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SECOND SEMIANNUAL 2017 GROUNDWATER MONITORING AND PRODUCT EXTRACTION REPORT

BRIDGEWATER APARTMENTS PHASE I PARKING GARAGE
6400 CHRISTIE AVENUE
EMERYVILLE, CALIFORNIA

Prepared for:

EMERYBAY COMMERCIAL ASSOCIATION
EMERYVILLE, CA 94608

September 2017

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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EMERYVILLE, CALIFORNIA

Prepared for:

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

Prepared by:

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

September 28, 2017

Project No. 2007-65

STELLAR
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September 28, 2017

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

Subject: Second Semiannual 2017 Groundwater Monitoring & Product Extraction Report
EmeryBay Commercial Association Phase I Condo Parking Garage
6400 Christie Avenue, Emeryville, California.

Dear Mr. Detterman:

Enclosed is the Stellar Environmental Solutions, Inc. report summarizing the site activities conducted in September 2017 at the referenced site. This report is being submitted on behalf of the owner and Responsible Party, Emerybay Commercial Association. Subject site activities since the first semiannual monitoring event of 2017 include collecting and analyzing groundwater samples from the three trench well arrays to evaluate the viability of previous 2015 and 2016 Nutrisulfate® injections, a product extraction event and the second semiannual 2017 groundwater monitoring event.

This report summarizes the 29th sampling event conducted at the site since 1988. The bulk of the residual contamination beneath the site remains concentrated around wells MW-8, MW-10, MW-12, MW-13, MW-14, MW-15, MW-E, RW-1, and the plume underlying the parking garage. 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.

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

If you have any questions regarding this report, please contact us at (510) 644-3123.

Sincerely,

Richard S. Makdisi, P.G.
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.

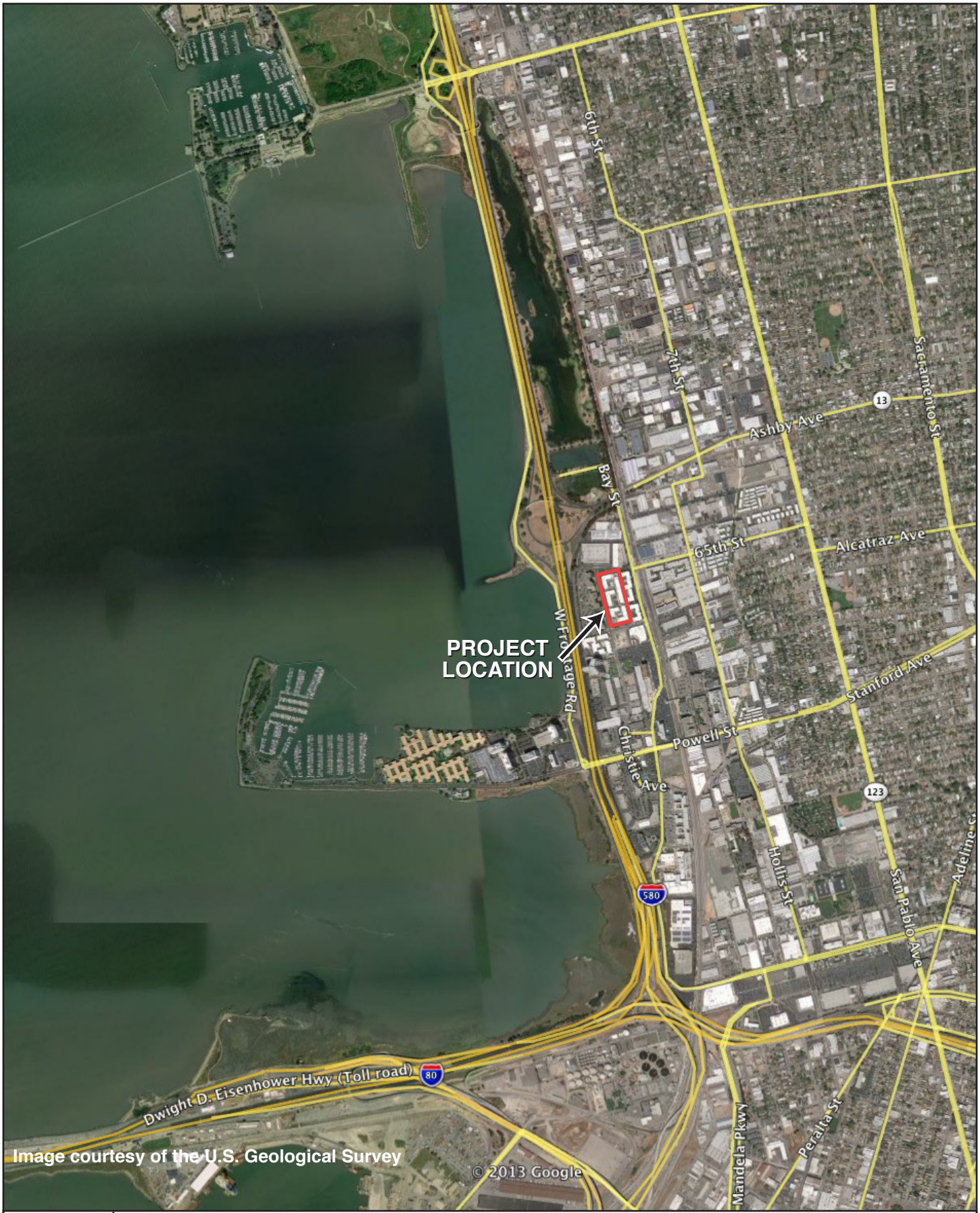
SITE AND VICINITY DESCRIPTION

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 Bridgewater 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 Street, beyond Christie Avenue and to the west by the Bay Center Offices, and to the south by 64th Street with new commercial developments beyond. 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 | SEPTEMBER 2017

Figure 1

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SITE PLAN AND ADJACENT LAND USE

6400 Christie Ave. Emeryville, CA	By: MJC	SEPTEMBER 2017
	Figure 2	

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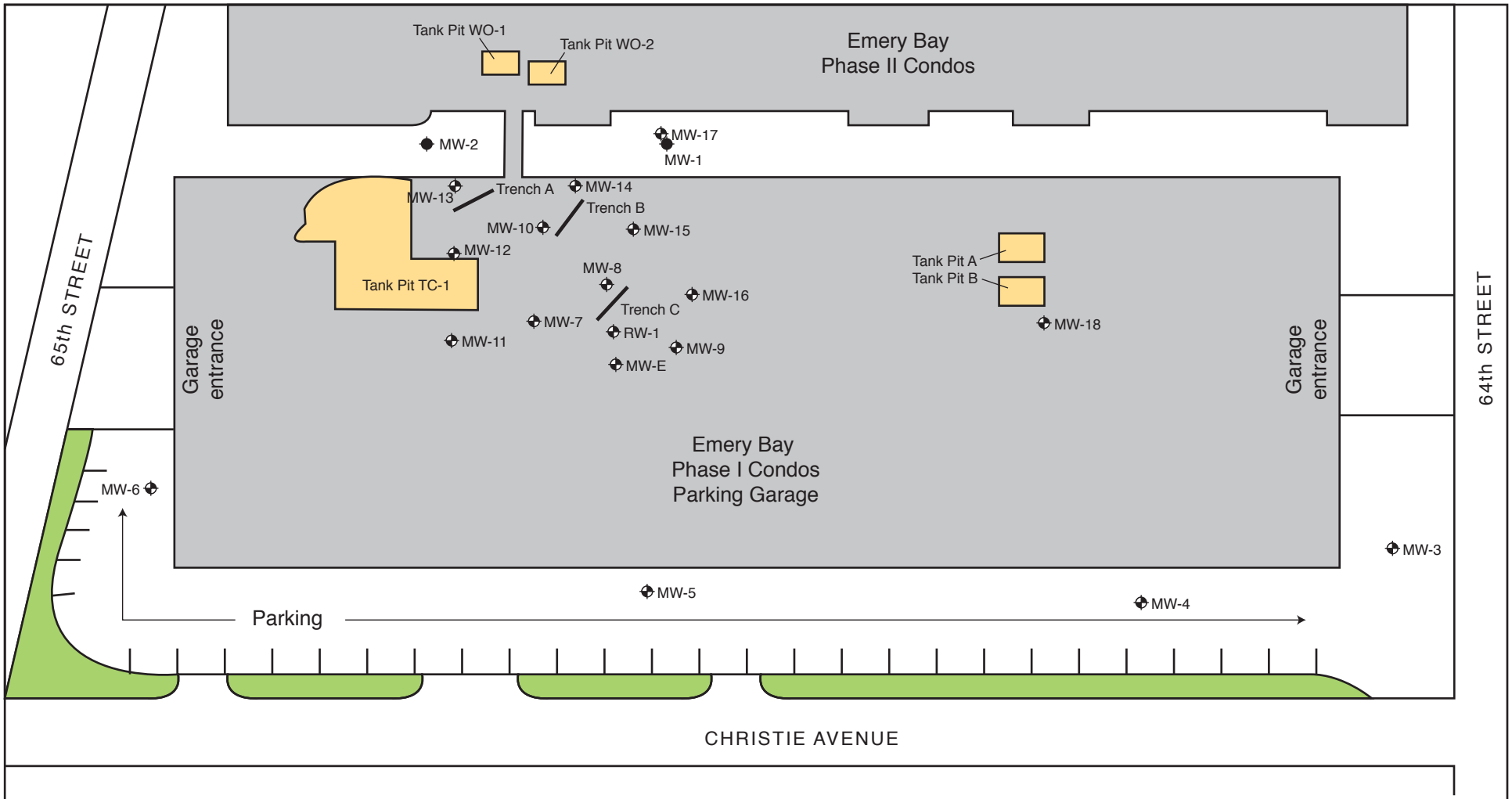
The subsurface contamination originated from the trucking terminal that was operated by the Garrett Freight Line and Delta Lines, and existed at the site of the Bay Center Apartments before its development in the late 1980s. Site investigations identified a total of 12 UFSTs in three areas of the trucking 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 in the 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 (Stellar



LEGEND

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

0 60

SCALE: 1/2" = 60 FEET

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MONITORING WELL AND TRENCH LOCATIONS

6400 Christie Ave., Emeryville, CA

Figure 3

by: MJC | SEPTEMBER 2017

2007-65-02

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.

In March 2014, Stellar Environmental Solutions conducted a groundwater investigation that consisted of advancing five soil borings in the areas between wells MW-3 on the southern edge of the site and MW-18 in the garage and downgradient of MW-3, with the goal to locate a suspected source of residual subsurface hydrocarbons. The reason for this additional work was based on the recent uptrend in diesel concentration noted in well MW-3 since the late 2012 initiation of construction de-watering at the 6340 Christie Avenue (ACHCSA Case # RO0000057) property across 64th Street, south of the subject property garage area.

The impact the dewatering had on the subject site was apparent in terms of both the changes to the site hydrology—with the change in the groundwater flow regime from west/northwest to having a southern component—as well as a hydrochemical impact. The hydochemical impact, as documented in the Y2013 and Y2014 site monitoring reports, was to draw the hydrocarbon plume southward, increasing the concentrations of TEHd by orders of magnitude at well MW-3 near the subject property south border, compared to the previous 5 years of monitoring that showed stable results. The TEHd concentration at MW-3 increased from 15,000 µg/L TEHd in April 2013 to 250,000 µg/L TEHd in September 2013. The relatively stable TEHd concentration present in well MW-18 since 2012, suggested a possible undiscovered source between these two wells impacting well MW-3. However, the plume appears to have stabilized since the cessation of construction dewatering at the site across 64th Street along with the product recovery efforts in the garage area. The groundwater flow direction and plume geometry has now reverted to the pre-pumping groundwater regime. The TVHg and TEHd concentrations in well MW-3 have substantially decreased with March 2015 through the current September 2017 monitoring events since the highest concentrations of 2013.

OBJECTIVES AND SCOPE OF WORK

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

- Collect groundwater samples from the central trench wells (TA-M, TB-M and TC-M) in each of the three arrays on September 1, 2017 and laboratory analyze the samples for dissolved iron, nitrates, sulfates, pH, dissolved oxygen, oxidation reduction potential and for hydrocarbons. The goal of this work is to track the viability of the Nutrisulfate® product injected into trench well arrays A and C in 2015 and 2016. Nutrisulfate® is a high sulfate metabolic supplement designed to enhance the kinetics and efficiency of microbial systems

specifically related to bioremediation of BTEX, MTBE, and other petroleum hydrocarbons. The wells in trench array B are not receiving the product and act as control wells.

- Active extraction on all groundwater monitoring wells and recovery well RW-1 on August 31, 2017 and September 1, 2017.
- Record water levels in site wells to determine groundwater flow direction.
- Sampling of site monitoring wells for contaminant analysis on September 4 and 5, 2017.
- 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), currently overseen by Mr. Mark Detterman. 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, 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 November 2012 and March 2013 monitoring reports warned ACEH of impacts from the adjacent site dewatering at 6340 Christie Avenue and tracked the pull of the hydrocarbon plume to the southern property boundaries. The cessation of dewatering from the adjacent southern development, along with selected well purging at Bay Center, resulted in a re-equilibration of the plume back closer to its former geometry since the 2014 monitoring events.

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, 2008 and 2014.

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

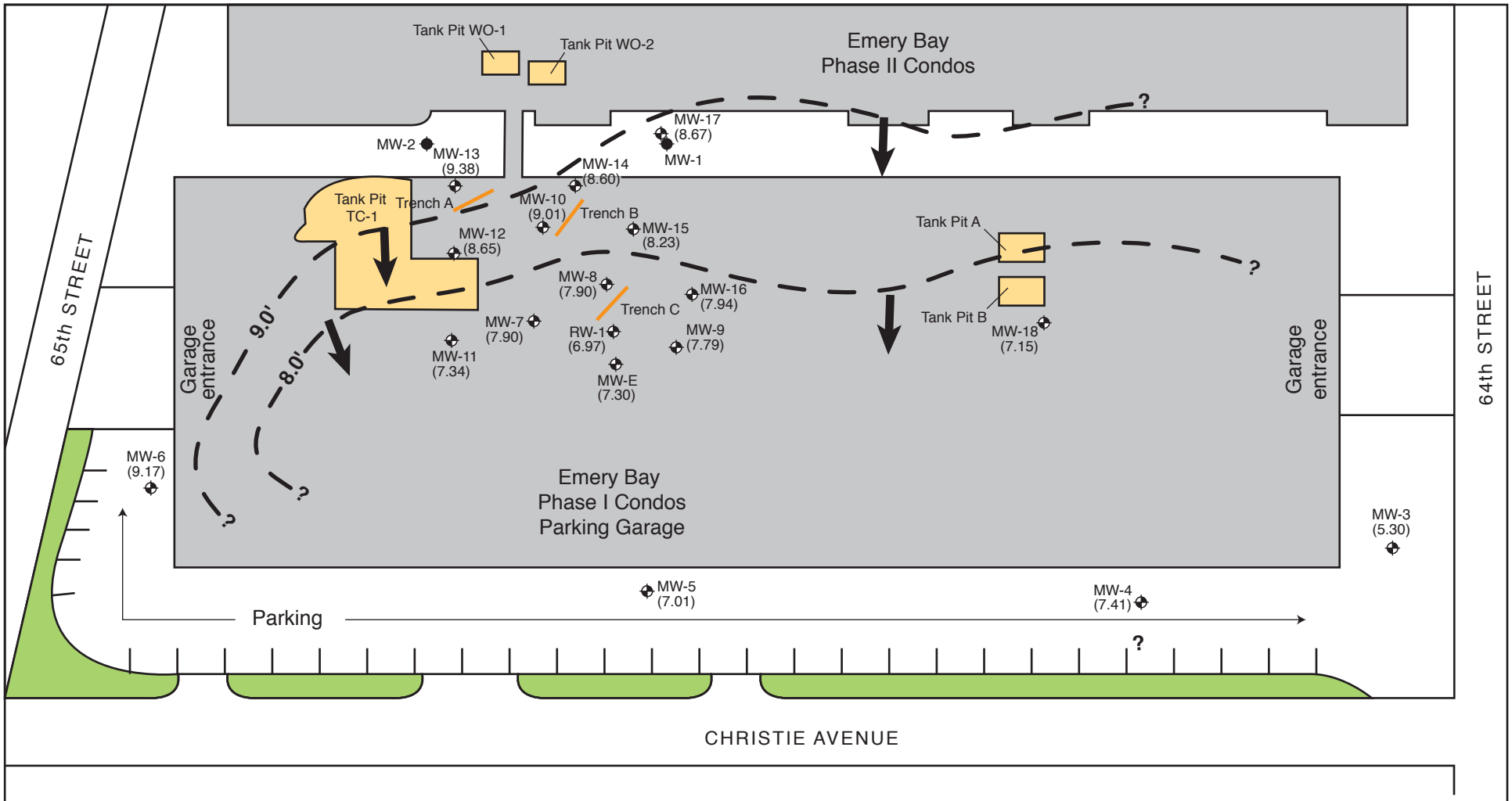
The subject property area is underlain with material mapped "Qhbm," designated early Pleistocene alluvium, that is moderately consolidated, deeply weathered, poorly sorted, irregularly interbedded clay, silt, sand, and gravel. A geotechnical survey conducted in 1985 revealed that the upper 15 to 20 feet 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 flow direction measured during the September 2017 monitoring event was generally towards the west. The localized, approximately southerly direction to groundwater flow in the area of MW-3 noted in the 2013 monitoring events, thought to be the result of construction dewatering that had been occurring during 2013 at the re-development site across 64th Street, appears to have dissipated for the current event, since that de-watering has been discontinued since February of 2014. According to current and historical water level data obtained from onsite monitoring wells, depth to groundwater beneath the site ranges from approximately 7.75 to 11.01 feet below ground surface (bgs). Groundwater elevations recorded during the previous Fall monitoring event in September 2016, ranged from 5.69 feet (MW-3) to 9.77 feet (MW-6) above mean sea level (amsl). For this Fall monitoring event of September 2017, groundwater elevations ranged from 5.30 feet (MW-3) to 9.38 feet (MW-13) above mean sea level, with the average groundwater gradient for the current monitoring event being 0.007 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
- Groundwater elevation contour in feet amsl
- Historical tank pit area
- Landscaping
- Inferred direction of groundwater flow
- Extrapolated groundwater elevation contour
- * Groundwater elevation not used in determining contour due to the presence of free product, or in areas affected by landscape irrigation

NM = Depth to groundwater could not be measured due to the presence of tar

0 40

SCALE: 1/2" = 40 FEET

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GROUNDWATER ELEVATION MAP — September 4, 2017

6400 Christie Ave., Emeryville, CA

Figure 4

by: MJC | SEPTEMBER 2017

2007-65-113

3.0 SEPTEMBER 2017 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 18 site 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.

SEPTEMBER 2017 TRENCH WELL SAMPLING

Stellar Environmental collected groundwater samples from the central trench wells (TAM, TBM and TCM) in each of the three arrays on September 1, 2017 and submitted the samples for laboratory analysis for dissolved iron, nitrates, sulfates, pH, dissolved oxygen, oxidation reduction potential and for hydrocarbons. The goal of this work is to track the viability of the Nutrisulfate® product injected into trench well arrays A and C in 2015 and 2016. Nutrisulfate® is a high sulfate metabolic supplement designed to enhance the kinetics and efficiency of microbial systems specifically related to bioremediation of BTEX, MTBE, and other petroleum hydrocarbons. The wells in trench array B are not receiving the product and act as control wells.

CURRENT SEPTEMBER 2017 MONITORING EVENT

Blaine Tech Services conducted groundwater monitoring well level measurements, purging, sampling, and field analyses on September 4 and 5, 2017 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 summarizes the September 2017 groundwater level data.

Approximately 600 gallons of water and a trace of product (0.008 gallons or about 1 oz) of product were removed/purged from wells during the active product removal on August 31, 2017 and September 1, 2017. The water generated during the active product and water removal was stored in a 1,100 gallon above ground storage tank located in a fenced compound onsite pending removal by Belshire Environmental Services, Inc..

Table 1

September 4 and 5, 2017
Groundwater Monitoring Well Construction and Groundwater Elevation Data
6400 Christie Avenue, Emeryville, California

Well	Well Depth (feet bgs)	Screened Interval	Top of Well Casing Elevation [(a)]	Depth to Free Product (TOC)	Thickness of Free Product (feet)	Groundwater Elevation (September 4-5, 2017)
MW-3	25	5 to 20	16.65	11.35	Can't Measure	5.30
MW-4	25	5 to 20	16.29	NP	NP	7.41
MW-5	25	5 to 20	16.72	NP	NP	7.07
MW-6	25	5 to 20	16.82	NP	NP	9.17
MW-7	20	5 to 20	17.73	NP	NP	7.01
MW-8	16	5 to 16	17.84	9.70	0.24	7.90
MW-9	20	5 to 20	17.84	NP	NP	7.79
MW-10	20	5 to 20	17.83	8.80	0.02	9.01
MW-11	20	5 to 20	17.76	NP	NP	7.34
MW-12	20	5 to 20	17.83	NP	NP	8.65
MW-13	20	5 to 20	17.66	NP	NP	9.38
MW-14	20	5 to 20	17.60	NP	NP	8.60
MW-15	20	5 to 20	17.80	9.55	0.02	8.23
MW-16	20	5 to 20	17.74	NP	NP	7.94
MW-17	20	5 to 20	18.17	NP	NP	8.67
MW-18	20	5 to 20	16.35	NP	NP	7.15
MW-E	47	7 to 40	17.47	NP	NP	7.30
RW-1	30	unknown	16.70	NP	NP	6.99
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.

4.0 REGULATORY CONSIDERATIONS, ANALYTICAL RESULTS, AND DISCUSSION OF FINDINGS

This section presents analytical results of the current monitoring event and summarizes relevant regulatory considerations. Appendix C contains the certified analytical laboratory report.

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. This western area of Emeryville is also generally known as a brownfield area where ubiquitous groundwater contamination makes groundwater use problematic. The basin is shallow in this area, with depths of less than 300 feet. Groundwater in this area has been 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, 2016), 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 analytical results for the site monitoring wells for the current sampling event that occurred September 4 and 5, 2017.

