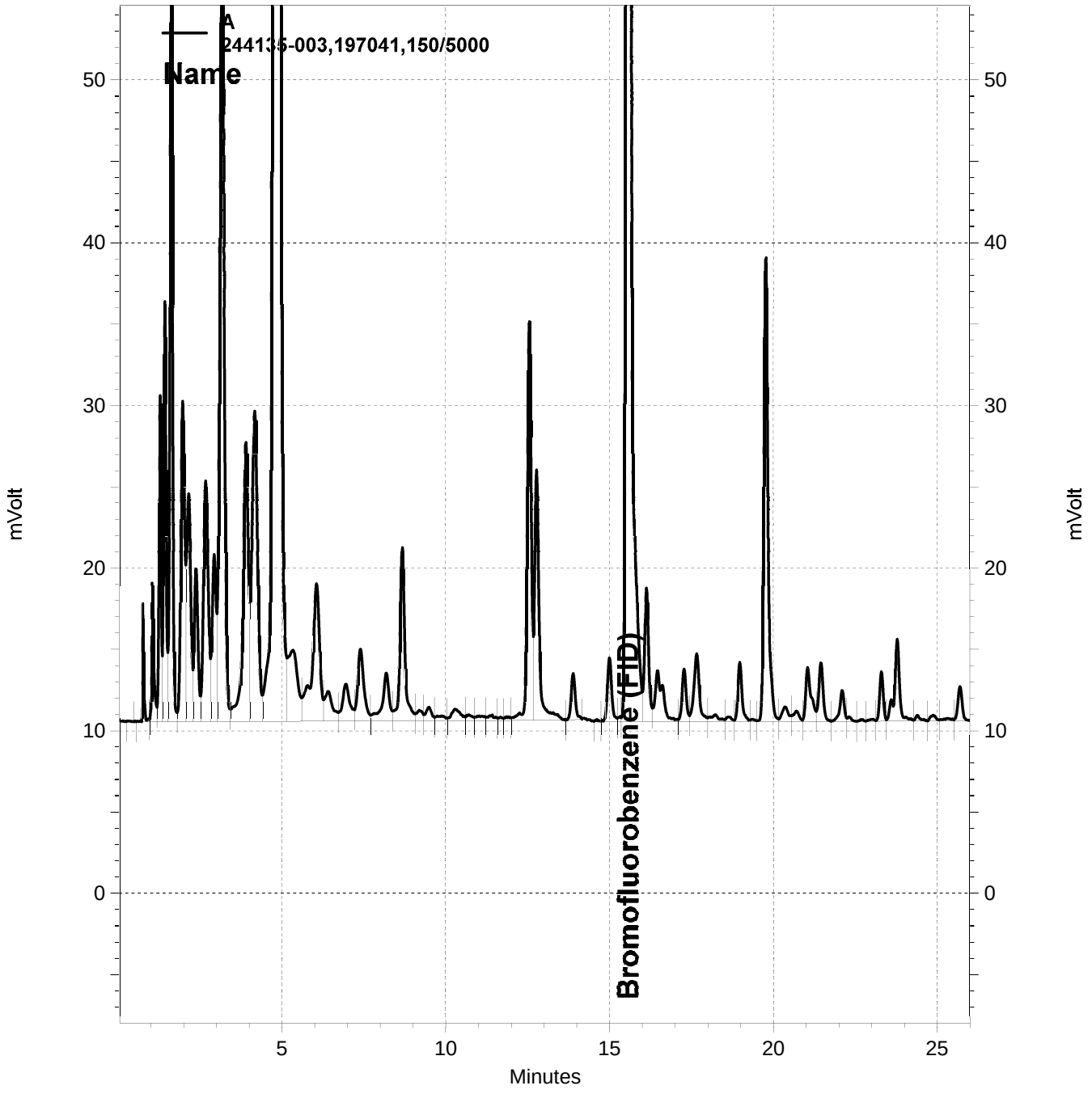

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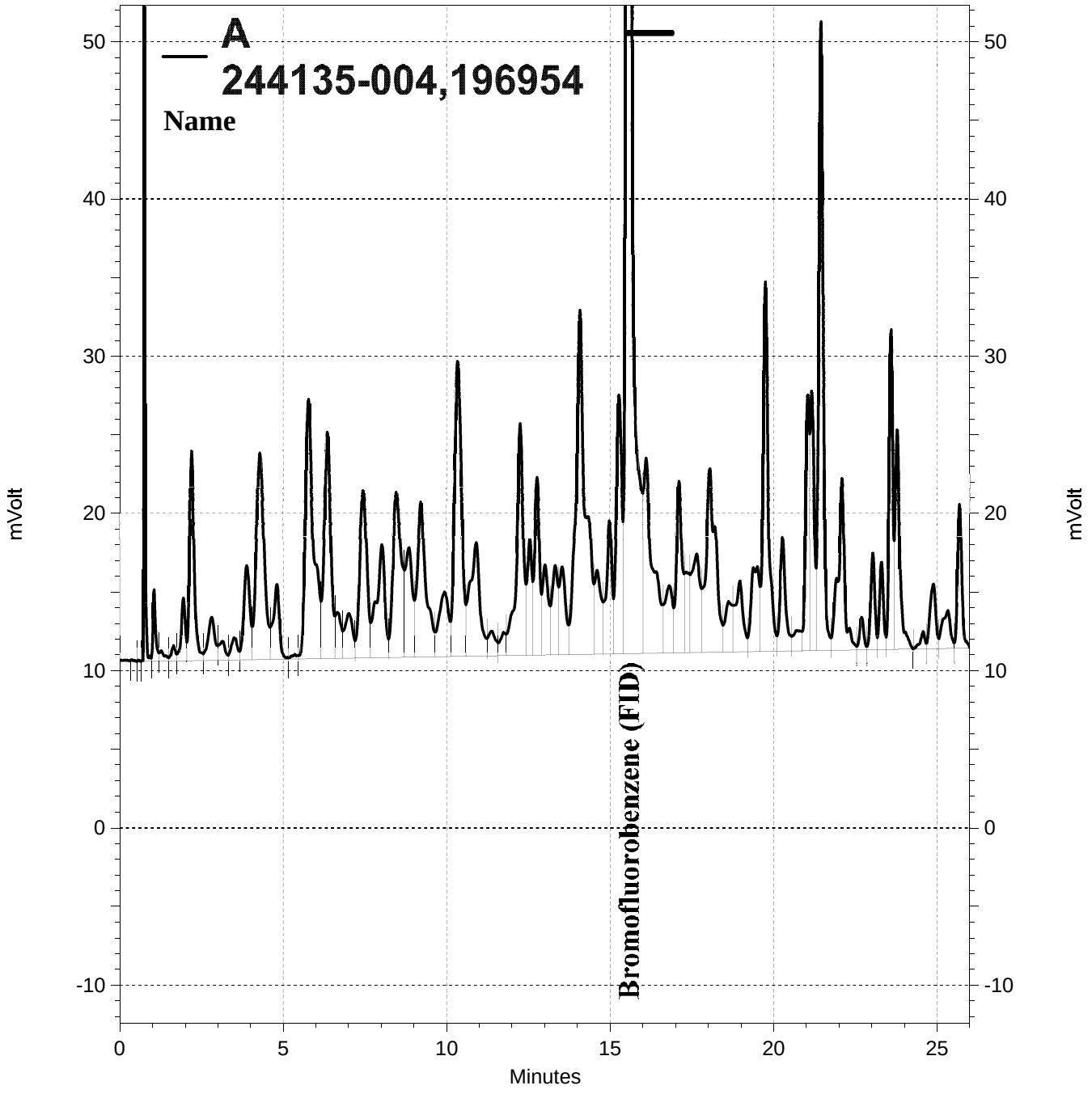