Table 2
Groundwater Sample Analytical Results – September 4 and 5, 2017
6400 Christie Avenue, Emeryville, California

Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	380	**5,000**	**17**	< 0.5	< 0.5	0.64	< 2.0
MW-4	<50	**290**	< 0.5	< 0.5	< 0.5	< 0.5	2.8
MW-5	< 50	**1,400**	< 0.5	< 0.5	< 0.5	< 0.5	2.7
MW-6	<50	**570**	0.83	<0.5	<0.5	<0.5	< 2.0
MW-7	**1,200**	**3,800**	**320**	11	**14**	45.2	< 10
MW-8	**24,000**	**7,100**	**6,400**	82	**550**	**170**	< 170
MW-9	**510**	**3,800**	**6.1**	< 2.5	< 2.5	< 2.5	< 10
MW-10	**8,700**	**1,800**	**1,900**	65	<25	42	< 10
MW-11	**2,100**	**3,800**	**210**	34	**18**	**60**	< 10
MW-12	**6,200**	**2,100**	**1,400**	36	<13	< 13	< 50
MW-13	**13,000**	**7,200**	**3,100**	58	**340**	**120**	< 100
MW-14	**8,600**	**3,900**	**2,200**	97	**120**	**62**	< 100
MW-15	**15,000**	**2,900**	**4,900**	68	**43**	**46**	< 100
MW-16	< 250	**3,200**	**13**	<2.5	< 2.5	< 2.5	< 10
MW-17	**6,700**	**3,100**	**840**	**170**	**59**	**137**	< 50
MW-18	< 250	**1,900**	< 2.5	< 2.5	< 2.5	< 2.5	< 10
MW-E	**16,000**	**3,200**	**4,400**	120	**410**	**359**	< 100
RW-1	**660**	**680**	**86**	<0.5	3.0	3.4	< 2.0
ESLs [(a)]	**100 / 440**	**100 / 640**	**1.0 / 1.1**	**40 / 130**	**13 / 13**	**20 / 100**	**5.0 / 180**

Notes:

[(a)] Water Board Environmental Screening Levels for residential sites where groundwater *is*/*is not* a likely drinking water resource (Water Board, 2016).

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 likely drinking water resource.

Table 3 below, summarizes the analytical results for TPHg/d and MBTEX for the trench wells. In order to begin tracking the effectiveness of the Nutrisulfate® product that was introduced into trench well arrays A and C in 2015 and 2016, sampling of the central wells (TAM, TBM and TCM) in all three trench well arrays was conducted on June 24, 2016, February 8, 2017 and most recently on September 1, 2017. Trench well TBM has not received the Nutrisulfate® product and is a control well. Although the ratios of TVHg, to TEHd and MBTEX concentrations in the trench wells after the introduction of the Nutrisulfate® product shifted towards TEHd, the most recent September 2017 results show that TEHd concentrations have decreased substantially, with little change to TVHg concentrations. Laboratory analyses of samples collected in September 2017 for dissolved iron, nitrates, sulfates, pH, dissolved oxygen, oxidation reduction potential is discussed in Section 5.

Table 3
Trench Well Groundwater Samples Hydrocarbon Analytical Results
6400 Christie Avenue, Emeryville, California

Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
June 24, 2016							
TAM	**22,000**	**23,000**	**4,400**	**160**	**1,000**	**128**	< 20
TBM	**3,400**	**8,100**	**820**	18	<0.50	14.4	< 2.0
TCM	**5,200**	**62,000**	**830**	7.2	**14**	10.2	< 2.0
February 8, 2017							
TAM	**15,000**	**31,000**	**3,200**	75	**410**	**140**	< 10
TBM	**5,100**	**3,400**	**750**	22	**48**	32	< 2
TCM	**5,600**	**65,000**	**1,300**	< 2.5	**23**	3.5	< 10
September 1, 2017							
TAM	**16,000**	**9,800**	**3,100**	74	**750**	**111**	< 40
TBM	**2,600**	**1,900**	**690**	13	2.4	11.3	< 5
TCM	**6,600**	**6,600**	**1,600**	< 4.2	**25**	13.9	< 17
ESLs [(a)]	**100 / 440**	**100 / 640**	**1.0 / 1.1**	**40 / 130**	**13 / 13**	**20 / 100**	**5.0 / 180**

Notes:

[(a)] Water Board Environmental Screening Levels for residential sites where groundwater *is/is not* a drinking water resource (Water Board, 2016). 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.

Distribution of Hydrocarbon Contaminants

For the current sampling event, several wells have hydrocarbon concentrations significantly above 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 surfactant since 2013 and Nutrisulfate® since 2015 (see Section 5) into the trench and/or selected monitoring wells with the aim of reducing accumulated LNAPL and to enhance the kinetics and efficiency of microbial systems in site groundwater is likely to affect dissolved concentrations.

Increases in September 2017 TVHg concentrations compared to the September 2016 monitoring event were observed at wells MW-7 and MW-11. This represents two wells exhibiting an increase in TVHg as compared to eight wells reporting an increase in TVHg in September 2016. Decreases in TVHg concentrations for September 2017 was observed in 9 wells, with 7 wells showing little change compared to the September 2016 monitoring event.

TVHg was detected above the ESL where groundwater is not a likely drinking water resource (440 micrograms per liter [µg/L]) in all wells except wells MW-3, MW-4, MW-5, MW-6, MW-16 and MW-18 where TVHg was also detected, but at concentrations below the ESL.

Diesel was detected in all site wells above the ESL of 640 µg/L (where groundwater is not a likely drinking water resource) for the September 2017 monitoring event except for wells MW-4 and MW-6, but showed a decrease in concentration in 17 of the 18 wells sampled as compared to 12 of 18 wells when compared to the September 2016 sampling event.

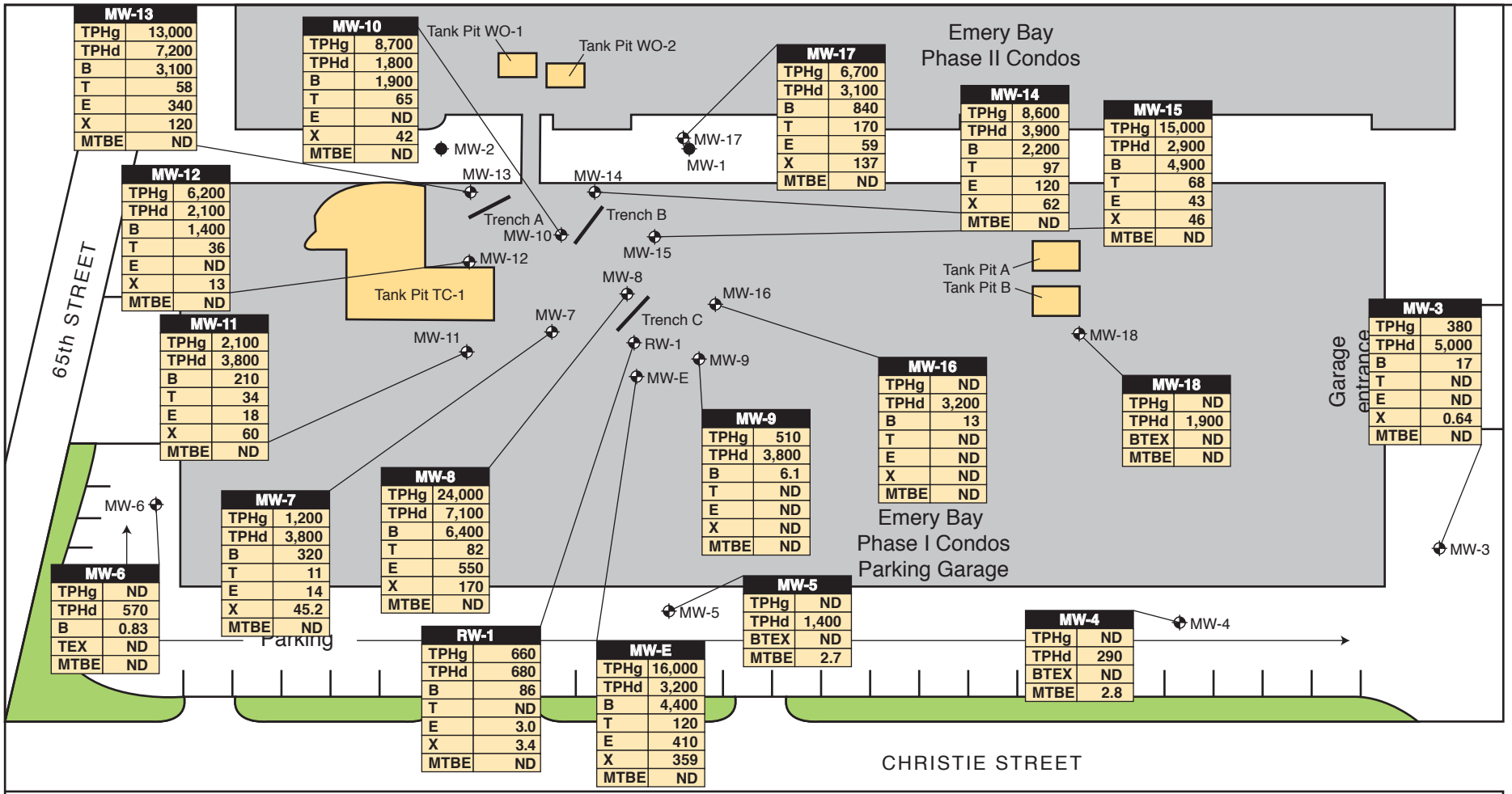
The highest concentrations of TVHg (24,000 µg/L in MW-8) and TEHd (7,200 µg/L in MW-13) for the current event compares to concentrations of 29,000 µg/L TVHg in MW-E and 15,000 µg/L TEHd in wells MW-13 in September 2016. Concentrations of hydrocarbons in well MW-8 that had been on the increase, showed little change since the September 2016 sampling event with TVHg remaining at 24,000 µg/L and with TEHd decreasing from 9,200 µg/L in 2016 to the current 7,100 µg/L. Concentrations of hydrocarbons in well MW-E also showed a marked decrease in hydrocarbon concentrations compared to the September 2016 sampling event, with TVHg decreasing from 29,000 µg/L in to 16,000 µg/L for the current event, and TEHd decreasing from 9,400 µg/L in 2016 to the current 3,200 µg/L.

Multiple applications of surfactant in wells MW-3, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15 and into all nine trench wells between 2013 and 2016 have had the primary effect of reducing the amount of recoverable oily product during the pumping activities that occur before each semi-annual monitoring event. Fluctuating concentrations of TVHg and TEHd in these wells

may be attributed to seasonal groundwater level, reduction of LNAPL and the reduced volume of groundwater being pumped from the trench wells. Since the application of the Nutrisulfate® product into trench well arrays A and C, no pumping of those trench wells has occurred while the Nutrisulfate® product is releasing into the shallow water bearing zone. Based on current sulfate levels in trench well arrays A and C, favorable conditions still exist for continued biodegradation of hydrocarbon.

Overall, the total detected concentrations of TVHg in all 18 monitored wells (excluding the trench wells) decreased (approximately 25%) from 138,860 µg/L TVHg detected in September 2016 to 102,670 µg/L TVHg in September 2017. TEHd concentrations also decreased significantly (approximately 50%) from 105,200 µg/L in September 2016 to 55,740 µg/L for the current monitoring event.

Observed fluctuations in hydrocarbon concentrations may be attributed to seasonal groundwater level, reduction of LNAPL and reduced volume of groundwater being pumped from the trench wells. Since the application of the Nutrisulfate® into trench well arrays A and C, no pumping of those wells has occurred. Figure 5 shows the TVHg MBTEX and TEHd concentrations for the September 2017 monitoring event.



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)

0 60

SCALE: 1/2" = 60 FEET

N

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GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER MONITORING WELL ANALYTICAL RESULTS – SEPTEMBER 4, 2017
6400 Christie Ave., Emeryville, CA

Figure 5

by: MJC | SEPTEMBER 2017

2007-65-112

In monitoring wells MW-3, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-E and RW-1, concentrations of benzene exceeded the ESL of 1.0 µg/L for residential property where groundwater is not a drinking water resource. Comparing September 2016 results to the current 2017 results showed an increase in benzene in 11 of the 18 site wells sampled. Benzene was detected in well MW-6 but at a concentration below the ESL. Perimeter wells MW-4 and MW-5 remain stable at concentrations below laboratory reporting limits for the current event.

Figures 6 and 7 are isoconcentration maps of TVHg and TEHd concentrations in groundwater based on the September 4 and 5, 2017 analytical results.

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

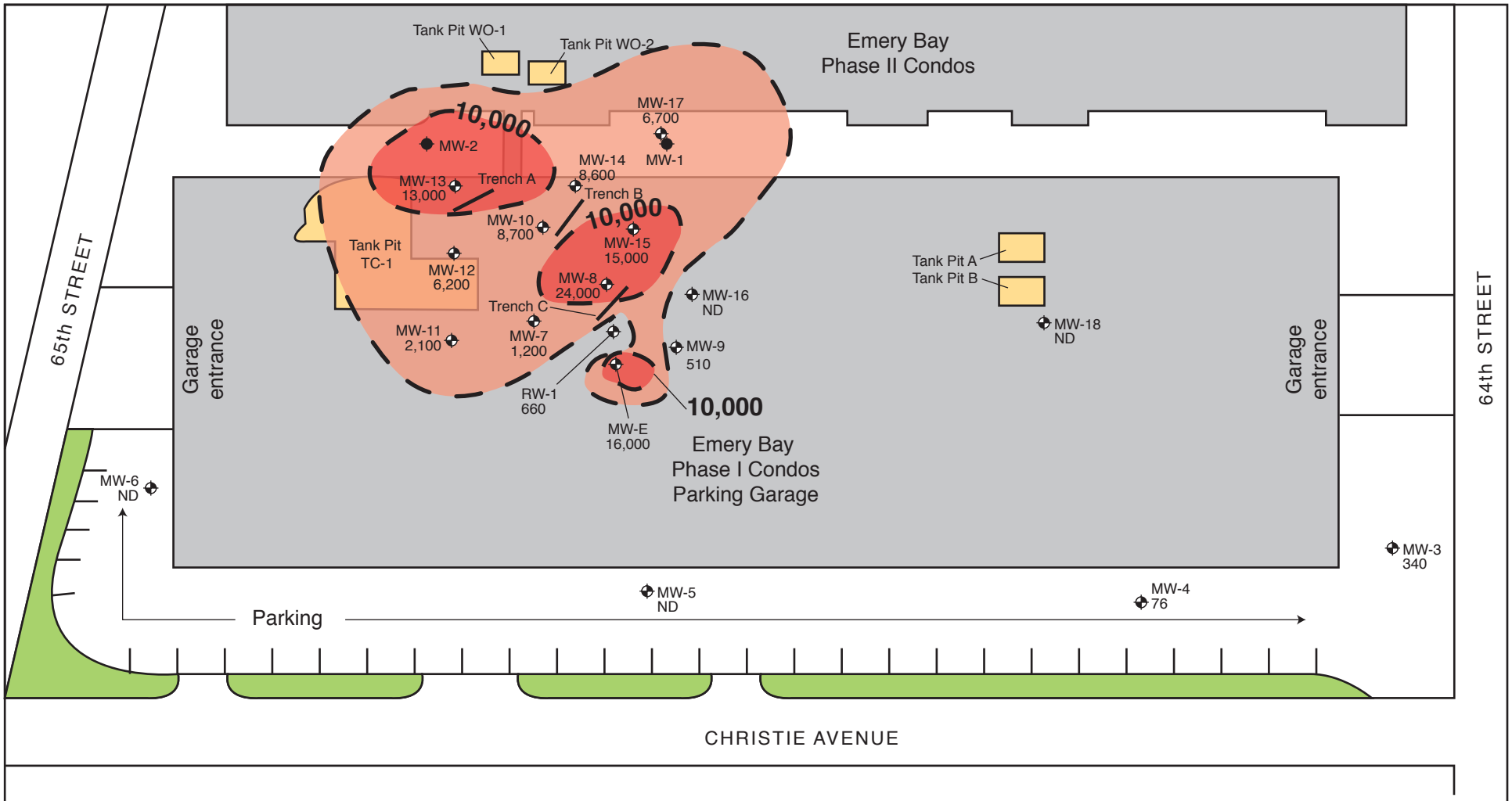
Ethylbenzene was detected above the 13 µg/L ESL in monitoring wells MW-7, MW-8, MW-11, MW-13, MW-14, MW-15, MW-17 and MW-E. Ethylbenzene was also detected in well RW-1 but at levels below the ESL.

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

MTBE was not detected above the reporting limit in any monitored site well except for wells MW-4 and MW-5 which contained 2.8 µg/L and 2.7 µg/L MTBE respectively.

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

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



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- 1,000 Gasoline concentration contour

0 60

SCALE: 1/2" = 60 FEET

N

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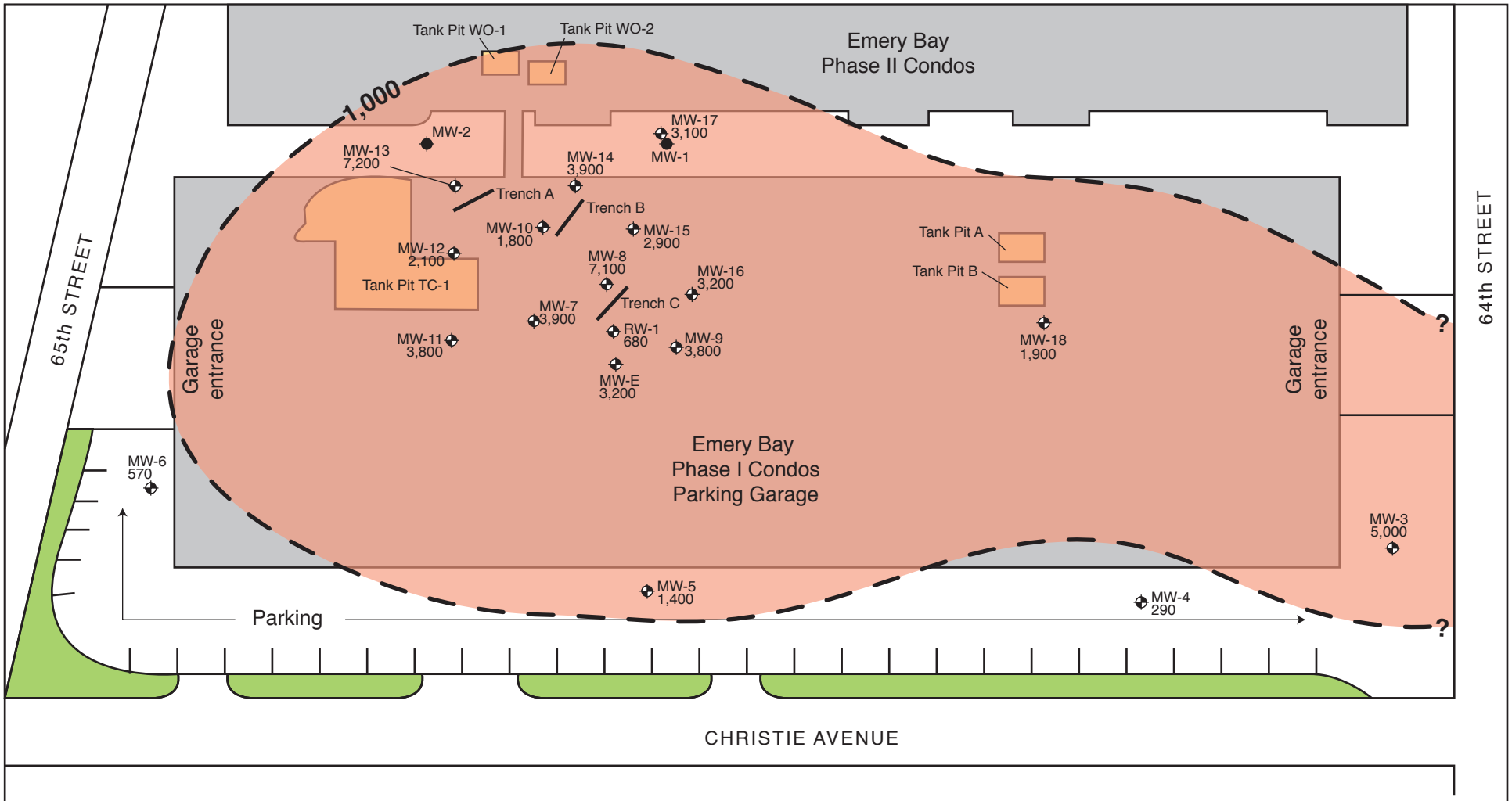
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE— SEPTEMBER 4 & 5 , 2017
6400 Christie Ave., Emeryville, CA

Figure 6

by: MJC | SEPTEMBER 2017

2007-65-115



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Historical tank pit area
- Landscaping
- 1,000 — Diesel concentration contour

0 60

SCALE: 1/2" = 60 FEET

N

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TOTAL PETROLEUM HYDROCARBONS AS DIESEL – SEPTEMBER 4 & 5, 2017
6400 Christie Ave., Emeryville, CA

Figure 7

by: MJC | SEPTEMBER 2017

2007-65-114

Figure 8
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Downgradient Wells MW-5 and MW-6
February 1991 - September 2017

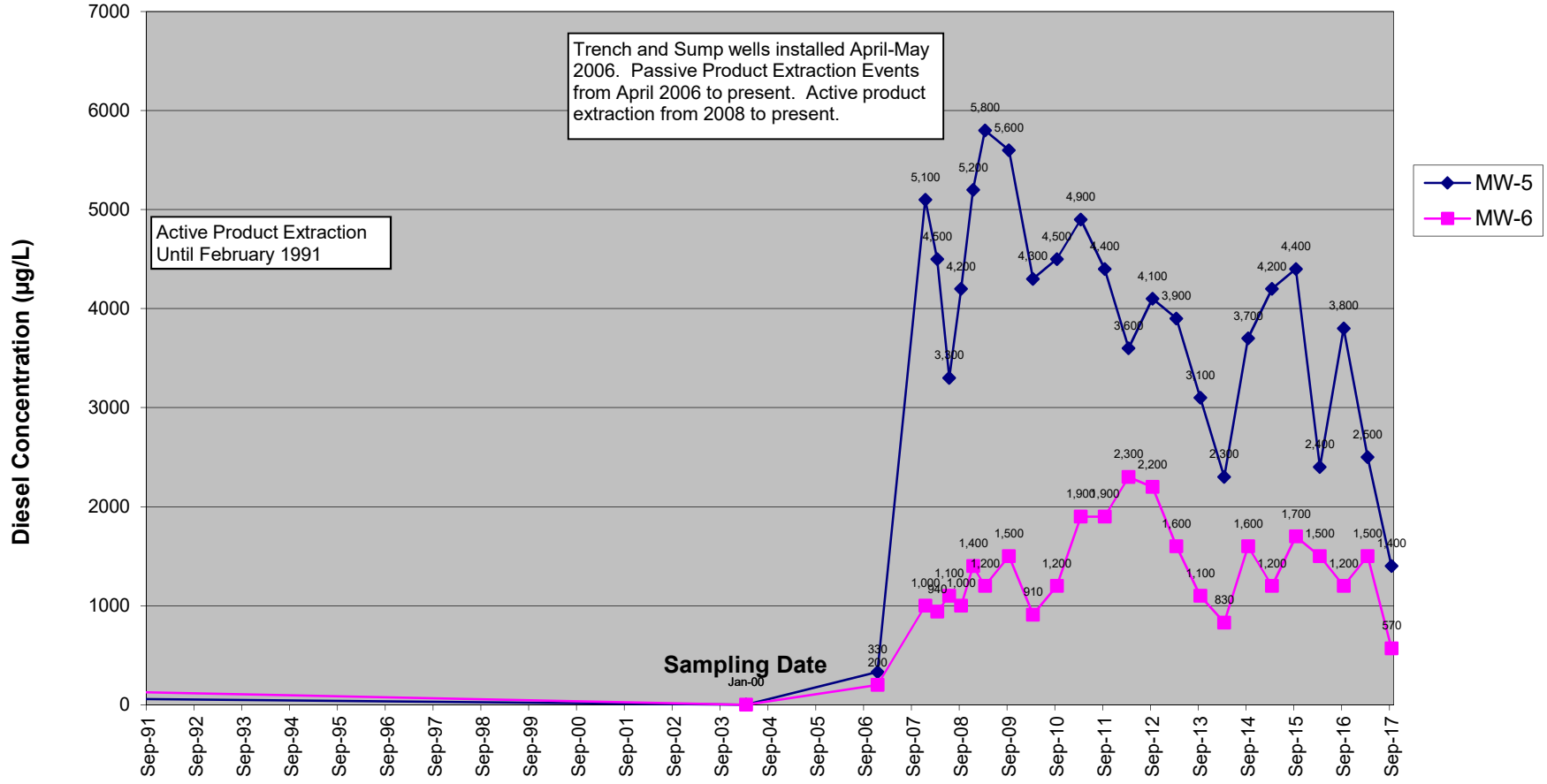


Figure 9
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Source Wells MW-11 and MW-12
December 2006 - March 2017

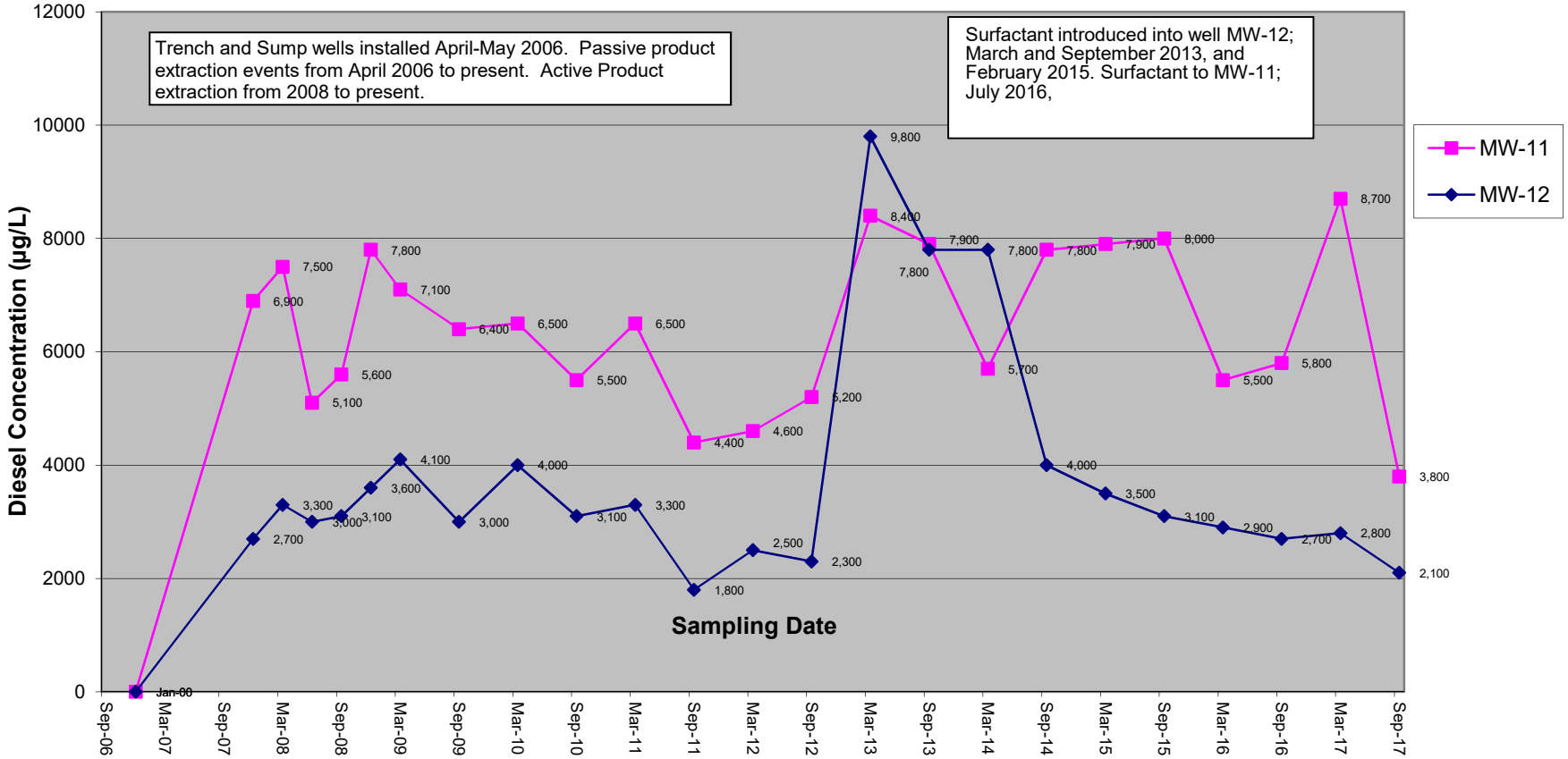
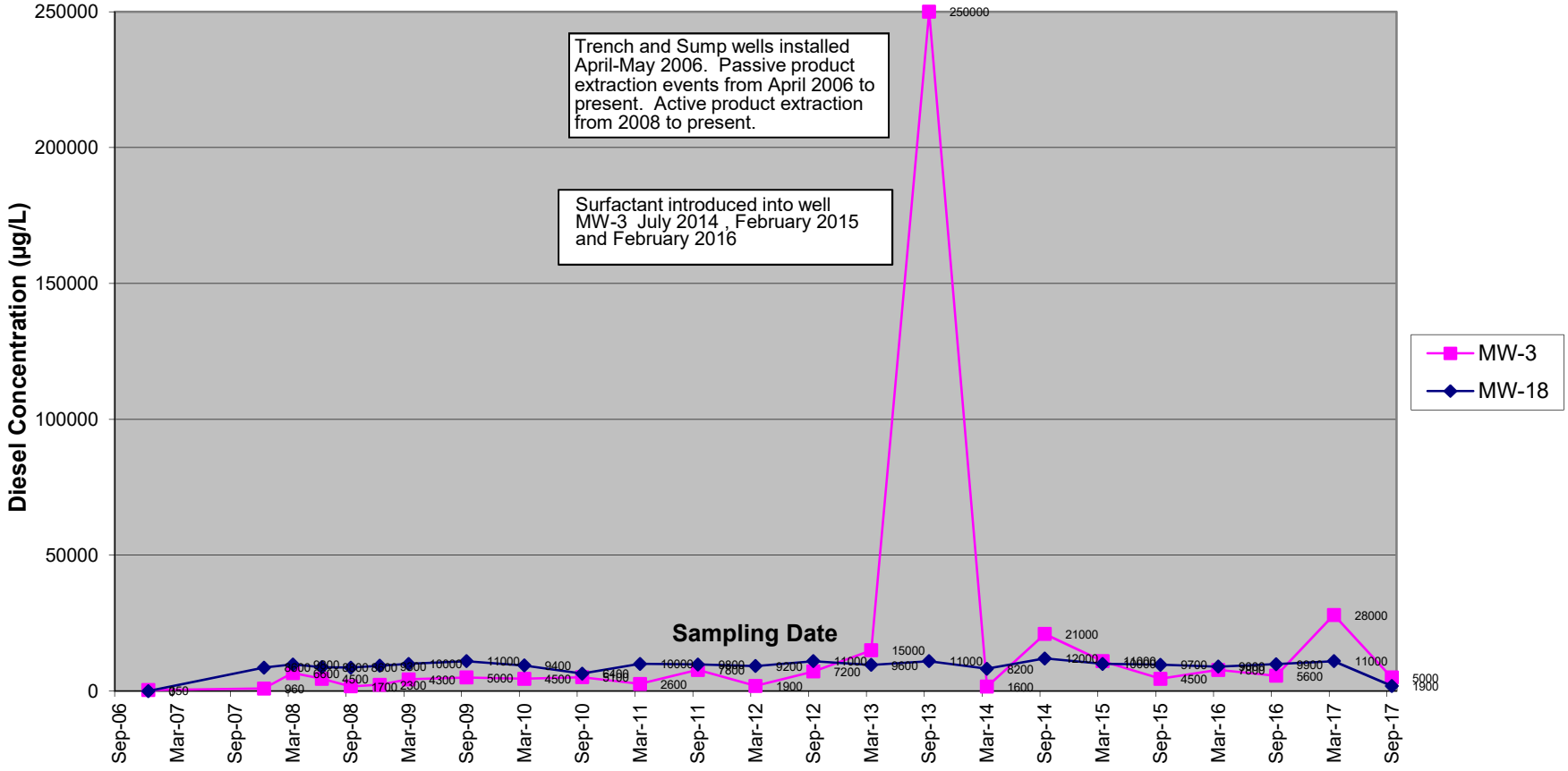


Figure 10
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Crossgradient Wells MW-3 and MW-18
December 2006 - September 2017



5.0 FREE-PHASE HYDROCARBON PRODUCT REMEDIATION SYSTEM

This section describes the historical extraction of the free product from the Emery Bay/Bridgewater 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 August 31, 2017 and September 1, 2017 (prior to the sampling event on September 4 and 5, 2017). 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 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 in the trenches (TAW, TAM, TAE, TBW, TBM, TBE, TCW, TCM, and TCE) 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 were then placed in each of the sumps in Trench A and in one of the sumps (TCE) in Trench C.

Skimmers operate on the principal of 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 were attached to the sump lid by a rope, and could be removed and transferred to another sump as needed. However, the skimmers were never particularly effective at capturing the petroleum product as designed, and by 2013, they contained nearly no free oil. Because the skimmers were no longer effective as of 2014, and because the skimmer equipment was covered with oily residue, possibly contributing to the hydrocarbon impacts to site groundwater, the skimmers were removed from the wells in trenches A (six skimmers) and C (one skimmer) on September 4, 2014.

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 and vault.

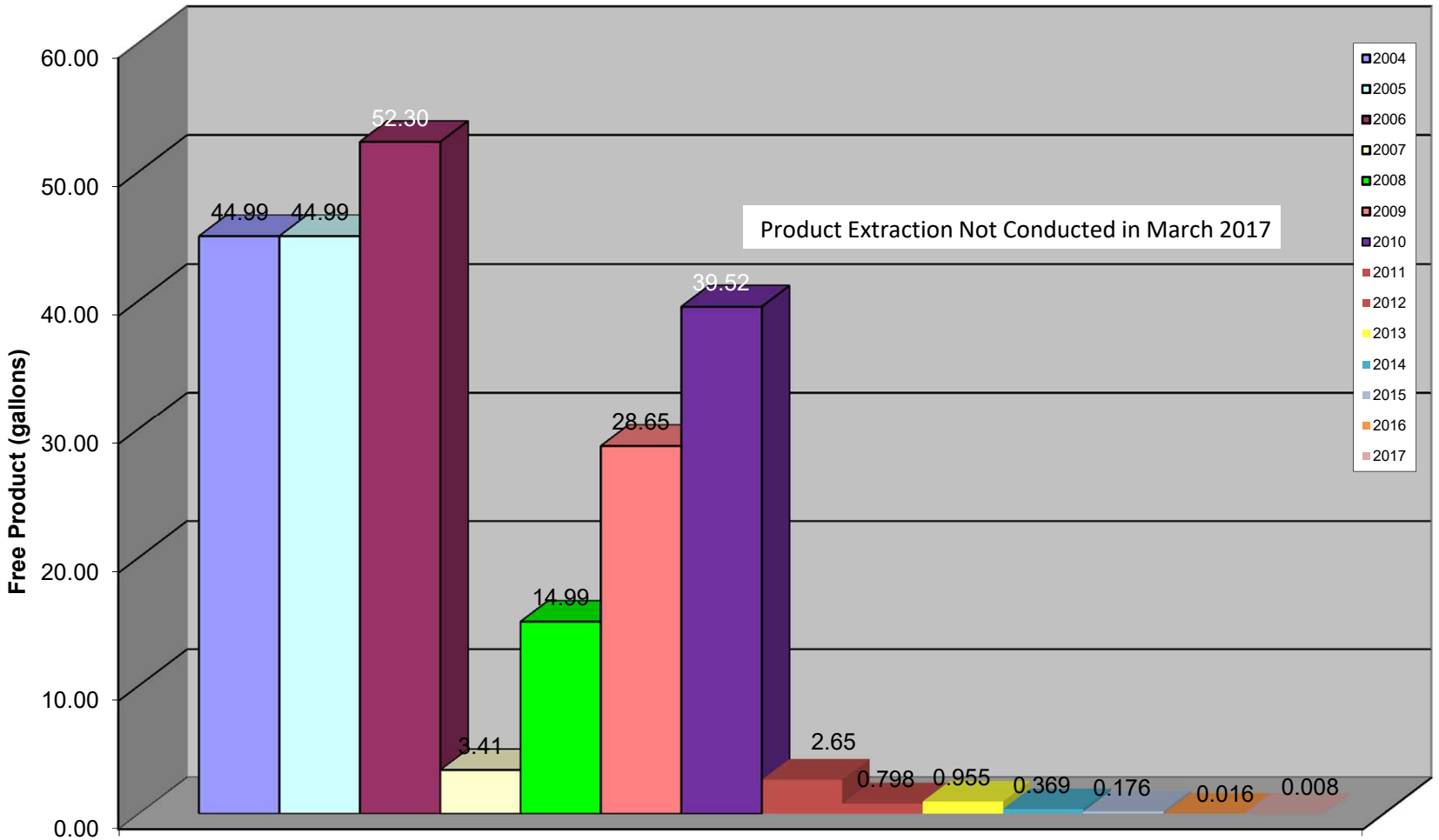
In 2004, PES began manual extraction from well RW-1, and was reported to have removed approximately 48 gallons of LNAPL (PES, 2004a)—although it is unclear whether the removed material was pure product or product mixed with water. To accelerate free product removal, PES constructed a new LNAPL hydrocarbon remediation system (described previously) 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.

2013-2016 SURFACTANT INJECTIONS

Some of the centrally located wells, and perimeter well MW-3 have contained a molasses-like, degraded product that has made well purging and sampling 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. Six of the worst wells in this regard have been MW-3, MW-8, MW-10, MW-12, MW-13 and MW-17. With the exception of MW-3 which is constructed with 2-inch diameter PVC well casing, all these wells are constructed with ¾-inch diameter PVC casing, and are screened to total depth across

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



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 that 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 the injected wells as well as surrounding wells via a mobile vacuum truck.

In March and September 2013 wells MW-8, MW-12, MW-13 and MW-14 were injected with EnviroClean® supplied by Enviro Clean Services, LLC. EnviroClean® is a non-flammable, non-toxic, water-based blend of non-toxic, non-ionic ethoxylated octylphenolic surfactants that has been engineered as a cleanup/mitigation agent for a wide range of hydrocarbon products. EnviroClean® product information is included in Appendix F. A 4% solution of EnviroClean® was mixed per manufacturer recommendations using clean water. Approximately 5 gallons of the solution was introduced into each well. 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.

Based on the positive results of the non-hazardous surfactant injection into wells MW-8, MW-12, MW-13 and MW-14 in 2013 which resulted in reduced or eliminated oil residue, the same surfactant was introduced into well MW-3 which has historically been difficult to gauge and sample due to the thick oil in the well. On July 2, 2014, approximately 10 gallons of a 5% mixture of the surfactant was introduced into MW-3 and the well casing scrubbed. On September 4, 2014, approximately 20 gallons of the 5% surfactant mixture was introduced into each of the nine trench wells onsite after the skimmers had been removed from the wells in trenches A and C, to test the ability of the surfactant to re-dissolve the viscous hydrocarbon buildup in those wells.

Additional surfactant application occurred on February 3, 2015. Approximately 1 gallon of an 8% surfactant mixture was introduced into wells MW-8, MW-12, MW-13, MW-18 and MW-E. Each well was swabbed as described above. Two gallons of a 10% mixture and 5 gallons of a 15% solution was introduced into wells MW-10 and MW-3 respectively, and swabbed.

Further surfactant application occurred on January 14, 2016. Approximately 1 gallon of a 5% surfactant mixture was introduced into wells MW-8 and MW-10. Each well was swabbed as described above. Three gallons of a 5% solution was introduced into MW-3, then swabbed.

The most recent surfactant application occurred on June 24, 2016 informed by the observation of LNAPL in site wells by Blaine Tech Services during sampling activities conducted on March 31, 2016. Approximately 1 gallon of a 5% surfactant mixture was introduced into wells MW-8, MW-10, MW-11, MW-13 and MW-15. Each well was swabbed after the introduction of surfactant.

BIOREMEDIATION COMPOUND INJECTION 2015-2016

Surfactant injection efforts between 2013 and 2016 have reduced free-floating product phase in the area of the trench wells and other nearby monitoring well hotspots such as MW-8, MW-10 and MW-13. Based on the very low volumes of free product being recovered from site monitoring and extraction wells, introduction of a bioremediation compound into the trench wells was considered as a method of reducing the hydrocarbon plume hotspot.

After reviewing the various options for in-situ bioremediation Stellar Environmental concluded that for this particular site, with the apparent concentration and type of hydrocarbons evident, the most promising remedy is to use a product designed to degrade the petroleum hydrocarbons anaerobically. The proposed remedial design accomplishes this through enhanced natural attenuation/ biodegradation and *in situ* chemical reduction induced via the use of a sulfate delivery bioremediation compound. The method relies on sulfate utilization, since the majority of petroleum hydrocarbon sites are sulfate depleted. Sulfate is readily soluble therefore large amounts of it can quickly dissolve into groundwater. Sulfate reducing bacteria will use the petroleum hydrocarbons as a food source and the sulfate as the terminal electron acceptor. The result is rapid bioremediation of dissolved petroleum hydrocarbons. The product chosen for the remedial injection is Nutrisulfate®. The metabolites in Nutrisulfate® are designed to enhance microbial growth. Advantages include:

- Improved bioremediation kinetics
- Thinner (parallel to groundwater flow) bio-barriers
- Faster remedies
- Reduced costs

For the proposed 14,400 cubic feet treatment volume (60ft x 60ft x 4ft) one, 500 lb. drum (55-gallons) of Nutrisulfate® was introduced into trench Well arrays A and C on September 3, 2015. An additional 110 gallons of the product was introduced into the trench well arrays A and C on February 17, 2016 and again on August 3, 2016. The product loading is based on the averaging the concentrations in the six monitoring wells MW-8, MW-10, and MW-12-through MW-15 collected in

Y-2014. The product is engineered for the slow release of sulfate and nutrients to stimulate the bioremediation of the hydrocarbon groundwater environment at the site. The injected product has no known harmful products or byproducts associated with it.

HYDROCHEMICAL ANALYSES TO MONITOR NUTRISULFATE® VIABLITY

Nutrisulfate® is a high sulfate, yeast based product that stimulates biodegradation by providing a soluble, readily available electron acceptor solution. In the presence of elevated sulfate, anaerobic groundwater bacteria use BTEX compounds and other petroleum hydrocarbons for carbon and energy while mineralizing the hydrocarbons to carbon dioxide and water.

In order to track the hydrochemical conditions in the trench well arrays, samples were collected in on September 1, 2017 from the central well in each array with the goal to track the conditions that are being created by the Nutrisulfate® product introduced into trench well arrays A and C in 2015 and 2016. The product has not been introduced into trench well array B. Table 4 summarizes dissolved Iron (Fe), Nitrates, Sulfates, pH, dissolved oxygen (O_2) and oxidation reduction potential.

Table 4
Trench Well Groundwater Hydrochemical Analytical Results
6400 Christie Avenue, Emeryville, California

Well ID	Analytical Results February 8, 2017							
	Dissolved Fe (µg/L)	Nitrates (mg/L)	Sulfates (mg/L)	pH (Su)	Dissolved O_2 (mg/L)	ORP (Eh)	TVHg (µg/L)	TEHd (µg/L)
TAM	< 100	< 0.5	5,100	6.8	0.61	- 260	15,000	31,000
TBM	< 100	< 0.05	9.1	7.1	3.5	- 16	5,100	3,400
TCM	270	< 0.5	7,800	6.6	0.38	- 300	5,600	65,000
Analytical Results August 31, 2017								
TAM	< 100	< 1	3,400	7.1	<1	- 180	16,000	9,800
TBM	< 100	< 0.1	< 1	7.1	3.4	- 29	2,600	1,900
TCM	< 100	< 2.5	6,500	7.0	<1	- 260	6,500	6,600

Notes:

ORP = Oxidation Reduction Potential
(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)

As can be seen in Table 4, the dissolved oxygen is lower in the amended wells, suggesting that the desired anaerobic conditions are being created. Sulfate has increased in the amended wells and pH is within desirable bioremediation range limits. Oxidation-reduction potential (ORP), is a measurement that in this case, indicates the degree to which the Nutrisulfate® is capable of oxidizing or reducing the hydrocarbon contaminants. The negative ORP values in wells TAM and TCM indicate that the desired reducing conditions are being created in trench well arrays A and C.

The biggest reduction in dissolved hydrocarbon concentrations can be seen in the August 2017 TEHd concentrations as compared to February 2017, with a 90% reduction observed in TEHd concentrations noted in well TCM. Very little change in TVHg concentrations was observed. Overall, the Nutrisulfate® product appears to be creating the conditions needed to support natural bioremediation. Since the theoretical sulfate demand is not likely to be met, reapplication of the Nutrisulfate® product may be required when sulfate depletes.

SEPTEMBER 2017 PRODUCT REMOVAL EVENT

Product yield from the trench recovery system has been unproductive and inconsistent, with the passive skimmer collection reservoirs not filling up completely, or filling up with water rather than product. As mentioned above, due to their ineffectiveness at collecting free product over the past several monitoring events, and due to the oily residue on the skimmers, the skimmers were removed from the wells in trenches A and C prior to the first surfactant injection into those trench wells on September 4, 2014. As described above, the bioremediation product, Nutrisulfate® was introduced into trench well arrays A and C on September 3, 2015, February 17, 2016 and most recently on June 24, 2016. No product recovery was conducted from trench well arrays A and C for the March 2017 monitoring event or for the current monitoring event so as to not remove the Nutrisulfate® product.

Stellar Environmental conducted active product/dissolved hydrocarbon removal from all site wells (except the wells in Trenches A and C) during the 2 days prior to the groundwater sampling event that occurred on September 4 and 5, 2017. Approximately 600 gallons of groundwater along with less than an ounce of free product were removed during the current active product removal event.