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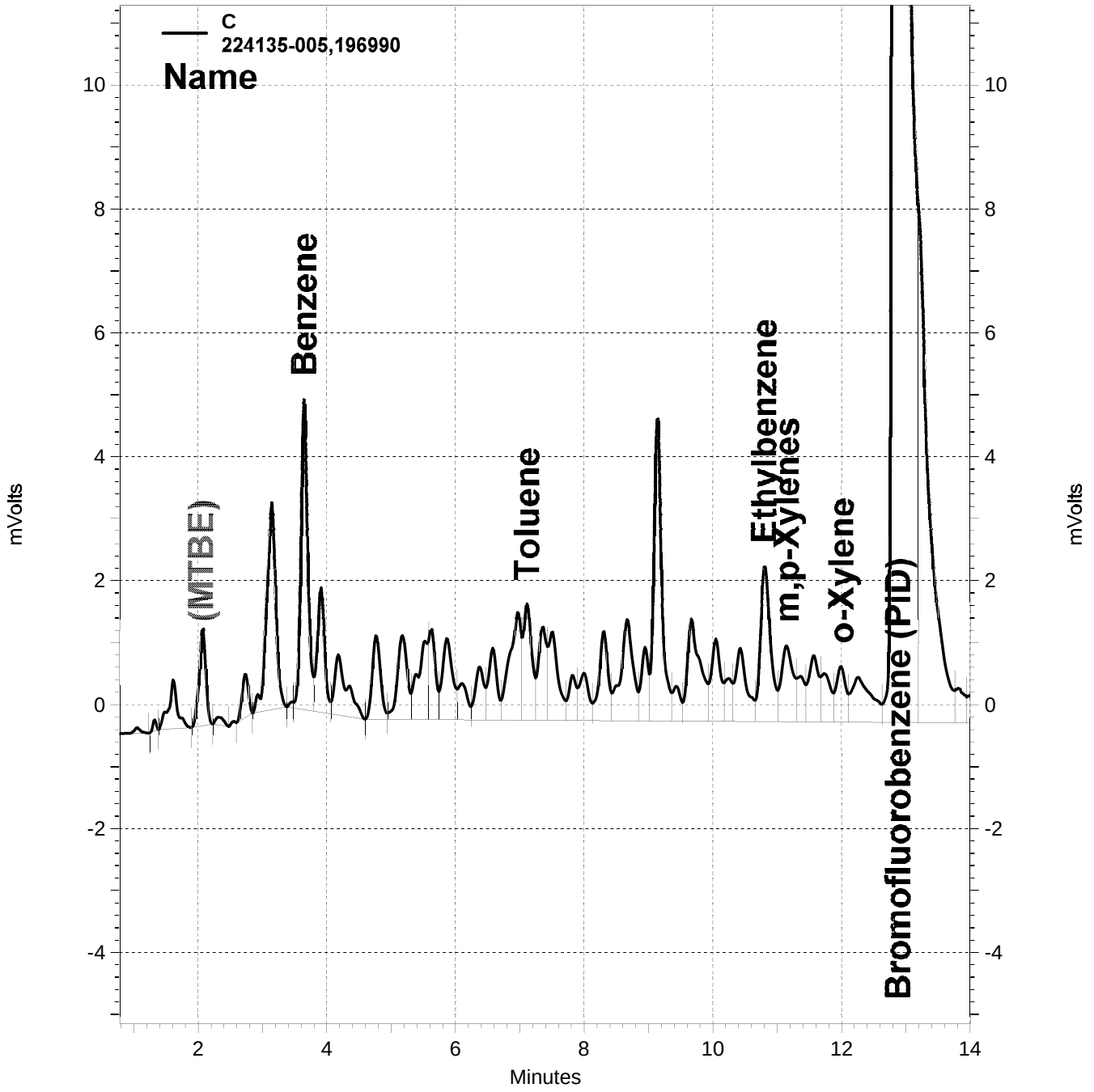

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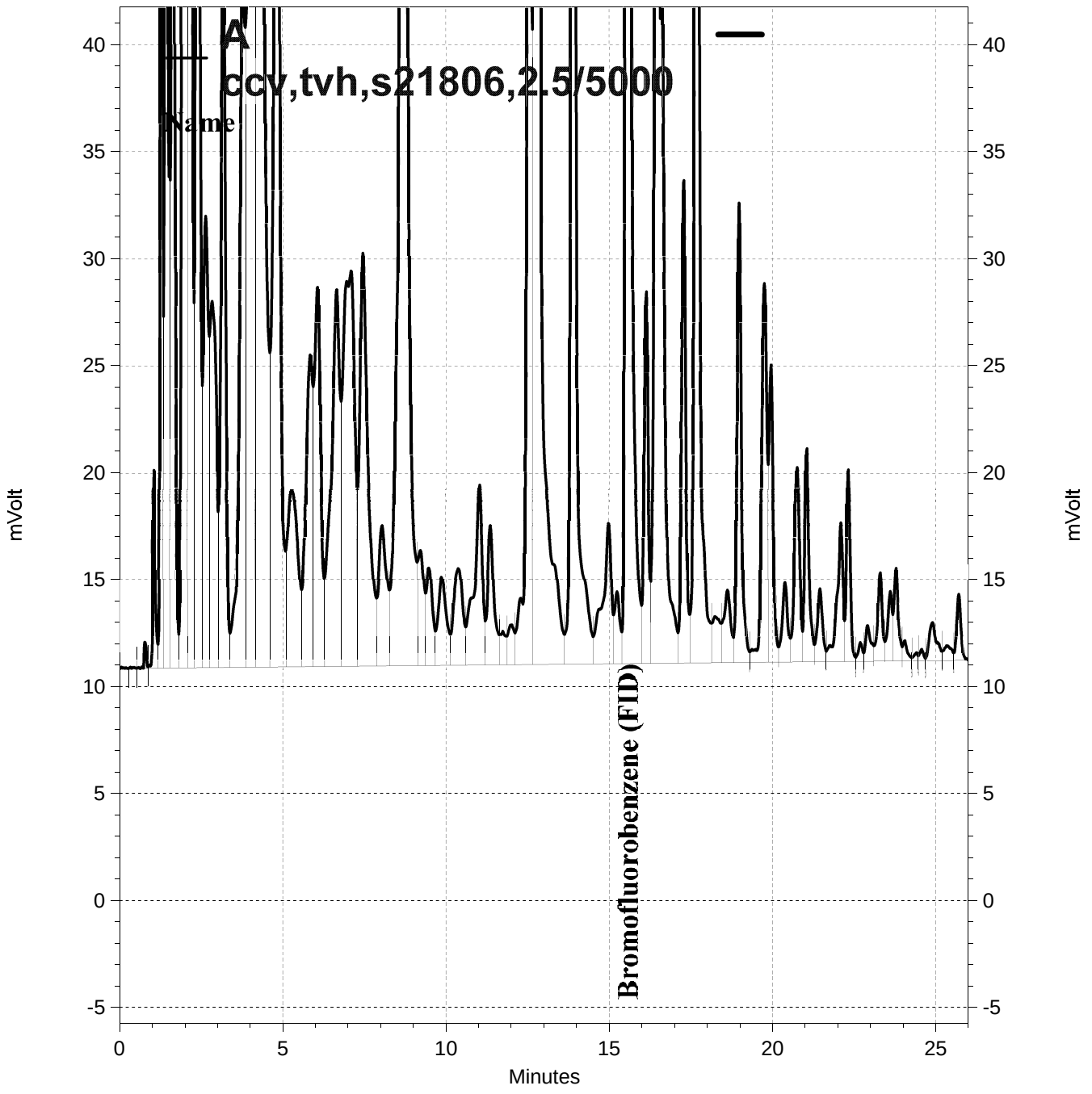

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13
Diln Fac:	1.000	Prepared:	03/29/13
Batch#:	196868	Analyzed:	03/30/13

Field ID: MW-13 Lab ID: 244135-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	23,000	50

Surrogate	%REC	Limits
o-Terphenyl	100	62-133

Field ID: MW-14 Lab ID: 244135-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	21,000	50

Surrogate	%REC	Limits
o-Terphenyl	92	62-133

Field ID: MW-15 Lab ID: 244135-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	3,100	50

Surrogate	%REC	Limits
o-Terphenyl	95	62-133

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/29/13
Units:	ug/L	Received:	03/29/13
Diln Fac:	1.000	Prepared:	03/29/13
Batch#:	196868	Analyzed:	03/30/13

Field ID: MW-3 Lab ID: 244135-004
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	15,000	50

Surrogate	%REC	Limits
o-Terphenyl	107	62-133

Field ID: RW-1 Lab ID: 244135-005
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	2,800	50

Surrogate	%REC	Limits
o-Terphenyl	110	62-133

Type: BLANK Lab ID: QC682081

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	92	62-133

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	244135	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	196868
Units:	ug/L	Prepared:	03/29/13
Diln Fac:	1.000	Analyzed:	03/30/13

Type: BS Lab ID: QC682082

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,988	80	59-120

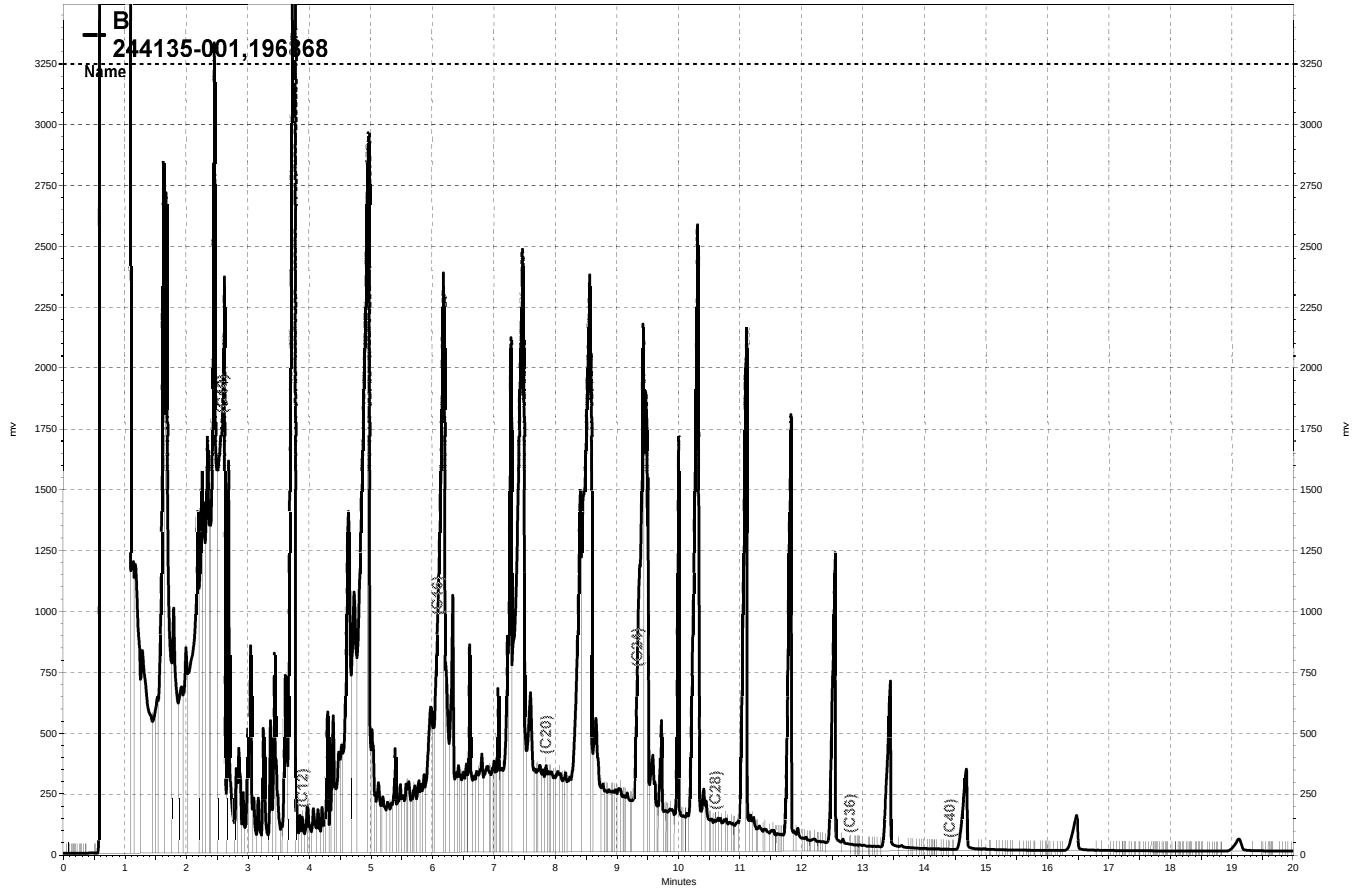
Surrogate	%REC	Limits
o-Terphenyl	101	62-133