The removal activities for August 31 and September 1, 2017 can be summarized as follows:

- Stellar Environmental removed a total of 150 gallons of water from trench wells TB-W, TB-E and TB-M with no measurable free product. No removal has been attempted from trench wells TA-W, TA-E TA-M, TC-W, TC-E or TC-M since the Nutrisulfate® product introduction into those wells that occurred most recently on June 24, 2016.
- Stellar Environmental removed a total of 140 gallons of groundwater from recovery well RW-1 along with an estimated 0.0078 gallons of product or less.
- No measurable quantity of petroleum product was removed along with the 600 gallons of liquid that was pumped from the monitoring wells during the extraction event.
- All of the water for the purging event was contained onsite in the 1,100-gallon AST located in the northeastern gated area of the garage.

Table 5
Active Product Extraction – August 31 and September 1, 2017
6400 Christie Avenue, Emeryville, California

Well	Total Gallons of Product Removed	Well	Total Gallons of Product Removed
MW-3	0	MW-17	0
MW-4	0	MW-18	0
MW-5	0	MW-E	0
MW-6	0	RW-1	0.0078
MW-7	0	TA-E	Not Pumped
MW-8	0	TA-M	Not Pumped
MW-9	0	TA-W	Not Pumped
MW-10	0	TB-E	0
MW-11	0	TB-M	0
MW-12	0	TB-W	0
MW-13	0	TC-E	Not Pumped
MW-14	0	TC-M	Not Pumped
MW-15	0	TC-W	Not Pumped
MW-16	0		
		Second 2017 Event Total	**0.0078**

Notes:

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

DISCUSSION OF FREE PRODUCT REMOVAL AND LIMITATIONS

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 evidence suggests that much of this was purge water versus free product. The majority of petroleum product is indicated to have been removed by active pumping and removal activities rather than from the trench well skimmers, the petroleum product recovery being in the form of a mixture of water and hydrocarbons. 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. From 2011 until they were removed in 2014, the skimmers 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, 0.798 gallons in 2012, 0.955 gallons in 2013, 0.369 gallons in 2014, 0.176 gallons in 2015 and 0.016 in 2016, indicating that the active pumping of site wells to be an effective means of product removal as compared to the passive skimmer system. With only about 0.016 gallons of product removed in 2017 (about 2 ounces) it would appear that going forward, the reduction of recoverable LNAPL volume is likely to continue to decrease. Active pumping however will continue to be an effective method of removing groundwater with high dissolved hydrocarbon concentrations which will act as migration control.

For the current monitoring event, 2 of 15 wells in which TVHg is historically detected showed an increase of that compound as compared to 8 of 15 wells for September 2016. One of the 18 wells that have historically contained TEHd showed an increase in TEHd concentrations compared to 12 of 18 wells that showed an increase in TEHd for September 2016.

The marked overall decrease in hydrocarbon concentrations in site groundwater for the current monitoring event may be attributable to dilution from record rainfall in the Bay Area that occurred for the 2016/2017 season. Based on the greater decrease in TEHd concentrations (50%) as compared to TVHg concentrations (25%) in groundwater observed for September 2017, some of the observed decrease may be due to the Nutrisulfate® product introduced into Trench Well Arrays A and C in 2015 and 2016. The high sulfate conditions being created is conducive to beneficial microbial growth in groundwater which generally can more easily break down TEHd compounds than TVHg.

The reduction of LNAPL by active extraction, which has since 2013 been combined with surfactant injections in selected wells, was a necessary step prior to current in-situ bio-remedial efforts, the first application of which occurred on September 3, 2015. Inconsistent trends in the hydrocarbon concentrations, particularly the upward spike in gasoline and diesel concentrations observed in wells since the surfactant injection in and/or near that wells may show more consistent trend lines after additional bio-remedial efforts are conducted (see Section 6). Based on observations made during the August/September 2017 field work, wells MW-8, MW-10 and MW-15 would benefit from additional surfactant application into those wells.

In general, 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. Additional surfactant applications at the site are expected to continue to reduce the degraded product present.

Additional Nutrisulfate® application into the trench wells as necessary as determined by tracking sulfate concentrations in the trench wells, are expected to be useful to speed the reduction of the dissolved hydrocarbon concentrations to levels acceptable to the regulatory agency and to achieve eventual closure. The outward effect of the surfactant injections based on observations made during recent product removal efforts has been a marked reduction in the viscous hydrocarbon substance in site wells. A significant increase in water yield from wells that received surfactant has not been observed.

6.0 SUMMARY, CONCLUSIONS, AND PROPOSED ACTIONS

FINDINGS AND CONCLUSIONS.

- 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 semi-annual frequency in 2009.
- The site currently contains 17 monitoring wells, 1 recovery well, and 9 product extraction trench wells. The current event is the 29th 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 flow direction calculated during this monitoring event was found to be generally to the west.
- September 2017 groundwater elevations ranged from 5.30 feet (MW-3) to 9.38 feet (MW-13) above mean sea level, with the average groundwater gradient for the current monitoring event being 0.007 foot/foot.

- The injection of a (non-hazardous) surfactant into selected site monitoring wells and into the nine trench wells over six separate occasions since 2013 has been successfully used to emulsify the viscous hydrocarbon buildup in the injected wells and nearby wells. Based on field observations of site wells, 11 of 27 monitoring and trench wells had detectable LNAPL prior to the first surfactant injection in March 2013 compared to 4 of 27 for the current September 2017 monitoring period.
- Surfactant injections into the A and C trench well arrays and wells MW-3, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-18 and MW-E have reduced or eliminated LNAPL in those wells, and may have contributed to an increase in concentrations of dissolved BTEX in those wells as compared to the September 2016 monitoring event.
- Current contaminants of concern include TVHg, TEHd, and BTEX. Current groundwater concentrations exceeded the ESLs for these contaminants.
- MTBE was not detected above the reporting limit in any monitored site well except for wells MW-4 and MW-5 which contained 2.8 µg/L and 2.7 µg/L MTBE respectively.
- The highest concentrations of TVHg (24,000 µg/L in MW-8) and TEHd (7,200 µg/L in MW-13) for the current event compares to concentrations of 29,000 µg/L TVHg in MW-E and 15,000 µg/L TEHd in wells MW-13 in September 2016. Concentrations of hydrocarbons in well MW-8 that had been on the increase, showed little change since the September 2016 sampling event with TVHg remaining at 24,000 µg/L and with TEHd decreasing from 9,200 µg/L in 2016 to the current 7,100 µg/L. Concentrations of hydrocarbons in well MW-E showed a marked decrease in hydrocarbon concentrations compared to the September 2016 sampling event, with TVHg decreasing from 29,000 µg/L in to 16,000 µg/L for the current event, and TEHd decreasing from 9,400 µg/L in 2016 to the current 3,200 µg/L.
- Increases in September 2017 TVHg concentrations compared to the September 2016 monitoring event were observed at wells MW-7 and MW-11. This represents two wells exhibiting an increase in TVHg as compared to eight wells reporting an increase in TVHg in September 2016. Decreases in TVHg concentrations for September 2017 was observed in 9 wells, with 7 wells showing little change compared to the September 2016 monitoring event.
- TVHg was detected above the ESL where groundwater is not a likely drinking water resource (440 micrograms per liter [µg/L]) in all wells except wells MW-3, MW-4, MW-5, MW-6, MW-16 and MW-18 where TVHg was also detected, but at concentrations below the ESL.
- Diesel was detected in all site wells above the ESL of 640 µg/L (where groundwater is not a likely drinking water resource) for the September 2017 monitoring event except for wells

MW-4 and MW-6, but showed a decrease in concentration in 17 of the 18 wells sampled as compared to 12 of 18 wells for the September 2016 sampling event.

- In monitoring wells MW-3, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-E and RW-1, concentrations of benzene exceeded the ESL of 1.0 µg/L for residential property where groundwater is not a drinking water resource. Comparing September 2016 results to the current 2017 results showed an increase in benzene in 11 of the 18 site wells sampled. Benzene was detected in well MW-6 but at a concentration below the ESL. Perimeter wells MW-4 and MW-5 remain stable at concentrations below laboratory reporting limits for the current event.
- Toluene was detected above the ESL of 130 µg/L in monitoring well MW-17. Toluene was also detected in wells MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15 and MW-E but at levels below the ESL.
- Ethylbenzene was detected above the 13 µg/L ESL in monitoring wells MW-7, MW-8, MW-11, MW-13, MW-14, MW-15, MW-17 and MW-E. Ethylbenzene was also detected in well RW-1 but at levels below the ESL.
- Total xylene concentrations in wells MW-8, MW-13, MW-17 and MW-E were above the 100-µg/L ESL where groundwater is not a likely drinking water resource. Total xylenes were detected in MW-3, MW-7, MW-10, MW-11, MW-14, MW-15 and RW-1 but below the ESL.
- Due to the ineffectiveness of the product skimmers that were in wells in recovery trenches A and C, the skimmers were removed from the wells in September 2014. The other reason for removal of the skimmers was that they were coated with oil, and thought to be contributing to dissolved hydrocarbon groundwater contamination. Lack of LNAPL allowed for the introduction of the Nutrisulfate® bioremediation product into the trench well arrays A and C in September 2105, February 2016 and August 2016.
- The near elimination of viscous LNAPL from site wells has allowed introduction of the product Nutrisulfate® which encourages natural attenuation/biodegradation and *in situ* chemical reduction via a sulfate delivery bioremediation compound. The metabolites in Nutrisulfate® are designed to enhance microbial growth. An initial application of 500 lbs. of Nutrisulfate® trench well arrays A and C was conducted on September 3, 2015. 1,000 lbs of the product was introduced into trench well arrays A and C on February 17, 2016 and an additional application of 1,000 lbs of the product was introduced into trench wells A and C on August 3, 2016.
- Based on samples collected from trench wells TAM, TBM and TCM collected August 31, 2017, dissolved oxygen remains lower in the amended wells, suggesting that the desired anaerobic conditions are being created. Sulfate has remained high in the amended wells and

pH is within desirable bioremediation range limits. Oxidation-reduction potential (ORP), is a measurement that in this case, indicates the degree to which the Nutrisulfate® is capable of oxidizing or reducing the hydrocarbon contaminants. The negative ORP values in wells TAM and TCM indicate that the desired reducing conditions are still present in trench well arrays A and C. Overall, the Nutrisulfate® product appears to be creating the conditions needed to support natural bioremediation.

- The central well (wells TAM, TBM and TCM) in each of the three trench well arrays was sampled June 14, 2016, February 8, 2017 and most recently on September 1, 2017 for the purpose of tracking hydrocarbon concentrations in the trench well arrays and to monitor differences in hydrocarbon concentrations in trenches A and C which have been receiving the Nutrisulfate® injections, versus the well in trench B which has not received the Nutrisulfate®. Ratios of TVHg to TEHd concentrations in the amended trench wells appear to have shifted towards TVHg since the February 8 sampling event with marked reductions of TEHd concentrations noted in well TAM and TCM as comparted to control well TBM. This is likely due to the microbial preference towards TEHd reduction as compared to TVHg. TVHg, TEHd and BTEX concentrations in the trench wells currently exceed ESLs with up to 16,000 µg/L TVHg detected in well TAM.
- Stellar Environmental conducted active product/dissolved hydrocarbon removal from all site wells (except the wells in Trenches A and C) during the two days prior to the groundwater sampling event that occurred on September 4 and 5, 2017. Approximately 600 gallons of groundwater along with less than an ounce of free product were removed during the current active product removal event. Although free product was noted by Blaine Tech Services in wells MW-3, MW-8, MW-10, MW-15 and RW-1, the only well noted to actually yield free product during the extraction process for the current event was wells MW-8, MW-13 and RW-1. The current volume of 0.0078 gallons (about 1 ounce) of recovered product indicates a continued reduction of recoverable product from site wells.
- TVHg and TEHd concentrations in the central area of the site where historically, wells MW-8, MW-10, MW-12, MW-13, MW-14 and MW-16 have shown the highest concentrations of residual fuel, generally trended towards higher TVHg concentrations for the current monitoring event and towards lower concentrations of TVHd. This represents an apparent reversal of a previous trend noted in 2016 towards higher TEHd concentrations.
- The marked overall decrease in hydrocarbon concentrations in site groundwater for the current monitoring event may be attributable to dilution from record rainfall in the Bay Area that occurred for the 2016/2017 season. Based on the greater decrease in TEHd concentrations (50%) as compared to TVHg concentrations (25%) in groundwater observed for September 2017, some of the observed decrease may be due to the Nutrisulfate® product introduced into Trench Well Arrays A and C in 2015 and 2016. The high sulfate conditions

being created is conducive to beneficial microbial growth in groundwater which generally can more easily break down TEHd compounds than TVHg.

PROPOSED ACTIONS

- Based on observations made during the September 2017 purging/gauging activities conducted by Blaine Tech Services, surfactant injections into wells MW-3, MW-8, MW-10, MW-15 and RW-1 should be conducted in mid-December 2017, prior to the next scheduled semiannual monitoring event scheduled for late March 2018. These monitoring wells and the recovery well RW-1 are the only wells currently onsite that contain enough detectable free product that can be expected to benefit from the surfactant.
- Based on observations of conditions in the trench wells in arrays A and C that indicate the settling of the higher specific gravity Nutrisulfate® to the bottom of the well columns, it is recommended to pump from well to well within the trench well arrays A and C in order to create a more even distribution of the Nutrisulfate® product, and to encourage its movement through the shallow water bearing zone. This work would be conducted at the same time of the surfactant injections into selected wells scheduled for December 2017.
- As part of the next recommended groundwater sampling event that would occur in March 2018, it is recommended that groundwater samples be collected from the central wells in each of the three trench well arrays. Laboratory analyses would include TVHg/TEHd/MBTEX and dissolved iron, nitrates, sulfates, pH, dissolved oxygen, oxidation reduction potential. The goal of this work is to continue to track hydrochemical trends in wells TAM and TCM receiving the Nutrisulfate® product and to compare trends against the trench well TBM which is not receiving the Nutrisulfate®.
- Active groundwater/dissolved product removal events should be continued to ascertain their effectiveness in reducing the plume size over time. Active product removal is currently being conducted on a semiannual basis immediately prior to the sampling event. For the next scheduled monitoring event in March 2018, it is recommended that the product removal be focused on wells MW-3, MW-8, MW-10, MW-15, RW-1 and trench wells TBE, TBM and TBW.
- Groundwater monitoring should be continued on a semiannual basis to document contaminant concentrations over time. This monitoring of site wells will allow follow-on evaluation of the Nutrisulfate® injection and its efficacy for scaling upward to move the site toward full regulatory site closure.
- An indoor air sampling event is recommended in the ground floor sales office building with an outside control based on the findings for the last such monitoring event in June 2017 which showed some risk of exposure from vapor intrusion by benzene to commercial Sales Office occupants of the ground floor. The indoor air survey would be scheduled for June

2018 and will seek to determine if reductions in vapor intrusion have occurred along with the reduction in the groundwater concentrations.

- Electronic uploads to ACEH's ftp system and the State Water Board's GeoTracker system should be continued as required.

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8.0 LIMITATIONS

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

The findings and conclusions presented in this report are based on a review of previous investigators' findings at the site, as well as 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	NA	8,600	940	250	570	NA
2	May-89	130	24,000	NA	16,000	2,100	300	1,200	NA
3	Feb-91	<10	22,000	NA	6,800	3,500	410	2,000	NA
Monitoring well abandoned - date unclear									

MW-2

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

MW-3

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	4,200	NA	77	1,400	140	560	NA
2	May-89	110	1,800	NA	64	250	61	110	NA
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	3,400	440	3,900	<0.5	<0.5	1.5	<1.0	9.7
5	Dec-06	350	280	230	<0.5	<0.5	<0.5	<0.5	2.0
6	Dec-07	960	150	NA	0.54	0.54	<0.5	<0.5	<2.0
7	Mar-08	6,600	450	NA	<0.5	<0.5	1.8	2.0	4.3
8	Jun-08	4,500	440	NA	<0.5	<0.5	4.0	2.0	9.5
9	Sep-08	1,700	280	NA	<0.5	<0.5	1.0	<0.5	<2.0
10	Dec-08	2,300	240	NA	<0.5	<0.5	1.1	<0.5	<2.0
11	Mar-09	4,300	260	NA	1.3	<0.5	1.8	0.5	2.9
12	Sep-09	5,000	300	NA	2.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	4,500	230	670	1.7	<0.5	1.0	<0.5	2.7
14	Sep-10	5,100	470	NA	<0.5	0.64	<0.5	1.6	2.9
15	Mar-11	2,600	540	NA	47	28	7.6	11.8	17
16	Sep-11	7,800	290	NA	13	1.5	<0.50	2.0	9.5
17	Mar-12	1,900	430	NA	3.3	<0.5	<0.5	2.5	2.7
18	Sep-12	7,200	380	NA	18	14	6.0	25.3	<2.0
19	Mar-13	15,000	470	NA	1.3	0.68	2.1	2.1	8.6
20	Sep-13	250,000	530	NA	<0.5	<0.5	<0.5	2.4	5.6
21	Mar-14	1,600	270	NA	1.4	<0.5	<0.5	<0.5	<2.0
22	Sep-14	21,000	530	NA	0	0	0.0	0.0	0
23	Mar-15	11,000	580	NA	29	2.7	12.0	4.4	<2.0
24	Sep-15	4,500	330	NA	0.71	0	0.0	3.2	0
25	Mar-16	7,800	610	NA	2	2.3	<0.50	<0.50	2.6
26	Sep-16	5,600	<250	NA	<2.5	<2.5	<2.5	<2.5	13
27	Mar-17	28,000	340	NA	5.0	<0.5	<0.5	<0.5	<2.0

MW-4

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	100	NA	2.0	1.0	<0.5	2.0	NA
2	May-89	60	18	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	<10	<10	NA	<0.3	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	50	<200	<0.5	<0.5	<0.5	<0.5	<1.0
6	Dec-07	710	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
7	Mar-08	680	57	NA	<0.5	<0.5	<0.5	<0.5	<2.0
8	Jun-08	620	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
9	Sep-08	440	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
10	Dec-08	730	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
11	Mar-09	940	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	660	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	680	<50	380	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-10	770	71	NA	<0.5	<0.5	<0.5	<0.5	<2.0
15	Mar-11	590	<50	NA	<0.5	<0.5	<0.5	<0.5	2.4
16	Sep-11	380	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
17	Mar-12	340	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
18	Sep-12	350	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
19	Mar-13	390	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
20	Sep-13	250	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
21	Mar-14	380	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
22	Sep-14	380	0	NA	0	0	0	0	0
23	Mar-15	NA	NA	NA	NA	NA	NA	NA	NA
24	Sep-15	370	120	NA	0	0	0	0	0
25	Mar-16	NA	NA	NA	NA	NA	NA	NA	NA
26	Sep-16	350	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.0
27	Mar-17	390	76	NA	<0.50	<0.50	<0.50	<0.50	<2.0

MW-5

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	530	890	NA	<1.0	<1.0	1.0	3.0	NA
2	May-89	90	5.0	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	58	<10	NA	0.6	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	330	<25	<200	0.6	<0.5	<0.5	<0.5	<1.0
6	Dec-07	5,100	1.3	NA	1.3	<0.5	<0.5	1.23	<2.0
7	Mar-08	4,500	<50	NA	0.53	<0.5	<0.5	<0.5	<2.0
8	Jun-08	3,300	<50	NA	0.64	<0.5	<0.5	<0.5	<2.0
9	Sep-08	4,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
10	Dec-08	5,200	<50	NA	0.61	<0.5	<0.5	<0.5	<2.0
11	Mar-09	5,800	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	5,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
13	Mar-10	4,300	<50	5,400	4.9	<0.5	<0.5	<0.5	<2.0
14	Sep-10	4,500	<50	NA	0.58	<0.5	<0.5	<0.5	2.0
15	Mar-11	4,900	<50	NA	1.3	<0.5	<0.5	<0.5	5.9
16	Sep-11	4,400	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
17	Mar-12	3,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
18	Sep-12	4,100	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
19	Mar-13	3,900	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
20	Sep-13	3,100	<50	NA	0.65	<0.5	<0.5	<0.5	<2.0
21	Mar-14	2,300	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
22	Sep-14	3,700	0	NA	0	0	0	0	0.0
23	Mar-15	4,200	0	NA	0	0	0	0	0.0
24	Sep-15	4,400	60	NA	0	0	0	0	0.0
25	Mar-16	2,400	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.0
26	Sep-16	3,800	<250	NA	<2.5	<2.5	<2.5	<2.5	<10
27	Mar-17	2,500	<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	<10	52	NA	1.0	<0.5	<0.5	<0.5	NA
2	May-89	140	31	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	130	40	NA	0.8	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	200	43	<200	1.1	<0.5	<0.5	<0.5	<1.0
6	Dec-07	1,000	<50	NA	0.98	0.81	<0.5	0.5	<2.0
7	Mar-08	940	<50	NA	0.87	1.0	<0.5	<0.5	<2.0
8	Jun-08	1,100	56	NA	0.92	<0.5	<0.5	<0.5	2.9
9	Sep-08	1,000	<50	NA	0.91	<0.5	<0.5	<0.5	<2.0
10	Dec-08	1,400	<50	NA	1	<0.5	<0.5	<0.5	<2.0
11	Mar-09	1,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
12	Sep-09	1,500	<50	NA	0.79	<0.5	<0.5	<0.5	<2.0
13	Mar-10	910	<50	1,500	1.9	<0.5	<0.5	<0.5	<2.0
14	Sep-10	1,200	72	NA	1.0	<0.5	<0.5	<0.5	<2.0
15	Mar-11	1,900	<50	NA	1.3	<0.5	<0.5	<0.5	3.9
16	Sep-11	1,900	<50	NA	1.8	<0.5	<0.5	<0.5	<2.0
17	Mar-12	2,300	<50	NA	0.82	<0.5	<0.5	<0.5	<2.0
18	Sep-12	2,200	<50	NA	0.85	<0.5	<0.5	<0.5	<2.0
19	Mar-13	1,600	<50	NA	0.83	<0.5	<0.5	<0.5	<2.0
20	Sep-13	1,100	<50	NA	1.70	<0.5	<0.5	<0.5	<2.0
21	Mar-14	830	65	NA	0.81	<0.5	<0.5	<0.5	<2.0
22	Sep-14	1,600	0	NA	0.79	<0.5	<0.5	<0.5	<2.0
23	Mar-15	1,200	61	NA	0.87	0.62	<0.5	<0.5	<2.0
24	Sep-15	1,700	65	NA	0.88	0	0	0	0
25	Mar-16	1,500	<50	NA	1.10	<0.50	<0.50	<0.50	<2.0
26	Sep-16	1,200	<50	NA	1.00	<0.50	<0.50	<0.50	<2.0
27	Mar-17	1,500	<50	NA	0.8	<0.50	<0.50	<0.50	<2.0

MW-7

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,600	490	1,900	240	100	14	56	<2.5
2	Dec-06	420	<25	470	<0.5	<0.5	<0.5	<0.5	<1.0
3	Dec-07	6,300	3,100	NA	640	28	48	231	<10
4	Mar-08	7,000	360	NA	140	5.8	11	58	<2.0
5	Jun-08	5,400	1,700	NA	480	15	28	139	<2.0
6	Sep-08	9,400	1,200	NA	330	12	21	88	<2.0
7	Dec-08	8,700	2,200	NA	640	100	43	185	<4.0
8	Mar-09	8,700	1,700	NA	510	33	47	220	<10
9	Sep-09	6,800	620	NA	310	9.5	27	117	<10
10	Mar-10	8,700	330	6,800	68	2.2	10	31.6	<2.0
11	Sep-10	10,000	1,300	NA	580	54	35	163	<20
12	Mar-11	8,100	630	NA	160	5.3	14	65	<2.0
13	Sep-11	8,000	2,900	NA	900	46	51	284	<2.0
14	Mar-12	7,900	740	NA	220	150	14	140	<2.0
15	Sep-12	10,000	1,700	NA	660	35	32	137	<2.0
16	Mar-13	8,600	3,000	NA	950	39	30	149	<33
17	Sep-13	12,000	2,100	NA	540	29	17	89	<29
18	Mar-14	8,200	1,900	NA	440	22	14	63	<29
19	Sep-14	11,000	1,200	NA	330	21	5.8	68	<29
20	Mar-15	7,700	900	NA	260	13	8.8	47.8	7.1
21	Sep-15	10,000	1,000	NA	280	16	10	52.9	21
22	Mar-16	9,900	1,000	NA	280	15	7.9	35.7	<2.0
23	Sep-16	10,000	860	NA	170	8.6	5.1	23.7	<10
24	Mar-17	12,000	1,500	NA	560	25	10.0	62.0	<50

MW-8

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	140,000	51,000	56,000	19,000	720	2,400	3,300	<50
2	Dec-06	2,400	29,000	<380	13,000	<100	640	500	<200
3	Dec-07	5,900	30,000	NA	11,000	180	650	561	<100
4	Mar-08	21,000	47,000	NA	10,000	260	1,200	458	<2.0
5	Jun-08	7,300	27,000	NA	9,300	140	790	290	<2.0
6	Sep-08	13,000	35,000	NA	11,000	190	900	402	<100
7	Dec-08	7,600	19,000	NA	6,800	110	380	236	<50
8	Mar-09	10,000	22,000	NA	9,400	200	640	358	<50
9	Sep-09	9,200	26,000	NA	8,600	100	630	230	170
10	Mar-10	11,000	19,000	1,900	6,200	120	830	149	<2.0
11	Sep-10	7,600	7,800	NA	8,800	110	620	212	<100
12	Mar-11	8,800	19,000	NA	8,100	130	890	149	<2.0
13	Sep-11	18,000	13,000	NA	8,000	140	860	178	<2.0
14	Mar-12	9,800	380	NA	100	3	5.9	20	<2.0
15	Sep-12	24,000	73,000	NA	18,000	520	2,300	670	<2.0
16	Mar-13	38,000	39,000	NA	9,400	160	1,600	255	<50
17	Sep-13	2,100	14,000	NA	3,800	140	35	86	440
18	Mar-14	13,000	23,000	NA	6,800	96	620	200	<200
19	Sep-14	13,000	15,000	NA	4,100	65	300	100	0
20	Mar-15	20,000	36,000	NA	8,200	150	910	160	< 170
21	Sep-15	9,400	23,000	NA	7,100	100	510	267	0
22	Mar-16	1,200	23,000	NA	5,400	140	570	294	<170
23	Sep-16	8,600	24,000	NA	5,300	77	400	180	<170
24	Mar-17	6,400	34,000	NA	9,200	140	950	301	<170

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	<0.5	<1.0	<0.5
2	Dec-06	<50	92	<200	2.8	<0.5	<0.5	<0.5	<1.0
3	Dec-07	8,400	84	NA	4.7	1.1	<0.5	1.9	<2.0
4	Mar-08	8,600	100	NA	4.1	1.1	<0.5	<0.5	2.0
5	Jun-08	5,900	98	NA	4.9	<0.5	<0.5	<0.5	2.3
6	Sep-08	9,300	130	NA	4.6	<0.5	<0.5	<0.5	<50
7	Dec-08	7,800	95	NA	4.0	0.54	<0.5	<0.5	<2.0
8	Mar-09	9,400	130	NA	4.6	<0.5	<0.5	<0.5	<2.0
9	Sep-09	8,200	98	NA	4.0	<0.5	<0.5	<0.5	<2.0
10	Mar-10	6,500	140	4,000	5.2	<0.5	<0.5	<0.5	<2.0
11	Sep-10	6,400	170	NA	4.8	0.77	<0.5	<0.5	<2.0
12	Mar-11	11,000	150	NA	5.9	0.61	<0.5	0.5	<2.0
13	Sep-11	9,400	62	NA	4.2	<0.5	<0.5	<0.5	<2.0
14	Mar-12	9,400	140	NA	6.2	0.61	<0.5	0.51	<2.0
15	Sep-12	10,000	130	NA	7.2	<0.5	0.53	0.92	<2.0
16	Mar-13	8,500	170	NA	14.0	0.73	0.7	0.63	<2.0
17	Sep-13	11,000	130	NA	12.0	<0.5	0.92	<0.5	4.9
18	Mar-14	7,300	140	NA	9.8	2	<0.5	<0.5	<2.0
19	Sep-14	10,000	120	NA	8.6	2	0.55	0	0
20	Mar-15	9,000	310	NA	8.7	0.75	<0.5	1.25	<2.0
21	Sep-15	11,000	190	NA	8.0	0.71	0	0.87	0
22	Mar-16	9,300	230	NA	7.7	0.82	<0.50	<0.50	<2.0
23	Sep-16	9,200	<500	NA	<5.0	<5.0	<5.0	<5.0	<20
24	Mar-17	11,000	<250	NA	11	<2.5	<2.5	<2.5	<10

MW-10

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	840,000	14,000	<100,000	4,000	77	200	120	<50
2	Dec-06	19,000	12,000	<4,000	4,600	42	90	52	<50
3	Dec-07	4,700	13,000	NA	5,300	96	42	86	<50
4	Mar-08	280,000	10,000	NA	2,600	50	37	58.7	22
5	Jun-08	4,800	10,000	NA	3,800	62	24	61	<2.0
6	Sep-08	4,700	1,200	NA	350	11	3.4	11	<2.0
7	Dec-08	3,200	2,900	NA	550	45	15	56	<20
8	Mar-09	6,200	8,200	NA	890	46	78	130	<20
9	Sep-09	6,100	1,400	NA	1,200	35	19	31	<20
10	Mar-10	3,900	7,800	960	1,200	46	34	56	54
11	Sep-10	3,500	3,400	NA	1,500	47	18	44	<40
12	Mar-11	4,500	3,700	NA	1,200	81	25	46.4	<2.0
13	Sep-11	3,800	4,600	NA	720	49	26	52.4	<2.0
14	Mar-12	3,500	2,400	NA	240	27	10	33.6	<2.0
15	Sep-12	13,000	6,600	NA	1,800	89	130	46	<2.0
16	Mar-13	24,000	15,000	NA	1,300	66	130	94	<50
17	Sep-13	3,800	4,600	NA	900	87	29	56	<42
18	Mar-14	3,300	6,200	NA	940	43	<0.5	53	<40
19	Sep-14	42,000	7,000	NA	1,500	68	28	36	0
20	Mar-15	7,300	6,500	NA	640	53	44	22	<67
21	Sep-15	11,000	190	NA	8	1	0	0.87	0
22	Mar-16	6,000	12,000	NA	2,600	87	91	50	<67
23	Sep-16	2,100	19,000	NA	1,200	<170	<170	<170	<670
24	Mar-17	2,900	7,000	NA	1400	59	29.0	42.8	<10

MW-11

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	920	<200	26	4.5	1.8	5.4	<1.0
2	Dec-07	6,900	1,500	NA	320	44	53	140	<2.0
3	Mar-08	7,500	1,200	NA	120	7.6	10	24.9	3.0
4	Jun-08	5,100	2,000	NA	190	11	7.7	16.3	<2.0
5	Sep-08	5,600	2,200	NA	260	20	34	60	<2.0
6	Dec-08	7,800	2,100	NA	270	14	7.6	15.6	<2.0
7	Mar-09	7,100	1,400	NA	200	6.4	7.3	10.4	<2.0
8	Sep-09	6,400	1,900	NA	320	13	9.8	15.2	2.0
9	Mar-10	6,500	1,600	6,900	150	<0.5	3.9	12.8	2.9
10	Sep-10	5,500	1,300	NA	330	15	9.2	17.3	<2.0
11	Mar-11	6,500	3,400	NA	1300	22	9.6	19.9	<2.0
12	Sep-11	4,400	3,600	NA	1200	36	16	39.1	<2.0
13	Mar-12	4,600	5,700	NA	2100	27	12	16.7	<2.0
14	Sep-12	5,200	4,100	NA	1,500	33	<0.5	18	<2.0
15	Mar-13	8,400	1,800	NA	97	18	19	30	<2.0
16	Sep-13	7,900	1,900	NA	60	<0.5	3.6	13	27.0
17	Mar-14	5,700	2,000	NA	60	<0.5	3.8	14.2	<2.0
18	Sep-14	7,800	2,000	NA	89	0	6	14.4	0.0
19	Mar-15	7,900	1,600	NA	140	14	5.3	15.5	61.0
20	Sep-15	8,000	1,300	NA	110	16	2.1	20.4	0.0
21	Mar-16	5,500	1,900	NA	91	14	6.4	12.7	<2.0
22	Sep-16	5,800	1,300	NA	130	6.2	3.3	6.2	<10
23	Mar-17	8,700	5,000	NA	1200	70	45.0	116.0	<10

MW-12

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	19,000	<200	9,100	51	<50	110	<100
2	Dec-07	2,700	17,000	NA	8,000	110	25	115	<40
3	Mar-08	3,300	33,000	NA	9,200	140	85	116	<2.0
4	Jun-08	3,000	17,000	NA	6,600	95	50	110	<2.0
5	Sep-08	3,100	14,000	NA	6,200	79	18	83	<10
6	Dec-08	3,600	19,000	NA	7,900	140	72	124	<50
7	Mar-09	4,100	14,000	NA	6,100	150	130	111	<40
8	Sep-09	3,000	1,900	NA	4,500	80	14	51	<40
9	Mar-10	4,000	15,000	1,900	6,200	110	73	101	<2.0
10	Sep-10	3,100	4,900	NA	5,900	97	47	73	<100
11	Mar-11	3,300	15,000	NA	7,900	180	200	127	<2.0
12	Sep-11	1,800	8,600	NA	2,700	85	31	63	<2.0
13	Mar-12	2,500	17,000	NA	6,300	160	180	124	<2.0
14	Sep-12	2,300	10,000	NA	4,600	160	210	85	<2.0
15	Mar-13	9,800	9,100	NA	2,600	110	170	111	<2.0
16	Sep-13	7,800	9,400	NA	2,400	130	130	125	520
17	Mar-14	7,800	10,000	NA	2,500	89	68	55	<100
18	Sep-14	4,000	6,500	NA	1,500	110	26	59.9	0
19	Mar-15	3,500	14,000	NA	3,800	120	82	73	66
20	Sep-15	3,100	13,000	NA	4,300	110	52	71	0
21	Mar-16	2,900	13,000	NA	2,600	74	83	30	<50
22	Sep-16	2,700	7,800	NA	1,300	25	19	<13	<50
23	Mar-17	2,800	6,200	NA	1,200	28	16	<13	<50

MW-13

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	12,000	87,000	2,100	18,000	470	2,400	3,500	<400
2	Dec-07	NA	68,000	NA	19,000	650	1,700	2,440	<100
3	Mar-08	1,100,000	98,000	NA	19,000	820	2,300	3,190	<100
4	Jun-08	71,000	44,000	NA	12,000	510	1,600	1,950	<2.0
5	Sep-08	440,000	52,000	NA	<100	500	1,600	1,500	<100
6	Dec-08	1,100,000	2,700,000	NA	23,000	<250	40,000	45,000	<1,000
7	Mar-09	2,000,000	330,000	NA	25,000	1,300	6,400	8,500	<1,000
8	Sep-09	38,000	1,400,000	NA	19,000	2,500	19,000	21,300	<1,000
9	Mar-10	15,000	43,000	670	12,000	310	1,600	1,140	<2,500
10	Sep-10	3,100,000	1,700,000	NA	21,000	2,300	30,000	17,200	7,000
11	Mar-11	13,000	86,000	NA	7,900	180	200	127	<2.0
12	Sep-11	15,000	49,000	NA	16,000	380	1900	850	<2.0
13	Mar-12	1,100,000	260,000	NA	23,000	1500	5700	4100	<2.0
14	Sep-12	7,200,000	60,000	NA	22,000	580	2,100	1,700	<2.0
15	Mar-13	23,000	27,000	NA	5,600	260	1,300	1,080	<200
16	Sep-13	39,000	19,000	NA	3,400	180	760	515	<200
17	Mar-14	19,000	20,000	NA	3,700	120	710	361	<200
18	Sep-14	11,000	16,000	NA	2,400	70	460	253	0
19	Mar-15	11,000	14,000	NA	2,200	76	430	160	<100
20	Sep-15	8,300	13,000	NA	3,100	78	440	255	0
21	Mar-16	11,000	18,000	NA	4,000	100	510	252	<100
22	Sep-16	15,000	20,000	NA	3,700	66	480	205	<100
23	Mar-17	13,000	14,000	NA	3,100	60	350	130	<100

MW-14

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	8,300	<200	3,700	240	230	260	<50
2	Dec-07	2,600	6,800	NA	3,100	150	220	168	<20
3	Mar-08	4,400	18,000	NA	4,400	330	340	245	<2.0
4	Jun-08	2,600	7,700	NA	2,600	180	200	141	<2.0
5	Sep-08	2,500	4,100	NA	1,300	50	80	61	<10
6	Dec-08	2,800	2,300	NA	830	27	45	30.7	<10
7	Mar-09	3,200	13,000	NA	4,300	870	260	283	<50
8	Sep-09	2,100	550	NA	630	14	28	17	<20
9	Mar-10	3,900	6,700	3,100	2,400	400	140	185	<20
10	Sep-10	2,500	2,000	NA	1,700	44	98	89	<40
11	Mar-11	2,800	16,000	NA	6,600	1600	450	600	<2.0
12	Sep-11	5,900	20,000	NA	6,600	690	550	740	<2.0
13	Mar-12	4,400	13,000	NA	3,000	1400	340	870	<2.0
14	Sep-12	9,900	31,000	NA	4,800	2400	740	2,450	<2.0
15	Mar-13	21,000	11,000	NA	2,300	340	280	371	<50
16	Sep-13	24,000	7,200	NA	1,900	200	160	197	<83
17	Mar-14	8,200	6,900	NA	2,100	220	170	155	<110
18	Sep-14	8,500	7,100	NA	1,600	220	120	180	0
19	Mar-15	11,000	14,000	NA	2,900	390	210	222	<100
20	Sep-15	5,500	9,500	NA	2,600	250	190	237	0
21	Mar-16	7,300	12,000	NA	3,100	250	220	223	<100
22	Sep-16	4,700	9,900	NA	2,100	100	150	77	180
23	Mar-17	6,200	16,000	NA	4,100	370	360	191	<100

MW-15

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	9,200	<200	3,700	<25	60	57	<50
2	Dec-07	3,300	8,100	NA	3,000	48	28	44.5	<20
3	Mar-08	3,000	13,000	NA	3,600	66	210	59.5	<64
4	Jun-08	2,900	15,000	NA	5,800	61	230	56.4	<2.0
5	Sep-08	3,400	18,000	NA	7,800	73	270	59.9	<10
6	Dec-08	3,000	20,000	NA	7,600	95	300	84.2	<50
7	Mar-09	3,400	17,000	NA	7,200	91	170	60	<50
8	Sep-09	2,700	2,300	NA	6,200	71	68	42	<50
9	Mar-10	3,700	14,000	910	5,900	74	170	69	<2.0
10	Sep-10	3,500	5,800	NA	8,100	95	170	71	<100
11	Mar-11	3,200	11,000	NA	5,600	88	110	66.1	<2.0
12	Sep-11	2,200	15,000	NA	6,400	100	71	77.7	<2.0
13	Mar-12	3,500	16,000	NA	7,200	110	160	177	<2.0
14	Sep-12	3,500	28,000	NA	12,000	300	380	297	<2.0
15	Mar-13	3,100	15,000	NA	6,100	170	360	266	<67
16	Sep-13	2,800	17,000	NA	4,100	92	76	144	<200
17	Mar-14	2,200	12,000	NA	3,900	75	30	54	<2.0
18	Sep-14	3,300	9,500	NA	2,600	110	22	46.7	0
19	Mar-15	8,500	16,000	NA	3,400	66	93	29	<100
20	Sep-15	3,100	10,000	NA	3,100	63	33	48	0
21	Mar-16	3,200	19,000	NA	3,800	96	44	41	<100
22	Sep-16	5,300	18,000	NA	5,000	66	<25	49	<100
23	Mar-17	3,700	7,100	NA	1,300	31	72.0	40	<100

MW-16

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	190	<200	11.0	1.4	<0.5	<0.5	<1.0
2	Dec-07	8,500	71	NA	13	2.6	<0.5	1.46	<2.0
3	Mar-08	12,000	60	NA	11	0.73	<0.5	<0.5	<2.0
4	Jun-08	10,000	120	NA	13	2.2	<0.5	<0.5	2
5	Sep-08	8,200	64	NA	9.9	1.9	<0.5	<0.5	<2.0
6	Dec-08	8,800	60	NA	11	2.8	<0.5	0.53	<2.0
7	Mar-09	14,000	78	NA	12	2.3	<0.5	<0.5	<2.0
8	Sep-09	10,000	51	NA	9.3	1.6	<0.5	<0.5	2.2
9	Mar-10	12,000	70	4,700	12	2.1	0.56	1.35	<2.0
10	Sep-10	9,800	77	NA	12	1.9	<0.5	0.55	2
11	Mar-11	9,900	64	NA	13	1.6	<0.5	2.3	16
12	Sep-11	10,000	74	NA	17	2.3	<0.5	1.33	<2.0
13	Mar-12	8,400	66	NA	12	1.8	<0.5	1.07	<2.0
14	Sep-12	7,700	84	NA	17	1.5	0.57	0.69	<2.0
15	Mar-13	8,100	80	NA	15	1.4	<0.5	0.75	<2.0
16	Sep-13	9,800	66	NA	13	1.7	<0.5	1.38	<2.0
17	Mar-14	5,900	76	NA	11	1.2	<0.5	0.94	<2.0
18	Sep-14	10,000	110	NA	14	1.5	0	0	0
19	Mar-15	9,500	200	NA	34	2.4	2.5	1.82	<2
20	Sep-15	6,200	110	NA	10	1.1	0	0	0
21	Mar-16	8,200	80	NA	12	1.9	<0.50	1.46	<2.0
22	Sep-16	8,500	330	NA	7.9	<2.5	<2.5	<2.5	<10
23	Mar-17	8,400	<250	NA	27	3.4	<2.5	<2.5	<10

MW-17

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	14,000	<200	3,400	1,100	480	<0.5	<1.0
2	Dec-07	2,900	5,000	NA	1,100	260	110	206	<10
3	Mar-08	3,100	6,800	NA	1,200	110	91	94	21
4	Jun-08	2,900	7,200	NA	1,100	45	75	66	<2.0
5	Sep-08	3,300	5,500	NA	900	63	69	69	<10
6	Dec-08	3,200	7,100	NA	1,100	530	190	390	<10
7	Mar-09	3,000	5,400	NA	770	150	87	161	<2.0
8	Sep-09	3,000	2,200	NA	120	3.1	11	1.6	<2.0
9	Mar-10	3,400	5,000	1,900	910	66	73	93	<2.0
10	Sep-10	2,800	3,500	NA	1,400	62	46	76	<40
11	Mar-11	3,900	6,100	NA	1,100	44	55	70	<2.0
12	Sep-11	2,400	4,600	NA	850	49	51	64	<2.0
13	Mar-12	2,200	5,800	NA	1,500	57	58	67	<2.0
14	Sep-12	1,400	4,800	NA	1,300	45	100	41	<2.0
15	Mar-13	2,900	7,200	NA	1,200	89	220	110	<25
16	Sep-13	2,100	8,000	NA	1,400	150	220	122	<67
17	Mar-14	2,600	8,600	NA	1,800	150	320	118	<67
18	Sep-14	3,000	7,900	NA	1,500	160	130	91	0
19	Mar-15	3,200	9,800	NA	1,600	220	120	136	57
20	Sep-15	3,700	8,100	NA	1,800	160	90	143	0
21	Mar-16	2,900	10,000	NA	1,100	75	42	90	<50
22	Sep-16	1,900	7,900	NA	1,200	230	81	146	<50
23	Mar-17	3,700	27,000	NA	2,100	<13	93.0	167	<50

MW-18

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	120	<200	22	6.2	3.2	6.2	<2.0
2	Dec-07	8,600	<50	NA	0.98	<0.5	<0.5	<0.5	<2.0
3	Mar-08	9,800	<50	NA	0.52	<0.5	<0.5	<0.5	2.0
4	Jun-08	8,800	<50	NA	<0.5	<0.5	<0.5	<0.5	3.1
5	Sep-08	8,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
6	Dec-08	9,300	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
7	Mar-09	10,000	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
8	Sep-09	11,000	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
9	Mar-10	9,400	<50	2,700	<0.5	<0.5	<0.5	<0.5	<2.0
10	Sep-10	6,400	1,800	NA	2200	45	64.0	78.0	<50
11	Mar-11	10,000	68	NA	5.5	1.1	<0.5	1.3	17
12	Sep-11	9,800	<50	NA	0.58	<0.5	<0.5	<0.5	<2.0
13	Mar-12	9,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-12	11,000	160	NA	5.1	<0.5	5.7	0.6	<2.0
15	Mar-13	9,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
16	Sep-13	11,000	<50	NA	0.52	<0.5	<0.5	<0.5	<2.0
17	Mar-14	8,200	<50	NA	0.52	<0.5	<0.5	<0.5	<2.0
18	Sep-14	12,000	0	NA	0	0	0.0	0.0	0
19	Mar-15	10,000	69	NA	6	<0.5	<0.5	<0.5	0
20	Sep-15	9,700	0	NA	0	0	0.0	0.0	0
21	Mar-16	9,000	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
22	Sep-16	9,900	<250	NA	<2.5	<2.5	<2.5	<2.5	<10
23	Mar-17	11,000	<250	NA	<2.5	<2.5	<2.5	<2.5	<10