Type: BSD Lab ID: QC682083

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,133	85	59-120	7	46

Surrogate	%REC	Limits
o-Terphenyl	101	62-133

RPD= Relative Percent Difference



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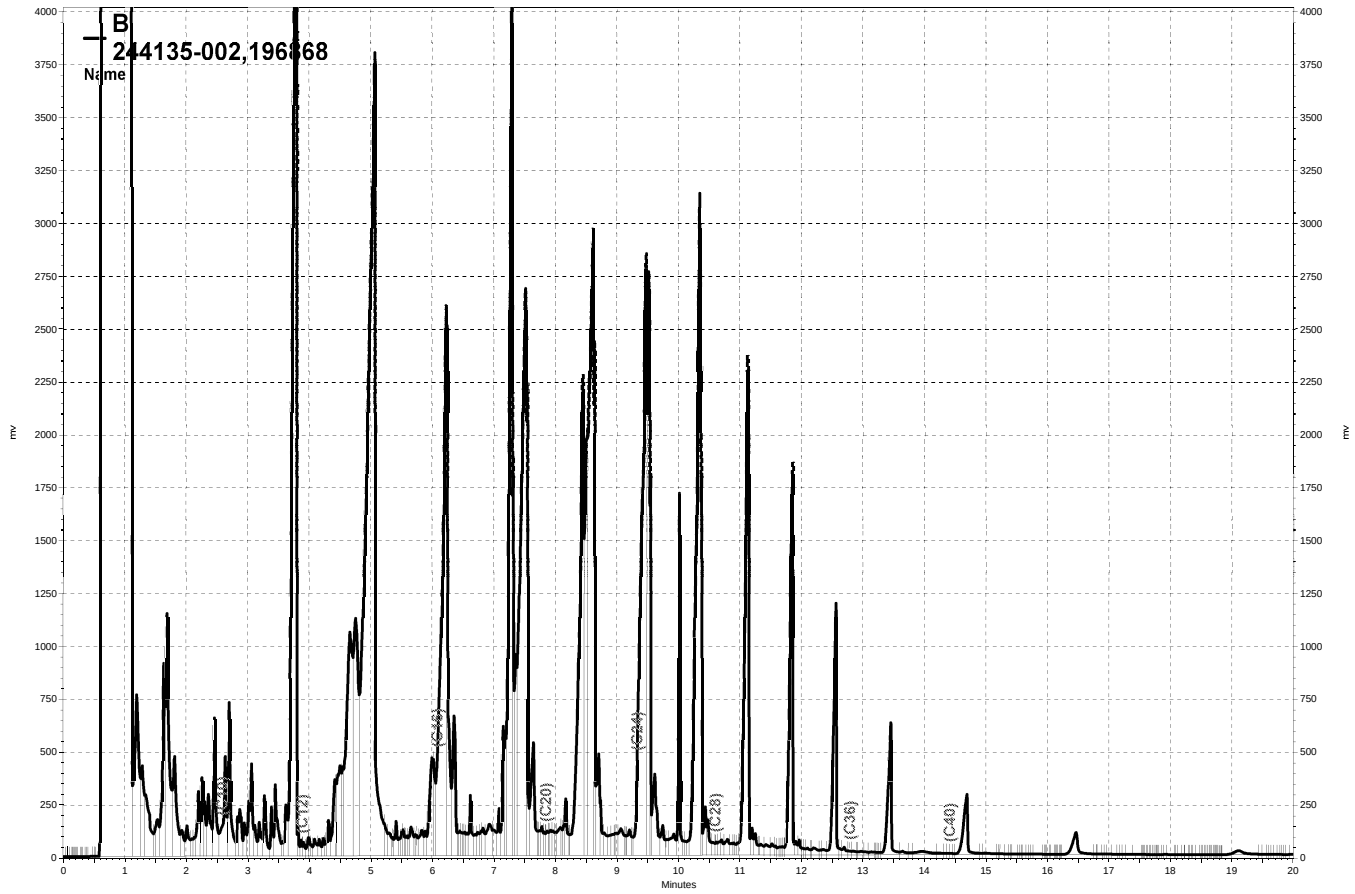

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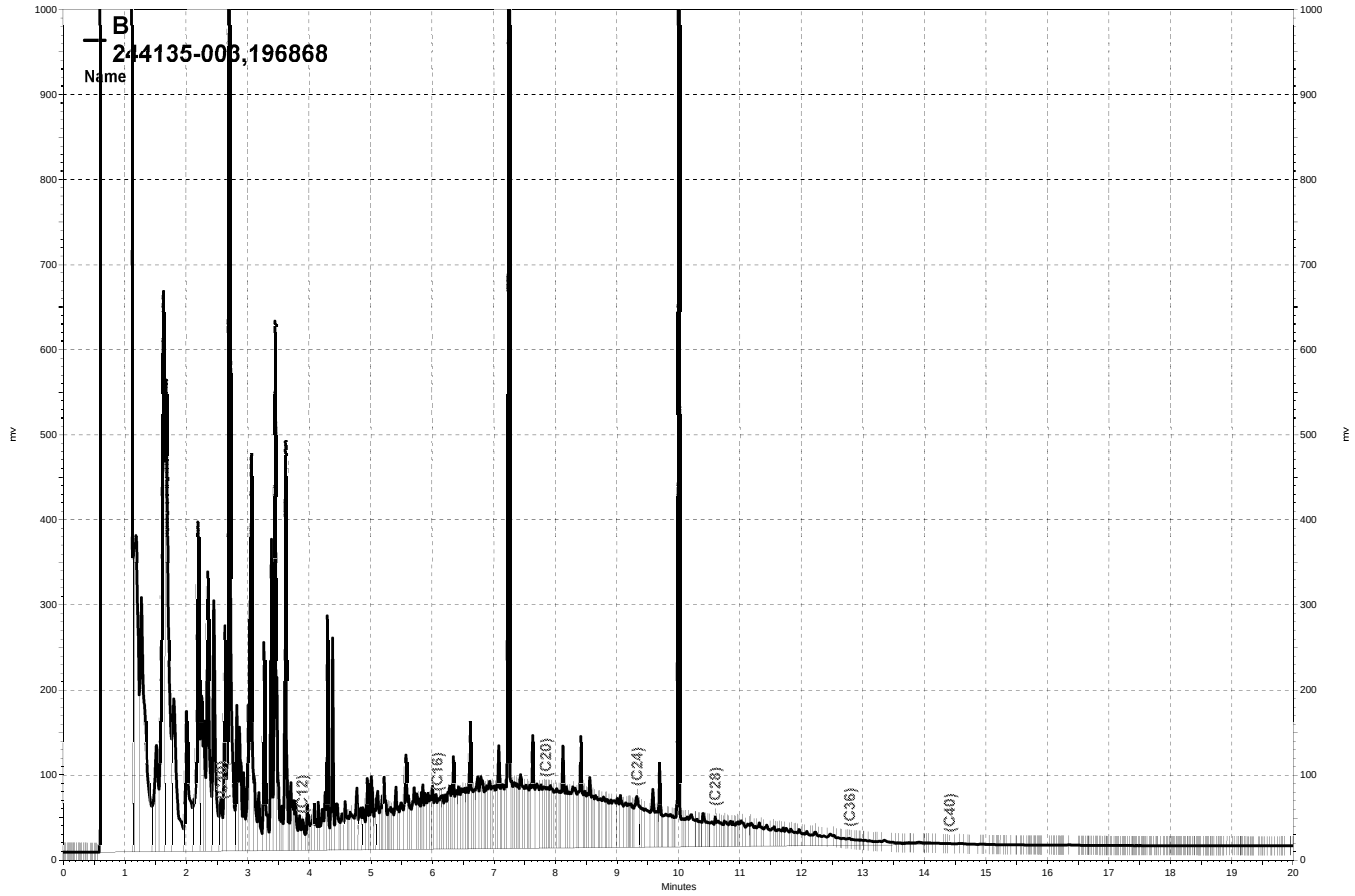

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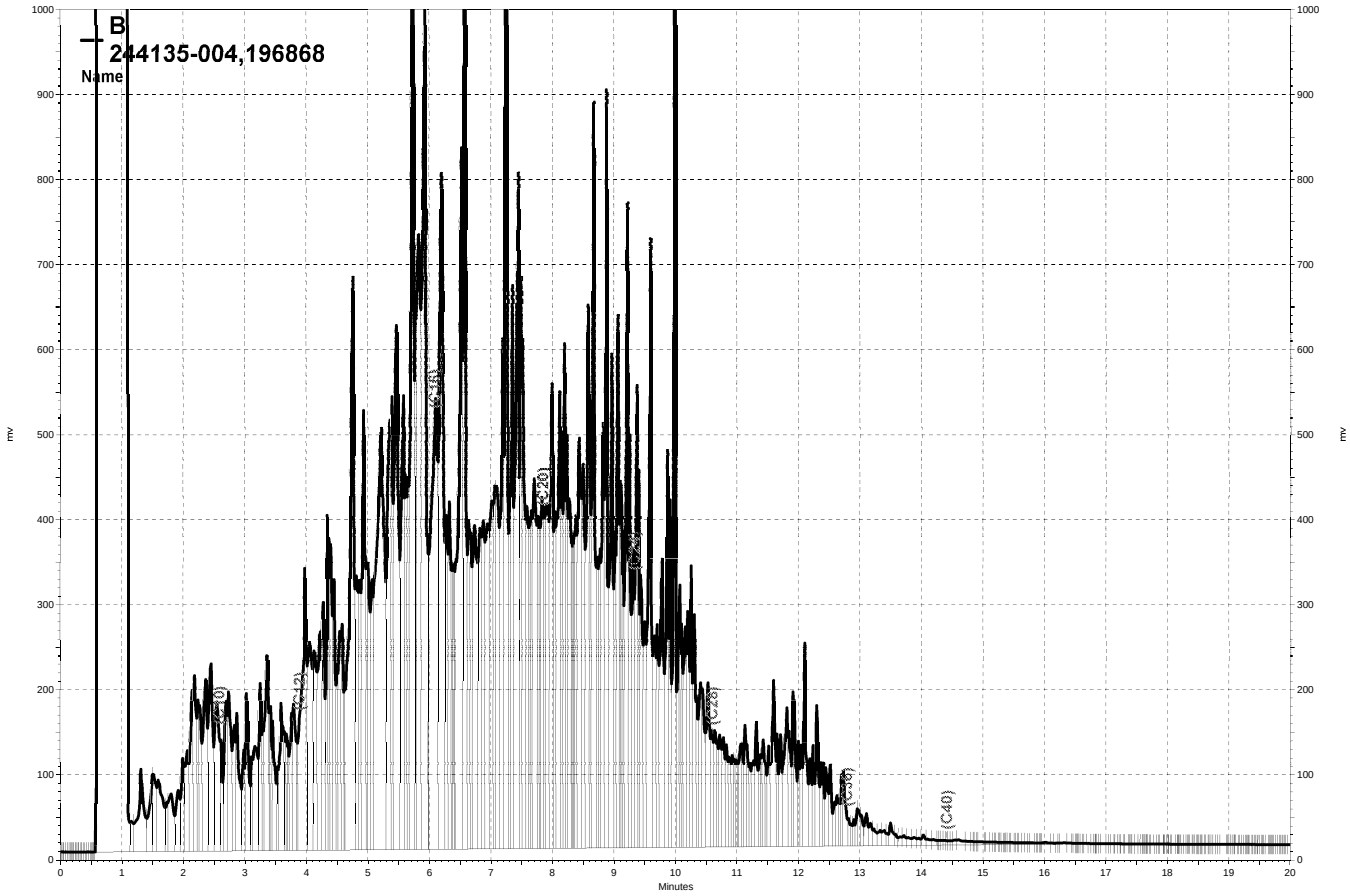

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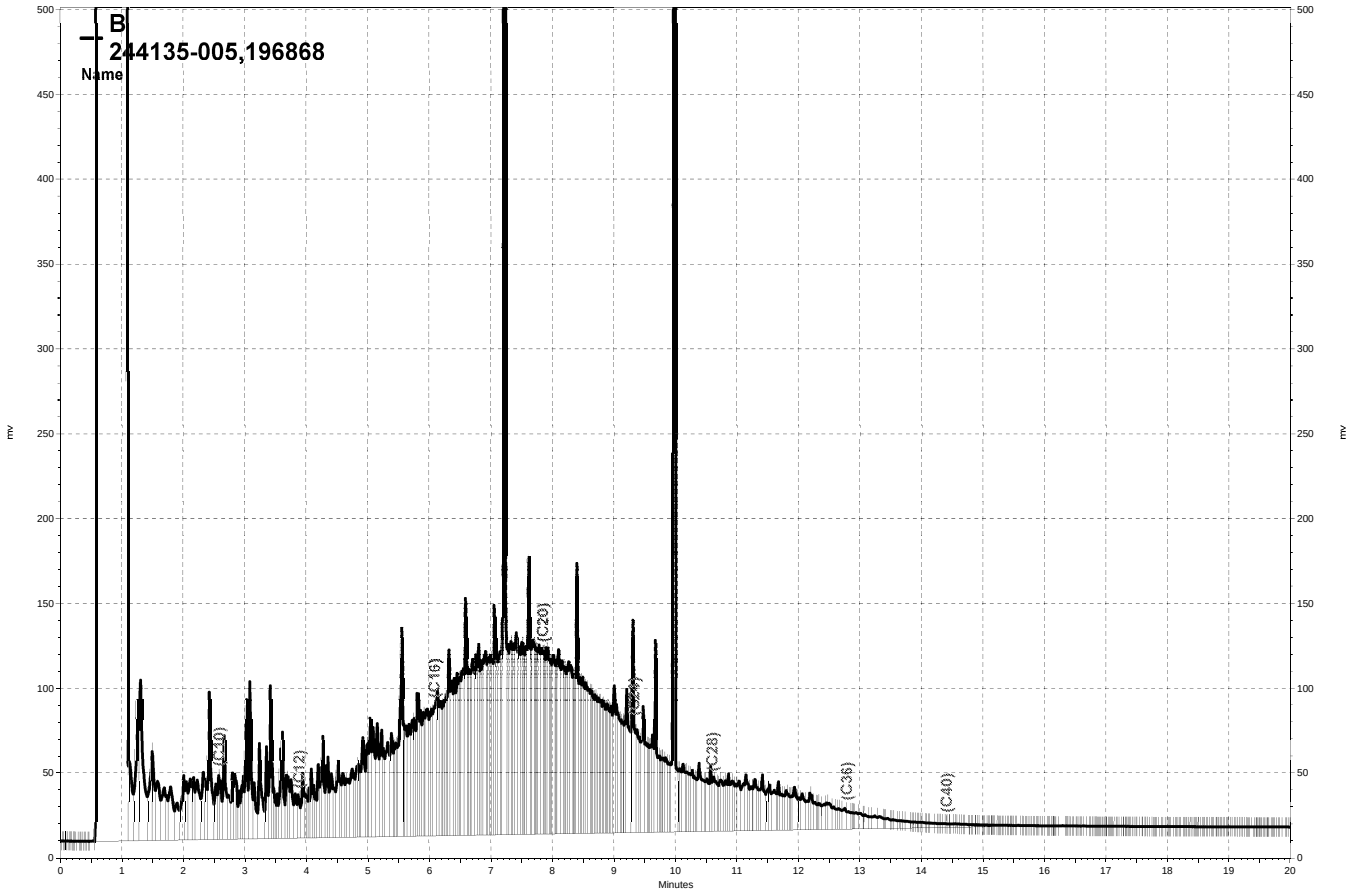