MW-E

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	100	5,400	NA	3,200	690	97	330	NA
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	470	810	<500	340	6.1	2.2	7.7	<1.0
5	Dec-06	280	1,900	<200	910	<10	10	<10	<20
6	Dec-07	6,900	7,000	NA	3,300	50	51	80	<20
7	Mar-08	6,300	2,700	NA	780	17	20	20.9	12
8	Jun-08	5,200	7,400	NA	2,900	43	85	50	<2.0
9	Sep-08	7,800	11,000	NA	3,800	170	130	257	<50
10	Dec-08	9,400	9,100	NA	3,400	110	180	182	<50
11	Mar-09	5,600	850	NA	270	7.5	13	17.5	<2.0
12	Sep-09	6,200	540	NA	1,200	22	37	37.2	<2.0
13	Mar-10	3,800	2,400	5,100	1,000	20	37	26.9	4.9
14	Sep-10	6,600	1,800	NA	2,200	45	64	78	<50
15	Mar-11	5,900	4,400	NA	2,600	46	64	90	<50
16	Sep-11	7,600	3,600	NA	4,500	150	340	402	<2.0
17	Mar-12	5,800	6,500	NA	2,600	50	52	84	<2.0
18	Sep-12	8,300	7,800	NA	5,500	190	430	431	<2.0
19	Mar-13	7,700	21,000	NA	5,900	210	850	970	<50
20	Sep-13	9,400	15,000	NA	3,800	120	470	351	200
21	Mar-14	5,600	9,500	NA	3,200	110	240	178	<140
22	Sep-14	7,800	6,800	NA	1,800	55	86	87	0
23	Mar-15	12,000	6,800	NA	2,200	70	140	131	<67
24	Sep-15	11,000	22,000	NA	6,400	230	750	810	120
25	Mar-16	4,200	9,000	NA	1,700	55	130	181	<67
26	Sep-16	9,400	29,000	NA	3,500	190	360	370	<670
27	Mar-17	6,700	2,200	NA	6,700	32	43	57	<2

RW-1

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	NS	NS	NS	NS	NS	NS	NS	NS
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	640	<200	100	1.3	2	1.6	<1.0
6	Dec-07	2,100	770	NA	110	<0.5	3.8	1.96	<2.0
7	Mar-08	11,000	890	NA	100	4.2	4.4	2.0	<2.0
8	Jun-08	1,500	1,200	NA	290	4.8	10	4.8	<2.0
9	Sep-08	1,900	1,400	NA	280	9.8	10	6.7	<2.0
10	Dec-08	54,000	1,100,000	NA	500	<250	3,200	530	<1,000
11	Mar-09	2,800	950	NA	180	3.6	13	3	<2.0
12	Sep-09	770	350	NA	120	3.1	11	2	<2.0
13	Mar-10	810	200	<300	<0.5	<0.5	<0.5	<0.5	<2.0
14	Sep-10	980	860	NA	170	4.0	5.6	2.8	8.0
15	Mar-11	810	310	NA	15	4.4	2.5	3.9	8.8
16	Sep-11	440	230	NA	28	2.7	1.7	1.5	<2.0
17	Mar-12	1,900	502	NA	70	2.0	2.2	2.1	<2.0
18	Sep-12	890	790	NA	150	9.6	5.5	12.0	<2.0
19	Mar-13	2,800	280	NA	2.7	1.7	2.5	1.9	<2.0
20	Sep-13	1,500	420	NA	10.2	6.0	<0.5	5.7	8.2
21	Mar-14	4,700	410	NA	1.3	1.0	2.4	3.4	2.8
22	Sep-14	1,000	440	NA	41	0.9	1.5	2.2	2.8
23	Mar-15	2,300	710	NA	100	3.8	6.6	131.0	<2
24	Sep-15	660	450	NA	75	4.2	1.4	0.0	0.0
25	Mar-16	830	260	NA	7.3	<0.540	1.9	1.1	<2.0
26	Sep-16	1,500	1,100	NA	49	4.6	6.5	8.9	<2.0
27	Mar-17	2,800	910	NA	130	6.2	4.9	5.9	<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 # 170905-PA1 Date 09/05/17 Client Stellar Env.

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	1000	2	odor				11.35	—		sticky, thick product. couldn't get proper reading
MW-4	1010	2					8.88	24.80		
MW-5	0950	2					9.65	24.90		
MW-6	0948	2					7.65	23.45		
MW-7	1016	3/4					10.72	19.85		
MW-8	1100	3/4	odor	9.70	0.24		9.94	—		
MW-9	1025	3/4		~~10.58~~ SH			10.05	19.68		
MW-10	1032	3/4	odor	8.80	.02		8.82	—		
MW-11	1035	3/4	odor sheen				10.42	19.72		
MW-12	1042	3/4	odor				9.18	18.98		
MW-13	1034	3/4					8.28	19.50		
MW-14	1038	3/4					9.00	19.50		
MW-15	1040	3/4	odor	9.55	.02		9.57	—		
MW-16	1050	3/4					9.80	19.08		
MW-17	1052	3/4					9.50	19.50		
MW-18	1054	3/4					9.20	19.57		
MW-E	1055	2					10.17	47.42		
RW-1	1020	10		9.70	0.01		9.71			

WELL MONITORING DATA SHEET

Project #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/5/2017
Well I.D.: MW- E	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 47.42	Depth to Water (DTW): 10.17
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]: 17.62	

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

6 (Gals.) X 3 = 18 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
1355	20.5	8.17	2936	540	6	
	-dewatered @ 9 gals					
1359	20.4	7.96	2890	41	—	

Did well dewater? (Yes) No Gallons actually evacuated: 9

Sampling Date: 9/5/17 Sampling Time: 1400 Depth to Water: 16.50

Sample I.D.: MW- E Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Cove Apts
Sampler: PA	Date: 9-6-17
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): ____	Depth to Water (DTW): 11.35
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)

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
1110	Started	purge @ 100mL/min				SPH is tar
1116	stopped	purging well.				like; used ¼ tubing
						as drop tube for
						perri tubing-

Did well dewater? Yes (No) Gallons actually evacuated: 600mL

Sampling Date: 9/6/17 Sampling Time: 1117 Depth to Water:

Sample I.D.: MW-3 Laboratory:

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

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

W LL MONITORING DATA SH T

Project #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/ 5 /2017
Well I.D.: MW- 4	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.80	Depth to Water (DTW): 8.98
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]: 12.064	

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	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1127	20.5	7.57	1562	<1000	2.5	
1130	20.7	7.34	1521	121	5.0	
1134	20.7	7.27	1475	34	7.5	

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

Sampling Date: 9/ /17 Sampling Time: 1135 Depth to Water: 11.92

Sample I.D.: MW- 4 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/5/2017
Well I.D.: MW- 5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.90	Depth to Water (DTW): 9.65
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]: 12.7	

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: _____

3.05 (Gals.) X	3	= 9.15 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
1200	20.5	8.06	2341	>1000	3.5	
1205	20.4	8.04	2297	721	6.5	
	well	dewatered	@ 6.5	gallons		
1235	20.4	7.92	2035	343	grab	

Did well dewater? (Yes) No Gallons actually evacuated: 6.5

Sampling Date: 9/5/17 Sampling Time: 1236 Depth to Water: ~~6.5~~ (PM) 12.62

Sample I.D.: MW- 5 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/5/2017
Well I.D.: MW- 6	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.45	Depth to Water (DTW): 7.65
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: ____

15.8

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	radius² * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1240	19.8	11.96	1460	104	2.5	
1245	19.8	11.94	1425	96	5.0	
1250	19.7	11.90	1311	82	7.5	

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

Sampling Date: 9/5/17 Sampling Time: 1251 Depth to Water: 7.70

Sample I.D.: MW- 6 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/05/2017
Well I.D.: MW- 7	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.85	Depth to Water (DTW): 10.72 (9.13)
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]: 12.55	

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

3/4" = 0.02

0.18 (Gals.) X 3 = 0.54 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
1126	20.0	8.31	1339	31	0.18	Brown
1129	20.1	8.27	1381	29	0.36	
—	Well Dewatered @	~ 0.4 gals	—	—	—	—
1330	19.8	8.32	1313	40	—	Brown

Did well dewater? (Yes) No — Gallons actually evacuated: 0.4

Sampling Date: 9/05/17 — Sampling Time: 1330 — Depth to Water: 11.91

Sample I.D.: MW- 7 — Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: (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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/6/2017
Well I.D.: MW- 8	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD):	Depth to Water (DTW): 9.94
Depth to Free Product: 9.70	Thickness of Free Product (feet): 0.24
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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0740	Started purge @ 150mL -					- unable to record
0746	Stopped purge					water levels during purge -

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

Sampling Date: 9/6/17 Sampling Time: 0747 Depth to Water: 12.24

Sample I.D.: MW- 8 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/5/2017
Well I.D.: MW- 9	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.68	Depth to Water (DTW): 10.05 (9.63)
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]: 11.98	

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

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
1143	18.6	9.27	2818	117	0.2	light Brown
1144	18.9	9.30	2873	110	0.4	
1145	19.0	9.28	2901	116	0.6	

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

Sampling Date: 9/5/17 Sampling Time: 1150 Depth to Water: 11.16

Sample I.D.: MW- 9 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/ 6 /2017
Well I.D.: MW- 10	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD):	Depth to Water (DTW): 8.82
Depth to Free Product: 8.80	Thickness of Free Product (feet): .02
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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0817	started		purge	@ 100mL/min		- unable to
0823	stopped		purge			record water
						levels during
						purge

Did well dewater? Yes (No) Gallons actually evacuated: 600 mL

Sampling Date: 9/6/17 Sampling Time: 0824 Depth to Water: 9.02

Sample I.D.: MW- 10 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/ 5 /2017
Well I.D.: MW- 11	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.72	Depth to Water (DTW): 10.42 (9.30)
Depth to Free Product: Heavy Sheen	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]: 12.28	

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

Odor / strong sheen

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
1220	start purge @ 100 mL/min				0.2 (BA)	10.69 Heavy sheen
1226	end purge				0.6 (BA)	13.00 (DA)

Did well dewater? Yes (No) Gallons actually evacuated: 600 mL

Sampling Date: 9 / 5 / 17 Sampling Time: 1230 Depth to Water: 11.23

Sample I.D.: MW- 11 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/ 5 /2017
Well I.D.: MW- 12	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 18.98	Depth to Water (DTW): 9.18 9.80
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]: 11.14	

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

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; 0.02; 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
1247	17.0	7.91	1177	37	0.2	
1248	16.9	7.90	1200	35	0.4	
1249	16.9	7.90	1202	41	0.6	

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

Sampling Date: 9 / 5 / 17 Sampling Time: 1255 Depth to Water: 9.18

Sample I.D.: MW- 12 Laboratory: Enthalpy

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

W LL MONITORING DATA SH T

Project #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/ 6 /2017
Well I.D.: MW- 13	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.50	Depth to Water (DTW): 8.28
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]: 10.52	

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

11.22

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
0915	16.4	8.03	1944	67	0.2	
0916	16.5	8.02	1937	54	0.4	
0917	16.5	7.97	1906	39	0.6	

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

Sampling Date: 9 / 6 / 17 Sampling Time: 0918 Depth to Water: 9.37

Sample I.D.: MW- 13 Laboratory: Enthalpy

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

W LL MONITORING DATA SH T

Project #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/ 6 /2017
Well I.D.: MW- 1 4	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.50	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]: 11.1	

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

10.5

0.21 (Gals.) X	3	= 0.63 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
0955	16.5	8.44	1146	27	0.21	
0956	16.5	8.37	1134	25	0.42	
0957	16.6	8.22	1127	22	0.63	

Did well dewater? Yes (No) Gallons actually evacuated: 0.63

Sampling Date: 9 / 6 17 Sampling Time: 0958 Depth to Water: 10.30

Sample I.D.: MW- 1 4 Laboratory: Enthalpy

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

V. LL MONITORING DATA SH T

Project #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/ 6 /2017
Well I.D.: MW- 15	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD):	Depth to Water (DTW): 9.57
Depth to Free Product: 9.55	Thickness of Free Product (feet): .02
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 grab bag

_____(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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1025	Started	purge @	100mL			-unable to record
1031	Stopped	purge				water levels due to well size

Did well dewater? Yes (No) Gallons actually evacuated: 600mL

Sampling Date: 9/6/17 Sampling Time: 1032 Depth to Water:

Sample I.D.: MW- 15 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/5/2017
Well I.D.: MW- 16	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.08	Depth to Water (DTW): 9.80 [9.28]
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]: 11.66	

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

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
1311	16.5	9.93	3212	121	0.2	Brown color, odor
1312	16.6	9.95	3223	101	0.4	
1313	16.8	9.99	3241	72	0.6	

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

Sampling Date: 9/5/17 Sampling Time: 1315 Depth to Water: 9.98

Sample I.D.: MW- 16 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: (PA) / BA / ____	Date: 9/5/2017
Well I.D.: MW- 17	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.50	Depth to Water (DTW): 9.50
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

0.02

0.25 (Gals.) X 3 = 0.75 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
1325	20.3	8.84	1025	96	0.25	
1326	20.3	8.72	975	84	0.50	
1327	20.4	8.69	923	72	0.75	

Did well dewater? Yes (No) Gallons actually evacuated: 0.75

Sampling Date: 9/5/17 Sampling Time: 1328 Depth to Water: 9.50

Sample I.D.: MW- 17 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: 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 #: 170905-PA1	Client: Stellar Env Solutions @ Bay Center Apts
Sampler: PA / BA / ____	Date: 9/ 5 /2017
Well I.D.: MW- 18	Well Diameter: 2 3 4 6 8 3/4
Total Well Depth (TD): 19.57	Depth to Water (DTW): 9.20 10.37
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 (BA); Waterra; ~~Peristaltic~~; Extraction Pump; Other ____

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: New Tubing .02

0.20 (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
1345	16.0	7.11	6612	210	0.2	Gray
1346	16.1	7.13	6572	438	0.4	
1347	16.1	7.13	6513	689	0.6	

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

Sampling Date: 9 / 5 / 17 Sampling Time: 1350 Depth to Water: 10.09

Sample I.D.: MW- 18 Laboratory: Enthalpy

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: (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 #: 170905-PR1	Client: Stellar Env & Bay Corner Apts
Sampler: PR	Date: 9-6-17
Well I.D.: RW-01	Well Diameter: 2 3 4 6 8 10
Total Well Depth (TD): —	Depth to Water (DTW): 9.71
Depth to Free Product: 9.70	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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1150	Started purge @ 200ml/min					
1156	Stopped purge					

Did well dewater? Yes (No) Gallons actually evacuated: 1200ml

Sampling Date: 9-6-17 Sampling Time: 1157 Depth to Water: 9.71

Sample I.D.: RW-1 Laboratory:

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

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

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME	Stellar @ Bay Center Apts	PROJECT NUMBER	170905-PA1				
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
YSI ProPlus	12H101387	9/5 1000	4 10 7 ORP 390	4.0 9.9 7.0 233.9 5816	Yes	23.4	PB
↓	↓	9/6 0630	↓	4.1 10.0 7.1 234.1 3896	Yes	23.3	PB

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record

ENTHALPY

ANALYTICAL

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

Laboratory Job Number 292132
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-17	292132-001
MW-6	292132-002
MW-5	292132-003
MW-4	292132-004
MW-E	292132-005
MW-18	292132-006
MW-16	292132-007
MW-12	292132-008
MW-11	292132-009
MW-9	292132-010
MW-7	292132-011

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: _____ Date: 09/14/2017

Patrick McCarthy
Project Manager
patrick.mccarthy@enthalpy.com
(510) 204-2236

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**292132**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**09/05/17**
Samples Received:	**09/05/17**

This data package contains sample and QC results for eleven water samples, requested for the above referenced project on 09/05/17. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
Many samples were diluted due to client history of high non-target or organic acid interference. MW-7 (lab # 292132-011) had pH greater than 2. No other analytical problems were encountered.

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

292132

Chain of Custody Record

ENTHALPY

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

Project Owner
Site Address 6400 CHRISTIE AVE.
BERKELEY, CA
Project Name BAY CENTER APARTMENT
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)*

Lab job no.
Date 9-5-17
Page 1 of 1

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TEH-D (8015 M)	BTEX + MTBE (8260B)	TPH-G / M/BTEX	Remarks
MW-17		9-1-17	1328		VOA/Amber 500 mL					X		X	
MW-6			1251							X		X	
MW-5			1236							X		X	
MW-4			1135							X		X	
MW-E			1100							X		X	
MW-18			1350							X		X	
MW-16			1315							X		X	
MW-12			1255							X		X	
MW-11			1230							X		X	
MW-9			1150							X		X	
MW-7			1330							X		X	
		↓											

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	9/5/17	Signature	9/5	Signature		Signature	
Printed Phillip Alonzo	Time 1500	Printed Tracy Babler	Time 1520	Printed	Time	Printed	Time
Company Blaine Tech Services		Company Enthalpy		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

cold & intact

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

ENTHALPY Berkeley

Login # 292132 Date Received 09/05/17 Number of coolers 1
Client Stellar Environmental Solutions Project 2007-65

Date Opened 09/05/17 By (print) EAS (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labelled ↓ By (print) ↓ (sign) ↓

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.0

☐ Temperature blank(s) included? ☐ Thermometer# ☒ IR Gun# 6

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

COMMENTS (13) COC lists sample 5 as "MW-E" but are labelled as "MW-8"; sampled time and date match
(10) COC lists bottles for TEH but no bottles arrived, for sample 8,9,10 MD 11
(20) 2/3 VOAs arrived with bubble, in sample 6

Rev 14, 8/01/17

ENTHALPY ANALYTICAL

Detections Summary for 292132

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

Client : Stellar Environmental Solutions
Project : 2007-65
Location : Bay Center Apts

Client Sample ID : MW-17 Laboratory Sample ID : 292132-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	6,700		1,300	ug/L	As Recd	25.00	EPA 8015B	EPA 5030B
Benzene	840		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
Toluene	170		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
Ethylbenzene	59		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
m,p-Xylenes	96		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
o-Xylene	41		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
Diesel C10-C24	3,100	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-6 Laboratory Sample ID : 292132-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
MTBE	3.1		2.0	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Benzene	0.83		0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Diesel C10-C24	570	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-5 Laboratory Sample ID : 292132-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
MTBE	2.7		2.0	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Diesel C10-C24	1,400	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-4 Laboratory Sample ID : 292132-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
MTBE	2.8		2.0	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Diesel C10-C24	290	Y	50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-E Laboratory Sample ID : 292132-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	16,000		2,500	ug/L	As Recd	50.00	EPA 8015B	EPA 5030B
Benzene	4,400		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Toluene	120		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Ethylbenzene	410		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
m,p-Xylenes	290		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
o-Xylene	69		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Diesel C10-C24	3,200	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-18 Laboratory Sample ID : 292132-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1,900	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-16 Laboratory Sample ID : 292132-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Benzene	13		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Diesel C10-C24	3,200	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-12 Laboratory Sample ID : 292132-008

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	6,200		1,300	ug/L	As Recd	25.00	EPA 8015B	EPA 5030B
Benzene	1,400		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
Toluene	36		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
m,p-Xylenes	13		13	ug/L	As Recd	25.00	EPA 8021B	EPA 5030B
Diesel C10-C24	2,100		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-11 Laboratory Sample ID : 292132-009

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	2,100		250	ug/L	As Recd	5.000	EPA 8015B	EPA 5030B
Benzene	210		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Toluene	34		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Ethylbenzene	18		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
m,p-Xylenes	43		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
o-Xylene	17		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Diesel C10-C24	3,800		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-9 Laboratory Sample ID : 292132-010

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	510	Y	250	ug/L	As Recd	5.000	EPA 8015B	EPA 5030B
Benzene	6.1		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Diesel C10-C24	3,800	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-7 Laboratory Sample ID : 292132-011

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	1,200		250	ug/L	As Recd	5.000	EPA 8015B	EPA 5030B
Benzene	320		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Toluene	11		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Ethylbenzene	14		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
m,p-Xylenes	37		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
o-Xylene	8.2		2.5	ug/L	As Recd	5.000	EPA 8021B	EPA 5030B
Diesel C10-C24	3,800	Y	49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Y = Sample exhibits chromatographic pattern which does not resemble standard

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17

Field ID:	MW-17	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-001	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	6,700	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	840	13	EPA 8021B
Toluene	170	13	EPA 8021B
Ethylbenzene	59	13	EPA 8021B
m,p-Xylenes	96	13	EPA 8021B
o-Xylene	41	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	102	80-121	EPA 8015B
Bromofluorobenzene (PID)	103	74-135	EPA 8021B

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-002	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	3.1	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)	95	80-121	EPA 8015B
Bromofluorobenzene (PID)	98	74-135	EPA 8021B

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-003	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	2.7	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)	107	80-121	EPA 8015B
Bromofluorobenzene (PID)	105	74-135	EPA 8021B

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

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17

Field ID:	MW-4	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-004	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	2.8	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)	86	80-121	EPA 8015B
Bromofluorobenzene (PID)	85	74-135	EPA 8021B

Field ID:	MW-E	Diln Fac:	50.00
Type:	SAMPLE	Batch#:	251390
Lab ID:	292132-005	Analyzed:	09/08/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	16,000	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	4,400	25	EPA 8021B
Toluene	120	25	EPA 8021B
Ethylbenzene	410	25	EPA 8021B
m,p-Xylenes	290	25	EPA 8021B
o-Xylene	69	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	105	80-121	EPA 8015B
Bromofluorobenzene (PID)	104	74-135	EPA 8021B

Field ID:	MW-18	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-006	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	ND	2.5	EPA 8021B
Toluene	ND	2.5	EPA 8021B
Ethylbenzene	ND	2.5	EPA 8021B
m,p-Xylenes	ND	2.5	EPA 8021B
o-Xylene	ND	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	96	80-121	EPA 8015B
Bromofluorobenzene (PID)	98	74-135	EPA 8021B

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

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17

Field ID:	MW-16	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-007	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	13	2.5	EPA 8021B
Toluene	ND	2.5	EPA 8021B
Ethylbenzene	ND	2.5	EPA 8021B
m,p-Xylenes	ND	2.5	EPA 8021B
o-Xylene	ND	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	110	80-121	EPA 8015B
Bromofluorobenzene (PID)	112	74-135	EPA 8021B

Field ID:	MW-12	Diln Fac:	25.00
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-008	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	6,200	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	1,400	13	EPA 8021B
Toluene	36	13	EPA 8021B
Ethylbenzene	ND	13	EPA 8021B
m,p-Xylenes	13	13	EPA 8021B
o-Xylene	ND	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	105	80-121	EPA 8015B
Bromofluorobenzene (PID)	106	74-135	EPA 8021B

Field ID:	MW-11	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-009	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,100	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	210	2.5	EPA 8021B
Toluene	34	2.5	EPA 8021B
Ethylbenzene	18	2.5	EPA 8021B
m,p-Xylenes	43	2.5	EPA 8021B
o-Xylene	17	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	106	80-121	EPA 8015B
Bromofluorobenzene (PID)	108	74-135	EPA 8021B

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

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17

Field ID:	MW-9	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-010	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	510 Y	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	6.1	2.5	EPA 8021B
Toluene	ND	2.5	EPA 8021B
Ethylbenzene	ND	2.5	EPA 8021B
m,p-Xylenes	ND	2.5	EPA 8021B
o-Xylene	ND	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	106	80-121	EPA 8015B
Bromofluorobenzene (PID)	105	74-135	EPA 8021B

Field ID:	MW-7	Diln Fac:	5.000
Type:	SAMPLE	Batch#:	251335
Lab ID:	292132-011	Analyzed:	09/06/17

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,200	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	320	2.5	EPA 8021B
Toluene	11	2.5	EPA 8021B
Ethylbenzene	14	2.5	EPA 8021B
m,p-Xylenes	37	2.5	EPA 8021B
o-Xylene	8.2	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	86	80-121	EPA 8015B
Bromofluorobenzene (PID)	87	74-135	EPA 8021B

Type:	BLANK	Batch#:	251335
Lab ID:	QC899664	Analyzed:	09/06/17
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)	82	80-121	EPA 8015B
Bromofluorobenzene (PID)	85	74-135	EPA 8021B

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

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17

Type:	BLANK	Batch#:	251390
Lab ID:	QC899872	Analyzed:	09/07/17
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)	88	80-121	EPA 8015B
Bromofluorobenzene (PID)	88	74-135	EPA 8021B

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

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	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:	QC899659	Batch#:	251335
Matrix:	Water	Analyzed:	09/06/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	968.0	97	80-122

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-121

ENTHALPY ANALYTICAL

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	251335
Units:	ug/L	Analyzed:	09/06/17
Diln Fac:	1.000		

Type: BS Lab ID: QC899660

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.14	101	45-130
Benzene	10.00	9.093	91	80-120
Toluene	10.00	8.668	87	80-120
Ethylbenzene	10.00	9.114	91	78-120
m,p-Xylenes	10.00	8.636	86	78-120
o-Xylene	10.00	8.695	87	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	93	74-135

Type: BSD Lab ID: QC899661

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	21.93	110	45-130	8	58
Benzene	20.00	19.86	99	80-120	9	20
Toluene	20.00	18.89	94	80-120	9	20
Ethylbenzene	20.00	19.10	96	78-120	5	28
m,p-Xylenes	20.00	19.37	97	78-120	11	26
o-Xylene	20.00	19.14	96	80-120	10	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	108	74-135

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-6	Batch#:	251335
MSS Lab ID:	292132-002	Sampled:	09/05/17
Matrix:	Water	Received:	09/05/17
Units:	ug/L	Analyzed:	09/07/17
Diln Fac:	1.000		

Type: MS Lab ID: QC899662

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	29.62	2,000	1,903	94	78-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-121

Type: MSD Lab ID: QC899663

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,906	94	78-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-121

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	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:	QC899867	Batch#:	251390
Matrix:	Water	Analyzed:	09/07/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	970.7	97	80-122

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-121

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	251390
Units:	ug/L	Analyzed:	09/07/17
Diln Fac:	1.000		

Type: BS Lab ID: QC899868

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.34	103	45-130
Benzene	10.00	9.624	96	80-120
Toluene	10.00	9.278	93	80-120
Ethylbenzene	10.00	9.467	95	78-120
m,p-Xylenes	10.00	9.395	94	78-120
o-Xylene	10.00	9.316	93	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	100	74-135

Type: BSD Lab ID: QC899869

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.46	105	45-130	1	58
Benzene	10.00	9.496	95	80-120	1	20
Toluene	10.00	9.010	90	80-120	3	20
Ethylbenzene	10.00	9.330	93	78-120	1	28
m,p-Xylenes	10.00	9.041	90	78-120	4	26
o-Xylene	10.00	9.019	90	80-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	94	74-135

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	RW-1	Batch#:	251390
MSS Lab ID:	292162-001	Sampled:	09/06/17
Matrix:	Water	Received:	09/06/17
Units:	ug/L	Analyzed:	09/08/17
Diln Fac:	1.000		

Type: MS Lab ID: QC899870

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	656.4	2,000	2,368	86	78-120

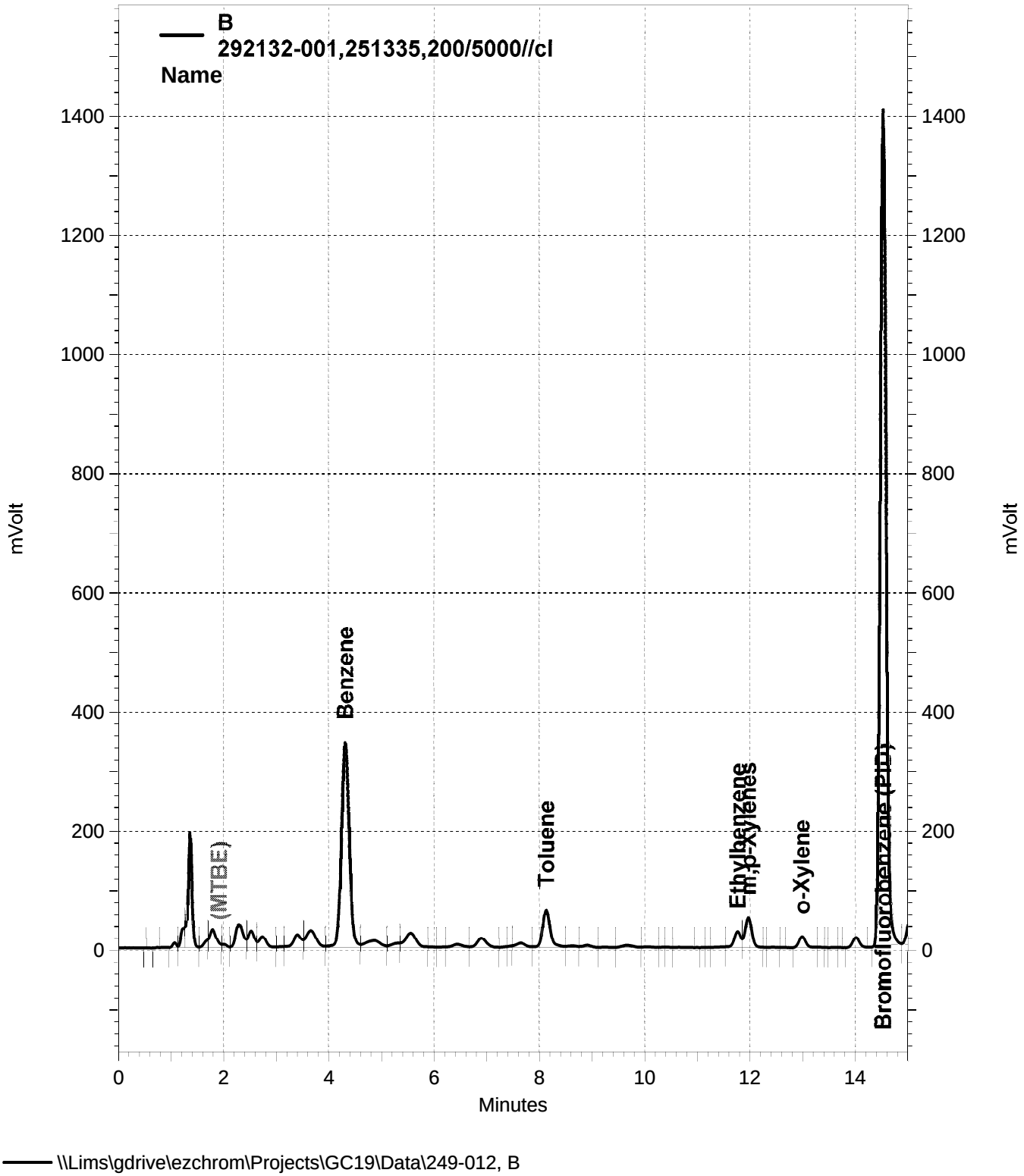
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	80-121

Type: MSD Lab ID: QC899871

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,459	90	78-120	4	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-121

RPD= Relative Percent Difference



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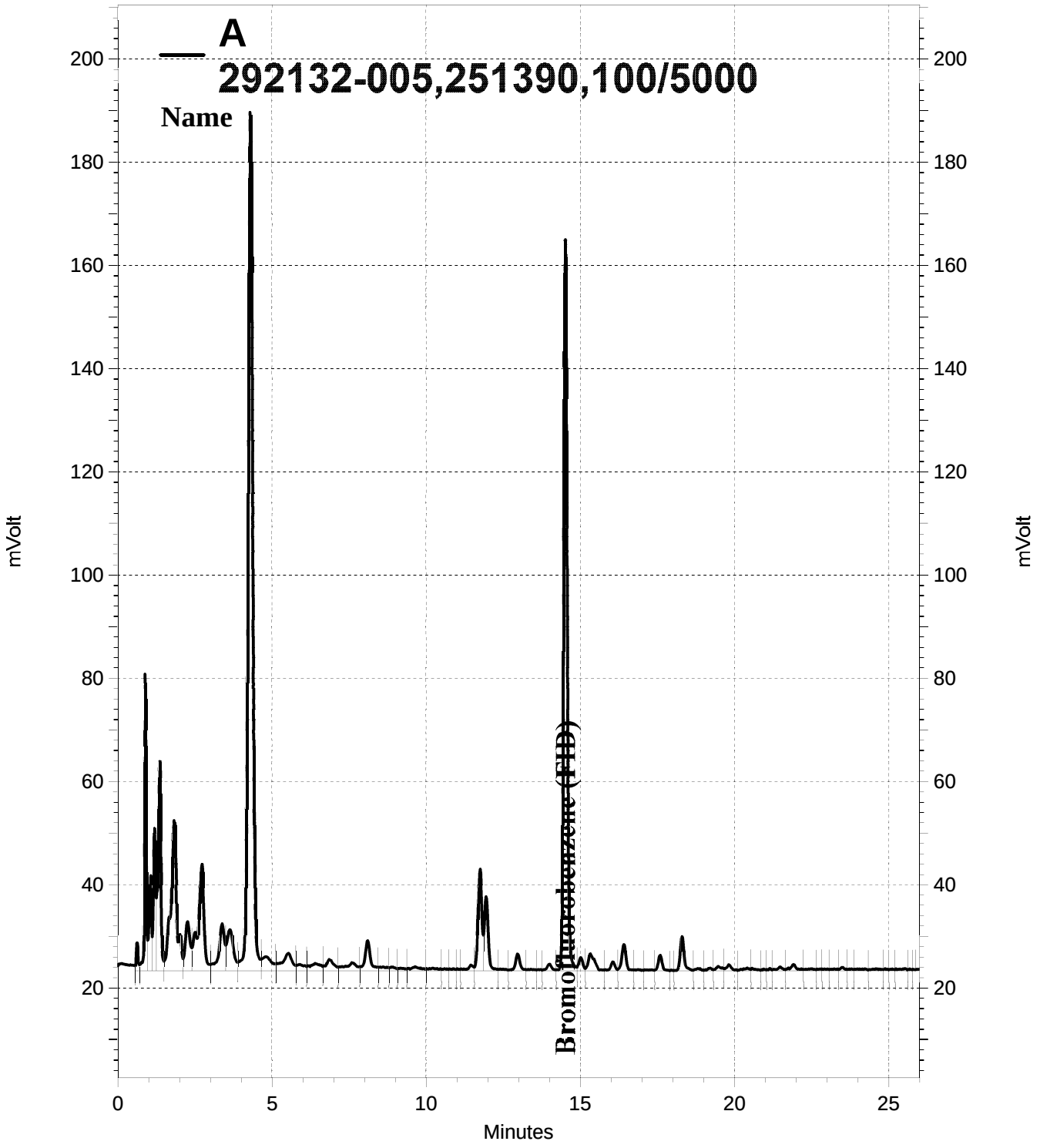

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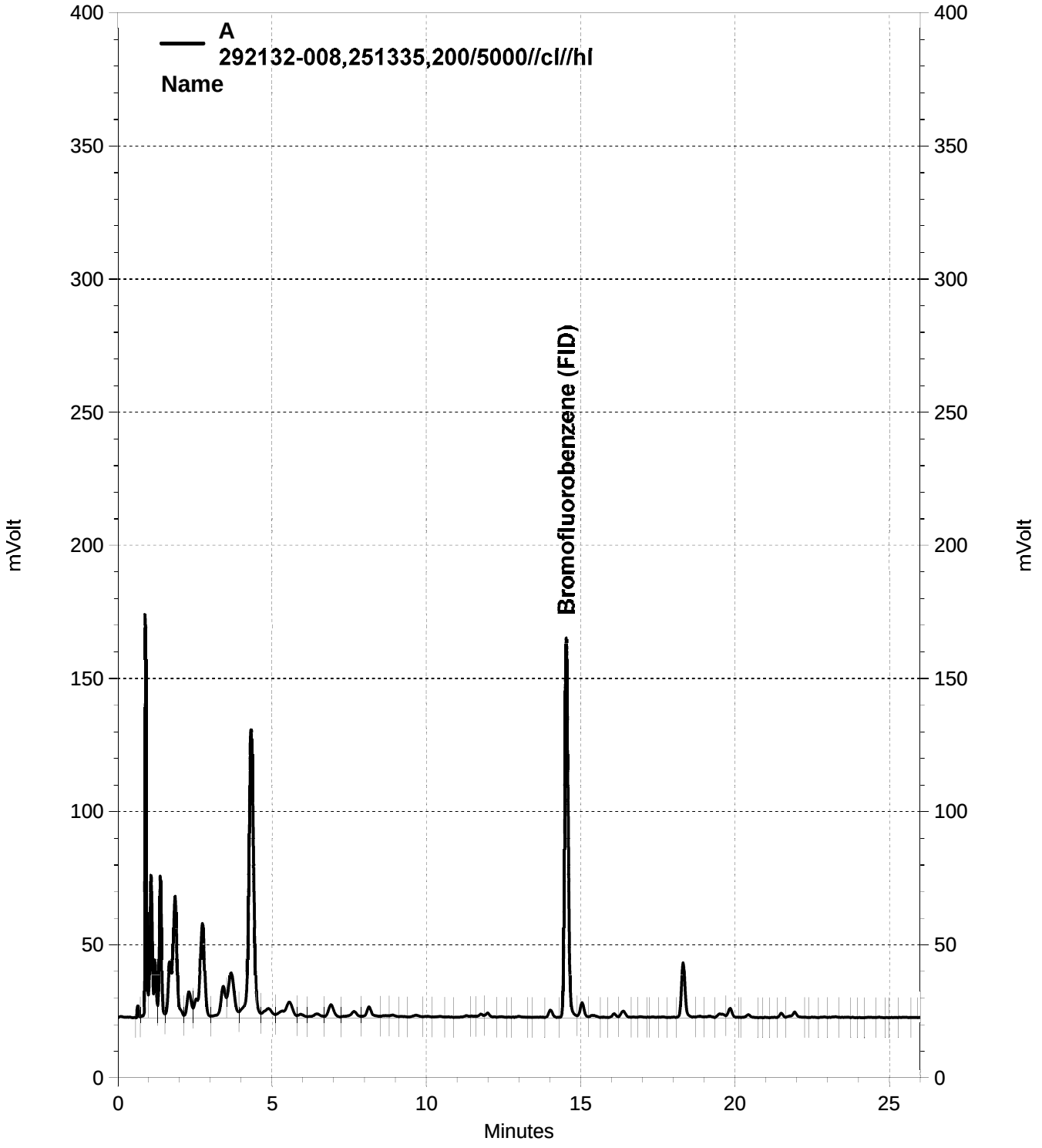
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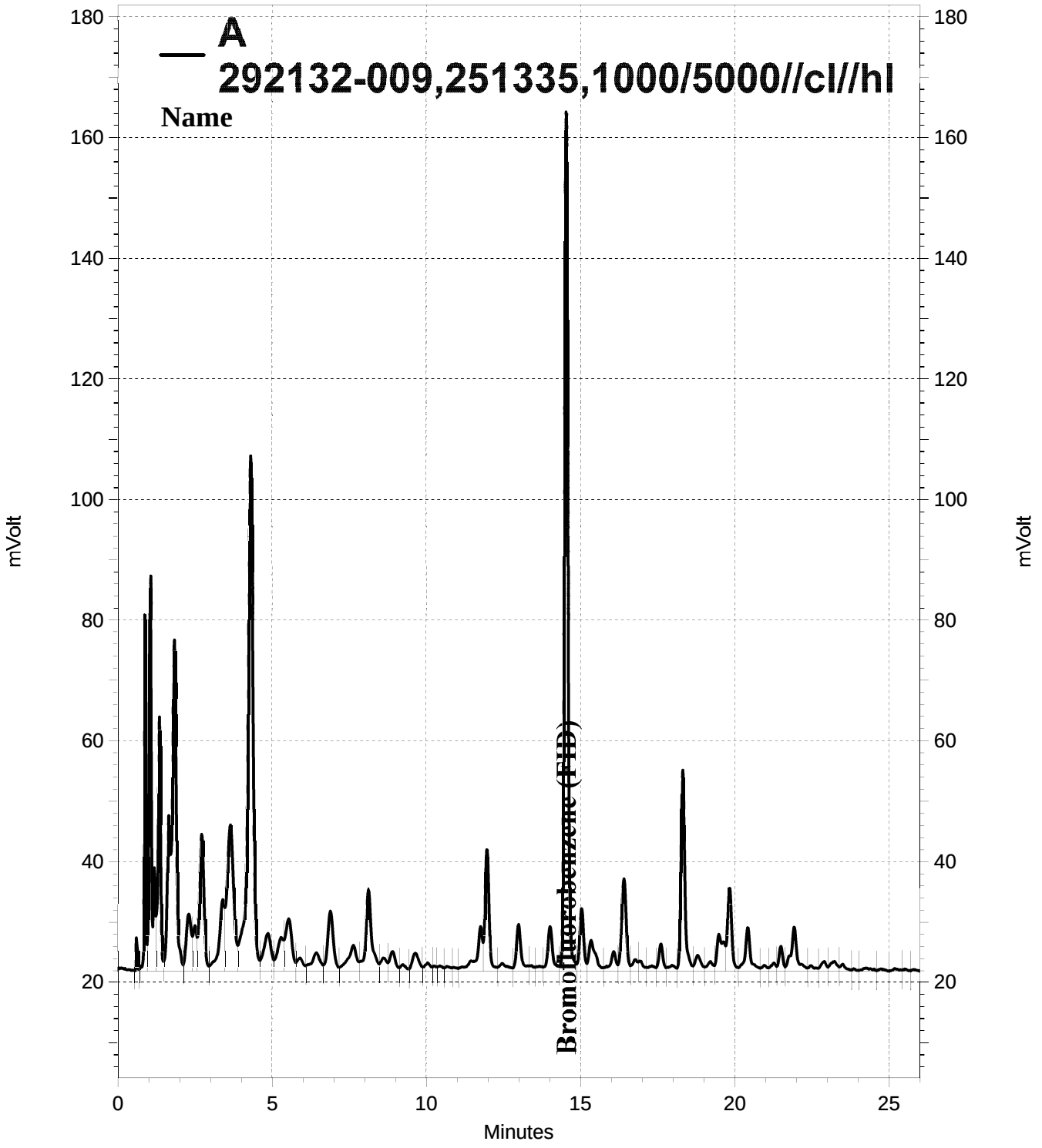
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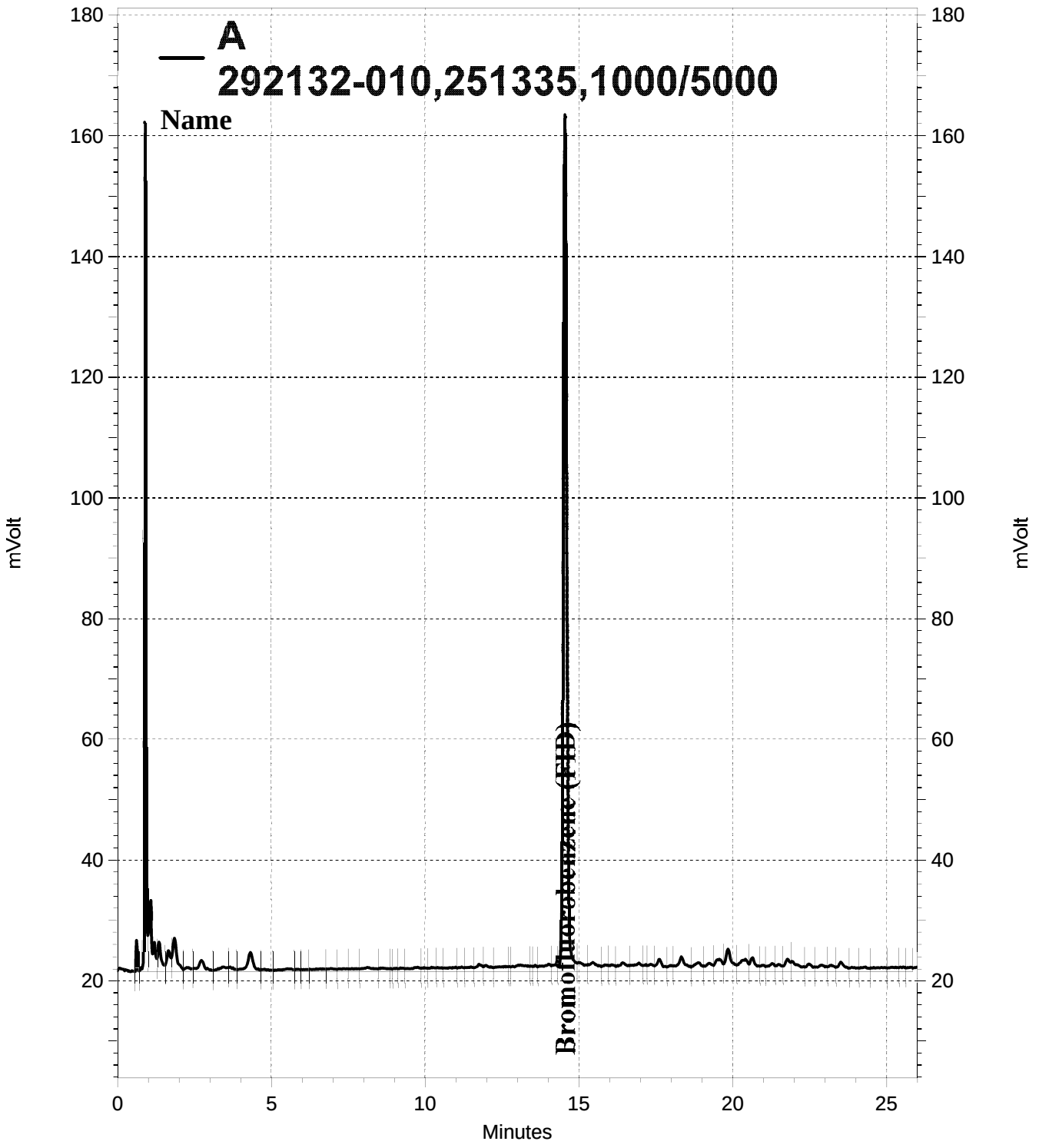
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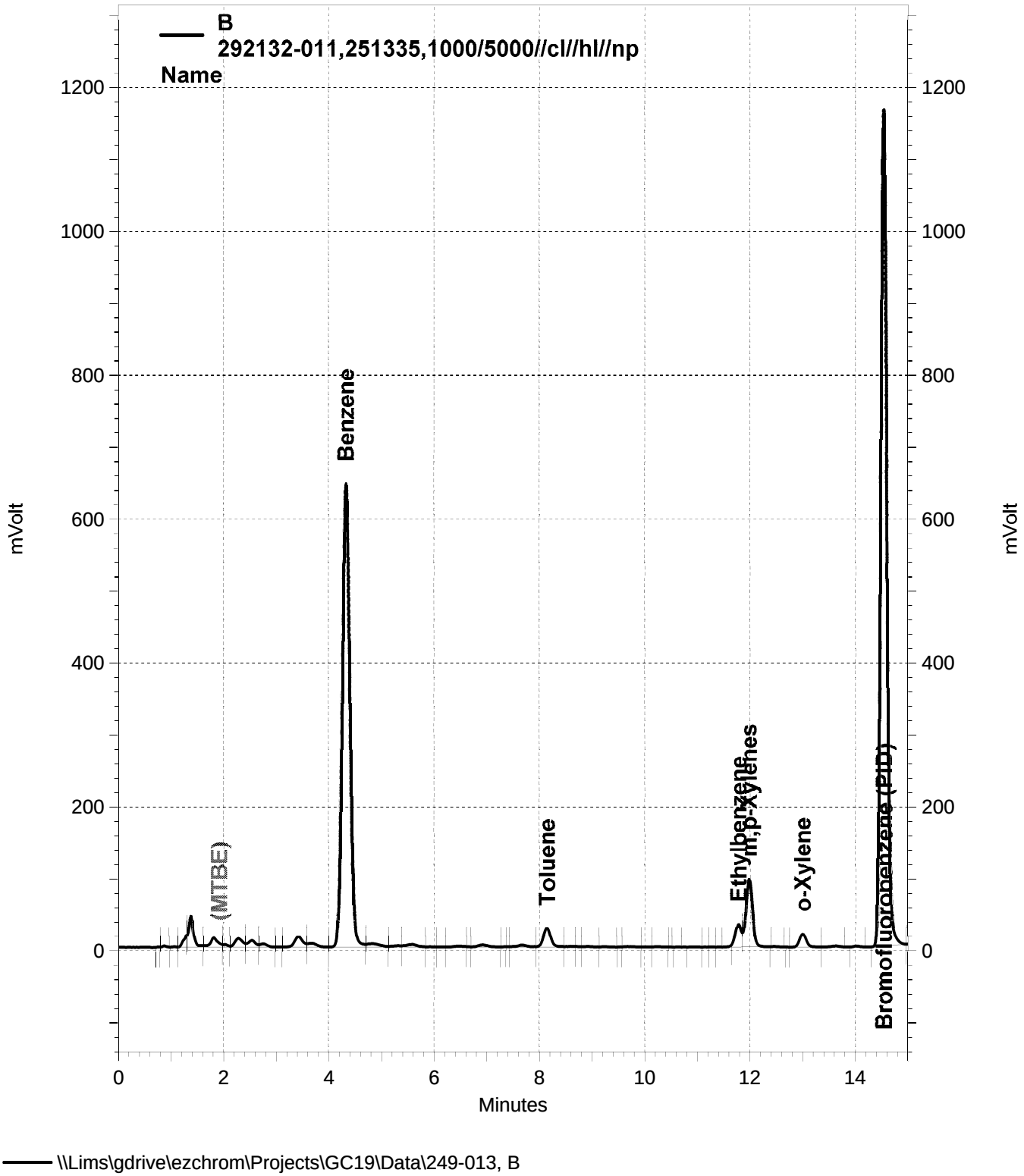
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Toluene
Ethylbenzene
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o-Xylene
Bromofluorobenzene (PID)
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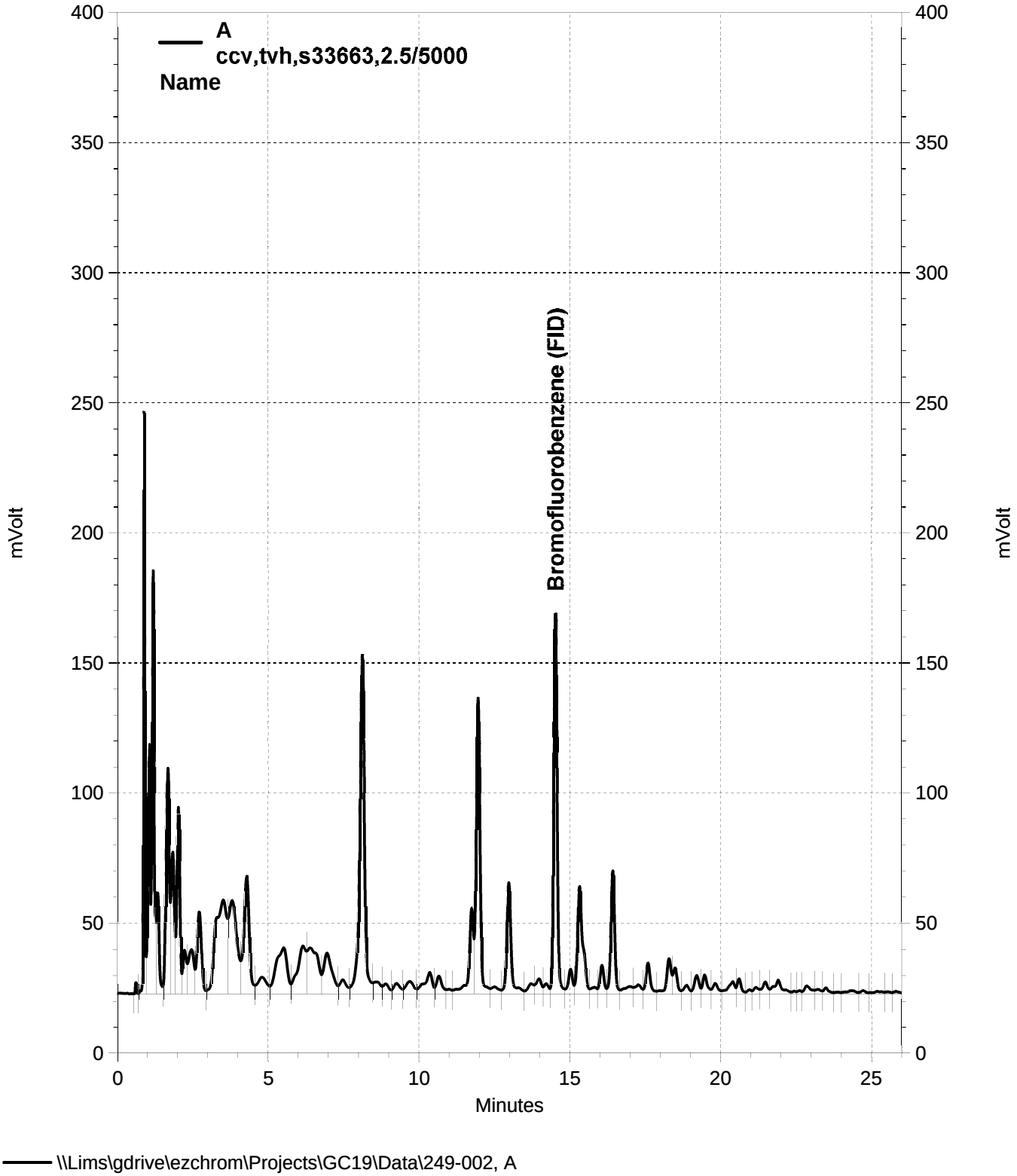
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ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17
Diln Fac:	1.000		