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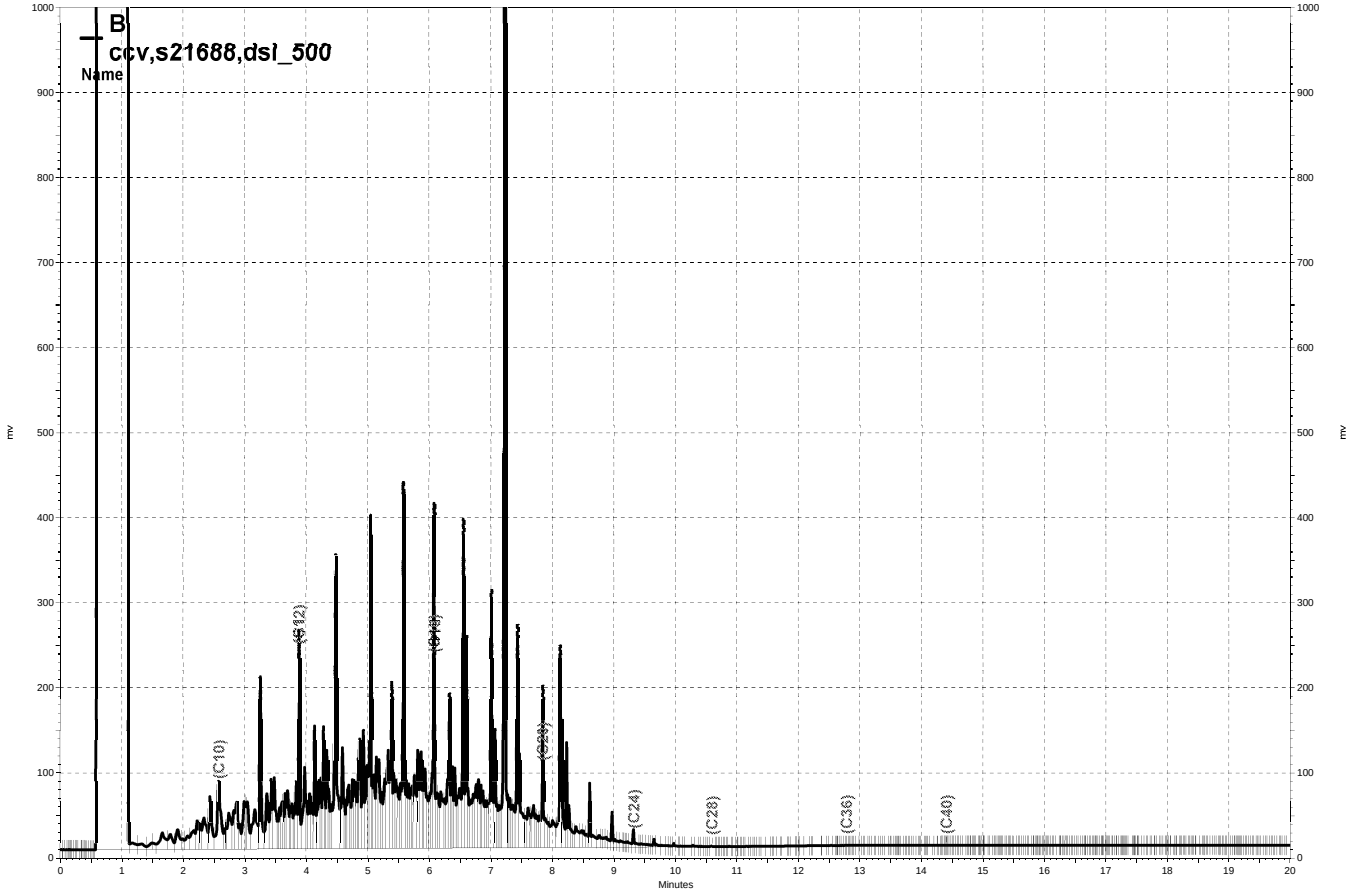

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APPENDIX D

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
19	Mar-13	16.65	11.27	NM	5.38

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
19	Mar-13	16.29	9.15	NP	7.14

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	NA	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
19	Mar-13	16.72	10.63	NP	6.09

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
19	Mar-13	16.82	7.60	NP	9.22

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
16	Mar-13	17.73	11.30	NP	6.43

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
16	Mar-13	17.84	9.95	9.59	7.89

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
16	Mar-13	17.84	10.08	NP	7.76

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
16	Mar-13	17.83	10.30	9.33	7.53

MW-11					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed May 2004					
1	Nov-06[d]	17.76[e]	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
15	Mar-13	17.76	10.62	NP	7.14

MW-12					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed between 2004-2006					
1	Nov-06[d]	17.83[e]	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
15	Mar-13	17.83	9.39	NP	8.44

MW-13					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed between 2004-2006					
1	Dec-06	17.66[e]	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[e]	9.72	7.75
9	Mar-10	17.66	9.22[e]	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
15	Mar-13	17.66	9.36	9.35	8.30

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
15	Mar-13	17.60	9.18	9.17	8.42

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[f]	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
15	Mar-13	17.80	9.45	NP	8.35

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
15	Mar-13	17.74	9.60	NP	8.14

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
15	Mar-13	18.17	9.17	NP	9.00

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	Sep-11	16.35	8.90	NP	7.45
13	Mar-12	16.35	8.56	NP	7.79
14	Sep-12	16.35	8.59	NP	7.76
15	Mar-13	16.35	9.92	NP	6.43

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[d]	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
19	Mar-13	17.47	10.41	NP	7.06

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[d]	18.32	9.15	9.11	9.17
6	Dec-07	16.70[c]	9.53 [e]	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[c]	NM[c]	NM[c]
10	Dec-08	16.70	NM	NM	NM
11	Mar-09	16.70	9.06 [e]	9.06	7.64
12	Sep-09	16.70	9.45 [e]	9.45	7.25
13	Mar-10	16.70	8.93 [e]	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
19	Mar-13	16.70	NM	9.99	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

[a] Wells resurveyed in May 1989

[b] New elevation recorded by PES. Date of survey unclear.

[c] Wells resurveyed by PES in April 2007

[d] no water level data available for the December 2006 sampling event

[e] Thickness of product interfered with determining oil/water interface.

[f] 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

	Well or Trench Location																											
Extraction Date	**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**	**Total Extracted**
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**
Mar-13	0.06	--	--	--	--	0.08	--	0.015	--	--	0.08	--	--	--	--	--	0.01	0.06	0.05	0.12	0.07	--	--	--	0.03	0.03	0.03	0.635
Total Extracted	**1.60**	**0.20**	**0.45**	**0.52**	**0.04**	**3.73**	**0.03**	**4.51**	**0.33**	**2.83**	**1.81**	**0.66**	**2.70**	**0.26**	**2.03**	**0.07**	**0.23**	**76.69**	**21.98**	**25.91**	**28.74**	**2.55**	**3.08**	**2.37**	**4.80**	**3.04**	**3.04**	**194.20**

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

EnviroClean MSDS

[illegible] copy to [illegible] P.O. Box [illegible] Sacramento, CA 95812-[illegible] within 30 days.**

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) EES-4 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAL000274[illegible]	1	1-800-424-9300	009434406 JJK

GENERATOR

5. Generator's Name and Mailing Address
STELLAR ENVIRONMENTAL SOLUTIONS
2148 SIXTH ST STE 201
BERKELEY, CA 94710
Generator's Phone: (510) 644-[illegible]

Generator's Site Address (if different than mailing address)
BAY CENTER APARTMENTS
[illegible] CHRISTIE ST
[illegible]

6. Transporter 1 Company Name: EVERGREEN ENVIRONMENTAL SERVICES — U.S. EPA ID Number: CAD982413282

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
EVERGREEN OIL, INC.
3820 SMITH AVENUE
NEWARK CA 94560
510-795-[illegible]
Facility's Phone:
U.S. EPA ID Number: CAD980887418

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA HAZARDOUS WASTE, LIQUID (Oily Water)	001	TT	1125	G	223
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
PROFILE # 76817
DOT ERG# 171 WEAR PROTECTIVE CLOTHING
INVOICE # [illegible]
SALES ORDER #

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/Offeror's Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[illegible]	9	22	13

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
[illegible]	[illegible]	9	22	13
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ 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

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

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 Req.	Quantity Pickup	Item Description	Manifest No.	Unit Price	Amount
2.00	2	HOURLY LABOR/TRANSPORTATION	009433220JJR	$0.00 Contract	C
1.00	1	WASHOUT FEE		$0.00 Contract	C
100.00	1100	NON-RCRA HAZARDOUS WASTE, LIQUID		$0.00 Contract	C

76819.

STEVE 510 612 6751.SM CALL 30 MIN BEFORE ARR IVING

TSDF

- [x] 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 1215 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

C

Source: ☐ Collection Station ☐ Government ☐ Marine ☐ Agricultural ☐ Industrial

Retain Sample # _____

Generator certifies that it has established a program to reduce the volume or quantity & toxicity of the hazardous waste to the degree determined by generator to be economically practicable.

I hereby certify that I have read and have the authority to bind the above listed generator to the terms on the reverse side of this form.

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	Print Name	Route #	Date	Generator's Signature	Print Name	Date
	CRAIG M	2203	10-5-R		Steve Bittman	

MATERIAL SAFETY DATA SHEET

Product Name: ENVIROCLEAN

SECTION 1 MATERIAL IDENTIFICATION

PRODUCT NAME/DESCRIPTION: ENVIROCLEAN

DISTRIBUTED / MANUFACTURED BY:
ENVIRO CLEAN SERVICES, L.L.C.
PO BOX 721090
OKLAHOMA CITY, OK 73172

DATE: 5/27/2008
PHONE: 405-373-4545
EMERGENCY PHONE: 405-373-4548

SECTION 2 HAZARDOUS COMPONENTS

			OSHA (ACGIH) EXPOSURE LIMIT				
			TLVs(ACGIH)				
			TWA		STEEL		
CHEMICAL NAME	%W/W	CAS NUMBER	ppm	mg/m3	ppm	mg/m3	Other1
Proprietary Blend Of Ethoxylated Octylphenolic Surfactants							
Non-ionic water based liquid blend, concentrate							

This product does not contain any hazardous ingredients
as defined by CERCLA, and California's Prop. 65.

SECTION 3 HEALTH HAZARDS

IRRITATION
- ☑ SKIN ☐ SEVERE ☑ MODERATE
- ☑ EYE ☐ SEVERE ☑ MODERATE ☐ MILD (TRANSIENT)

CORROSIVITY
- ☐ SKIN ☐ 4HRS. (DOT) ☐ 24 HRS. (CPSC
- ☐ EYE ☐ MAY CAUSE BLINDNESS

SENSITIZATION ☐ SKIN ☐ RESPIRATORY ☐ ALLERGEN OTHER: None Known

INHALATION EFFECTS ☐ NARCOTIC EFFECT ☐ CYANOSIS ☐ ASPHYXIANT OTHER: None Known

LUNG EFFECTS (SPECIFY):

None Known

OTHER (SPECIFY):

☐ REPEATED CONTACT SKIN DEFATTER

OTHER (SPECIFY): Pre-existing skin and eye disorders may be aggravated by contact with this product.

SECTION 4 FIRST AID

INGESTION

☐ INDUCE VOMITING ☐ DON'T INDUCE VOMITING ☐ GIVE PLENTY OF WATER ☑ GET MEDICAL ATTENTION

☑ NEVER GIVE ANYTHING TO AN UNCONSCIOUS PERSON

DERMAL

☑ FLUSH WITH SOAP AND WATER ☑ GET MEDICAL ATTENTION ☑ CONTAMINATED CLOTHING - REMOVED AND LAUNDER ☐ CONTAMINATED SHOE - DESTROY

OTHER (SPECIFY):

None Known

EYE CONTACT

☑ FLUSH WITH WATER FOR 15 MINUTES ☑ GET MEDICAL ATTENTION

OTHER (SPECIFY):

Life and separate eyelids to aid in rinsing

INHALATION

☐ REMOVE TO FRESH AIR ☐ IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION ☐ GIVE OXYGEN ☑ GET MEDICAL ATTENTION

OTHER (SPECIFY):

None considered necessary.

SECTION 5 FIRE AND EXPLOSION DATA

CHARACTERISTICS:

FLASH POINT	>200 deg F
FLASH POINT METHOD(S)	NA
UPPER EXPLOSION LIMIT (UEL)	NA
LOWER EXPLOSION LIMIT (UEL)	NA
AUTOIGNITION TEMPERATURE	NA
FIRE HAZARD CLASSIFICATION (OSHA/NFPA)	0

EXTINGUISHING MEDIA

☐ WATER SPRAY ☐ WATER FOG ☐ WATER STREAM ☐ CO2 ☐ DRY CHEMICAL ☐ ALCOHOL FOAM

☐ FOAM ☐ EARTH OR SAND ☑ AS REQUIRED FOR FIRE BEING FOUGHT

SPECIAL FIRE FIGHTING PROCEDURES

☐ DON'T ENTER BUILDING ☐ ALLOW FIRE TO BURN ☑ WATER MAY CAUSE FROTHING ☐ DON'T USE WATER ☑ USE SELF-CONTAINED BREATHING APPRATUS

OTHER (SPECIFY): None Known

SPECIAL FIRE FIGHTING PROCEDURES

☐ DUST EXPLOSION HAZARD ☐ SENSITIVE TO SHOCK ☐ CONTAMINATION ☐ TEMPERATURE

OTHER (SPECIFY): None Known

SECTION 6 ACCIDENTAL RELEASE MEASURES

STEP TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

☑ FLUSH WITH WATER ☑ ABSORB WITH SAND OF INERT MATERIAL ☐ NEUTRALIZE ☐ SWEEP OR SCOOP UP AND REMOVE

☐ KEEP UPWIND ☑ PREVENT SPILLS ☑ DISPOSE OF PROMTLY

OTHER (SPECIFY): Remove with vacuum truck or pump to storage/salvage vessel.

SECTION 7 HANDLING AND STORAGE

PRECAUTIONARY LABELING

- [x] WASH AFTER HANDLING
- [x] DON'T GET IN EYES, SKIN, CLOTHING
- [x] DON'T BREATHE DUST, VAPOR, GAS
- [x] KEEP CONTAINTER CLOSED
- [ ] KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES
- [x] STORE IN TIGHTLY CLOSED CONTAINERS
- [ ] DON'T STORE NEAR COMBUSTIBLES
- [x] KEEP FROM CONTACT WITH CLOTHING
- [ ] EMPTY CONTAINER MAY CONTAIN HAZARDOUS RESIDUE
- [ ] USE EXPLOSION PROOF EQUIPMENT

OTHER (SPECIFY):

Keep this and all chemicals out of reach of children.

OTHER HANDLING AND STORAGE CONDITIONS

Storage: 35 - 120 deg F Shelf Life: Unlimited unopened

SECTION 8 PERSONAL PROTECTION/EXPOSURE CONTROLS

VENTILATION REQUIREMENTS - ALWAYS KEEP EXPOSURE BELOW PERMISSIBLE EXPOSURE LIMITS

- [ ] CONSULT AN INDUSTRIAL HYGIENIST
- [x] LOCAL EXHAUST
- [ ] USE ADEQUATE VENTILATION
- [ ] CHECK FOR AIR CONTAMINANT

OTHER (SPECIFY): Not Known

EYE

- [ ] FACE SHIELD AND GOGGLES
- [x] SAFTEY GLASSES
- [ ] GOGGLES

HAND

- [ ] BUTYL RUBBER
- [x] POLYVINYL ALCHOHOL
- [x] POLYVINYL CHLORIDE
- [ ] POLY-ETHYLENE
- [x] NATURAL RUBBER
- [ ] NEOPRENE

OTHER (SPECIFY): None Known

RESPIRATORY

- [ ] SELF-CONTAINED
- [ ] SUPPLIED AIR
- [ ] CAN OR CARTRIDGE GAS OR VAPOR
- [ ] FILTER-DUST, FUME, MIST

OTHER (SPECIFY): Not required for normal use

OTHER PROTECTIVE EQUIPMENT

- [ ] RUBBER BOOTS
- [ ] APRON

OTHER (SPECIFY): Eye wash

SECTION 9 PERSONAL PROTECTION/EXPOSURE CONTROLS

PHYSICAL FORM	Clear Liquid
COLOR	Colorless unless dyed
ODOR	Nil (unless fragranced)
PH	8.5 +/- .25
VAPOR PRESSURE (mm Hg)	NA
VAPOR DENSITY (AIR = 1)	NA
BOILING POINT	NE
FREEZING/MELTING POINT	NE
SOLUBILITY IN WATER	100%
SPECIFIC GRAVITY (WATER = 1)	1.028 +/- .01
EVAPORATION RATE (BUTYLACETATE = 1)	>1 as compared to water
VISCOSITY (CPS)	9 CP
MOLECULAR WEIGHT	NE

NA = NOT APPLICABLE NE = NOT ESTABLISHED

SECTION 10 STABILITY AND REACTIVITY

STABILITY ☑ STABLE ☐ UNSTABLE

CONDITIONS CONTRIBUTING TO INSTABILITY

☐ THERMAL DECOMPOSITION ☐ PHOTO DEGRADATION ☐ POLYMERIZATION ☐ CONTAMINATION

OTHER (SPECIFY): None known

INCOMPATIBILITY - AVOID CONTACT WITH

☐ STRONG ACIDS ☐ STRONG ALKALIS ☐ STRONG OXIDIZERS

OTHER (SPECIFY): None Known

HAZARDOUS DECOMPOSITION PRODUCTS - THERMAL AND OTHER (LIST)

None Known

CONDITIONS TO AVOID

☐ HEAT ☐ OPEN FLAMES ☐ SPARKS ☐ IGNITION SOURCES

OTHER (SPECIFY): None Known

SECTION 11 TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY EFFECTS DATA

Eyes: Moderate irritation

Skin: May aggravate pre-existing skin and/or eye disorders or conditions.

Ingestion: Moderate Irritation

Inhalation: None known

IRRITATION EFFECTS DATA

None Known

OTHER ACUTE EFFECTS

None Known

CHRONIC/SUBCHRONIC DATA

None Known

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

None Known

ENVIRONMENTAL FATE

Not Known

ADDITION INFORMATION

None Known

SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 14 TRANSPORT INFORMATION

NON-HAZARDOUS

SECTION 15 REGULATORY INFORMATION

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES LIST:

NA

SARA 312 HAZARD CATEGORY:

NA

SARA 313 TOXIC CHEMICALS LIST:

NA

CERCLA (COMPREHENSIVE ENVIROMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT:

NA

RCRA (RESOURCE CONSERVATION AND RECOVERY ACT) LISTED HAZARDOUS WASTES:

NA

CWA (CLEAN WATER ACT) LISTED SUBSTANCES:

NA

FDA (FOOD AND DRUG ADMINISTRATION):

NA

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are listed

NFPA HAZARD INFORMATION SIGN

0 HEALTH HAZARD (BLUE DIAMOND)

4 - DEADLY
3 - EXTREME DANGER
2 - HAZARDOUS
1 - SLIGHTLY HAZARDOUS
0 - NORMAL MATERIAL

0 REACTIVITY HAZARD (YELLOW DIAMOND)

4 - MAY DETONATE
3 - SHOCK AND HEAT MY DETONATE
2 - VIOLENT CHEMICAL CHANGE
1 - UNSTABLE IF HEATED
0 - STABLE

0 FIRE HAZARD (RED DIAMOND)

FLASH POINTS:
4 - BELOW 73 F
3 - BELOW 100 F
2 - BELOW 200 F
1 - ABOVE 200 F
0 - WILL NOT BURN

SPECIFIC HAZARD (WHITE DIAMOND)

OXY	OXIDIZER
ACID	ACID
ALK	ALKALI
COR	CORROSIVE
W	USE NO WATER

SECTION 16 INTERNATIONAL REGULATIONS

CANADA

DSL:

NA

WHMIS HAZARD CLASSIFICATIONS:

NA

WHMIS TRADE SECRET REGISTRY NUMBER(S):

NA

WHMIS HAZARDOUS INGREDIENTS:

NA

WHMIS SYMBOLS:

NA

EUROPEAN ECONOMIC COMMUNITY (EEC)

EINECS MASTER INVENTORY:

NA

EEC PRIMARY RISK SYMBOL:

NA

EEC RISK AND SAFETY PHRASES:

NA

THIS INFORMATION IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HOLDING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.

PREPARED BY: Jeff Schulhoff