Field ID:	MW-17	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-001	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	3,100 Y	50

Surrogate	%REC	Limits
o-Terphenyl	121	51-134

Field ID:	MW-6	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-002	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	570 Y	49

Surrogate	%REC	Limits
o-Terphenyl	130	51-134

Field ID:	MW-5	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-003	Analyzed:	09/08/17

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

Surrogate	%REC	Limits
o-Terphenyl	89	51-134

Field ID:	MW-4	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-004	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	290 Y	50

Surrogate	%REC	Limits
o-Terphenyl	89	51-134

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

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17
Diln Fac:	1.000		

Field ID:	MW-E	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-005	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	3,200 Y	49

Surrogate	%REC	Limits
o-Terphenyl	96	51-134

Field ID:	MW-18	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-006	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	1,900 Y	49

Surrogate	%REC	Limits
o-Terphenyl	88	51-134

Field ID:	MW-16	Batch#:	251348
Type:	SAMPLE	Prepared:	09/06/17
Lab ID:	292132-007	Analyzed:	09/08/17

Analyte	Result	RL
Diesel C10-C24	3,200 Y	49

Surrogate	%REC	Limits
o-Terphenyl	84	51-134

Field ID:	MW-12	Batch#:	251389
Type:	SAMPLE	Prepared:	09/07/17
Lab ID:	292132-008	Analyzed:	09/12/17

Analyte	Result	RL
Diesel C10-C24	2,100	49

Surrogate	%REC	Limits
o-Terphenyl	103	51-134

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

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17
Diln Fac:	1.000		

Field ID:	MW-11	Batch#:	251389
Type:	SAMPLE	Prepared:	09/07/17
Lab ID:	292132-009	Analyzed:	09/12/17

Analyte	Result	RL
Diesel C10-C24	3,800	49

Surrogate	%REC	Limits
o-Terphenyl	109	51-134

Field ID:	MW-9	Batch#:	251389
Type:	SAMPLE	Prepared:	09/07/17
Lab ID:	292132-010	Analyzed:	09/13/17

Analyte	Result	RL
Diesel C10-C24	3,800 Y	49

Surrogate	%REC	Limits
o-Terphenyl	100	51-134

Field ID:	MW-7	Batch#:	251389
Type:	SAMPLE	Prepared:	09/07/17
Lab ID:	292132-011	Analyzed:	09/12/17

Analyte	Result	RL
Diesel C10-C24	3,800 Y	49

Surrogate	%REC	Limits
o-Terphenyl	100	51-134

Type:	BLANK	Prepared:	09/06/17
Lab ID:	QC899712	Analyzed:	09/07/17
Batch#:	251348		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	91	51-134

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

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/05/17
Units:	ug/L	Received:	09/05/17
Diln Fac:	1.000		

Type:	BLANK	Prepared:	09/07/17
Lab ID:	QC899863	Analyzed:	09/08/17
Batch#:	251389		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	99	51-134

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

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	251348
Units:	ug/L	Prepared:	09/06/17
Diln Fac:	1.000	Analyzed:	09/07/17

Type: BS Lab ID: QC899713

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,893	76	50-123

Surrogate	%REC	Limits
o-Terphenyl	86	51-134

Type: BSD Lab ID: QC899714

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,055	82	50-123	8	34

Surrogate	%REC	Limits
o-Terphenyl	90	51-134

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	292132	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	251389
Units:	ug/L	Prepared:	09/07/17
Diln Fac:	1.000	Analyzed:	09/08/17

Type: BS Lab ID: QC899865

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,192	88	50-123

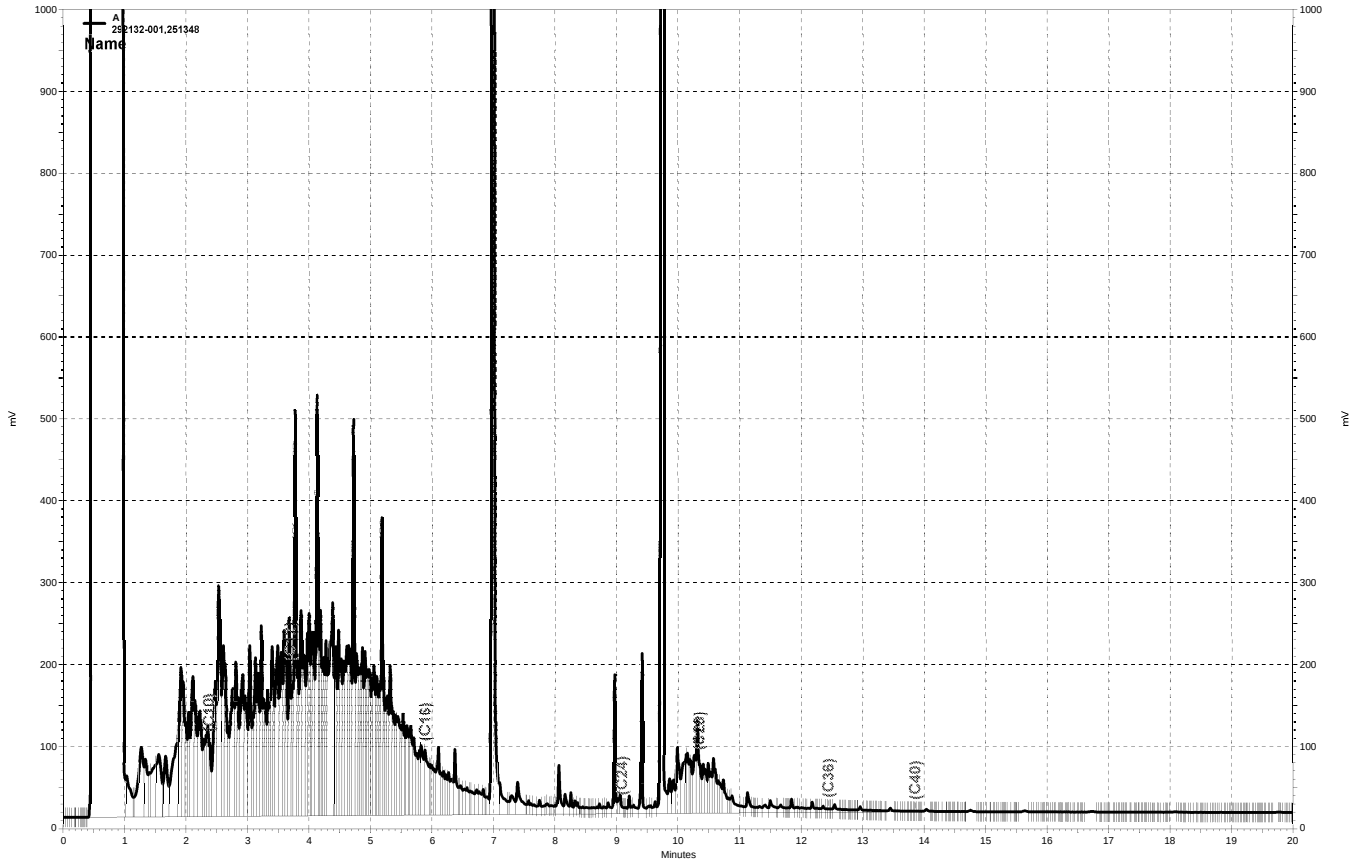
Surrogate	%REC	Limits
o-Terphenyl	110	51-134

Type: BSD Lab ID: QC899866

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,277	91	50-123	4	34

Surrogate	%REC	Limits
o-Terphenyl	109	51-134

RPD= Relative Percent Difference



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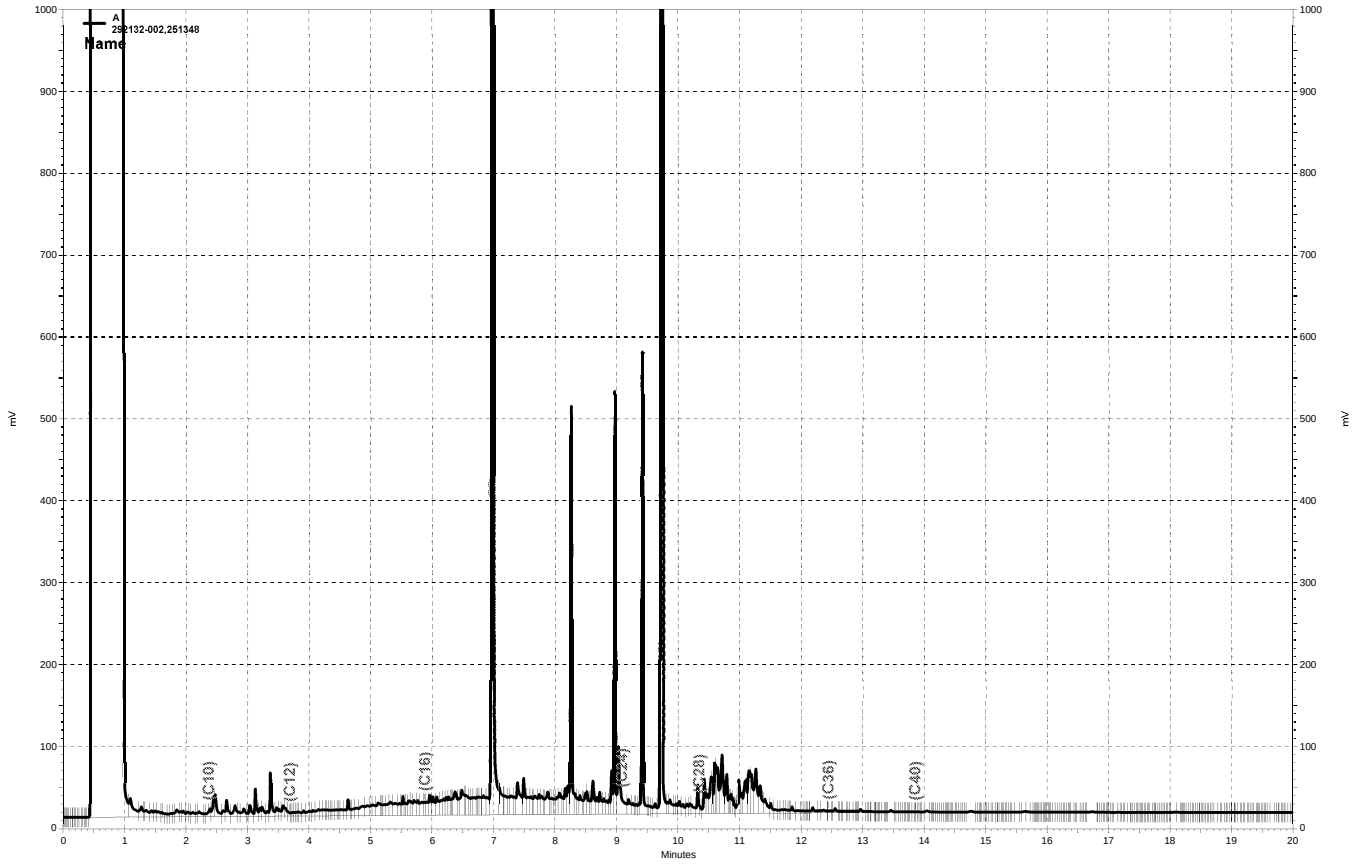

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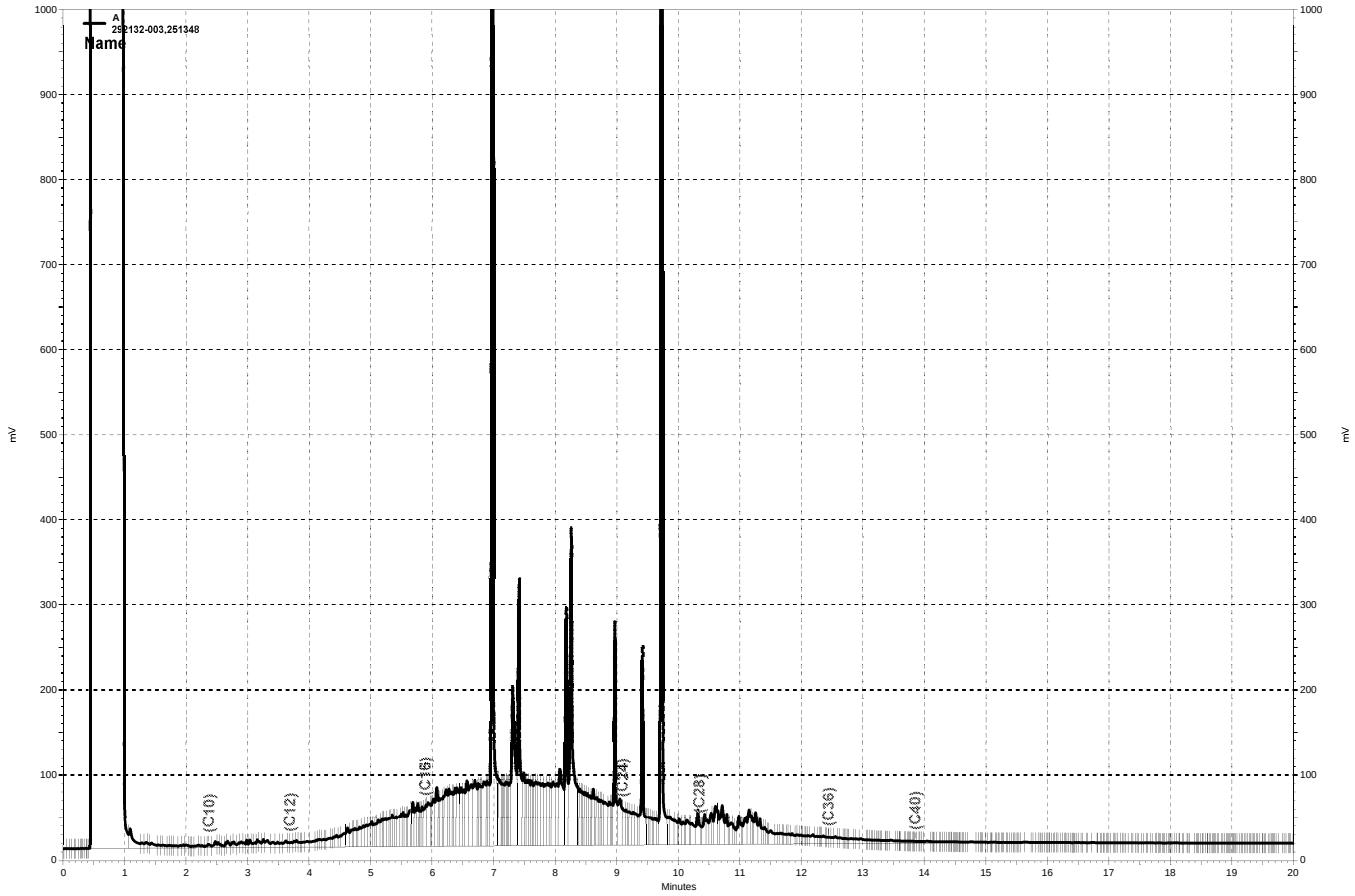

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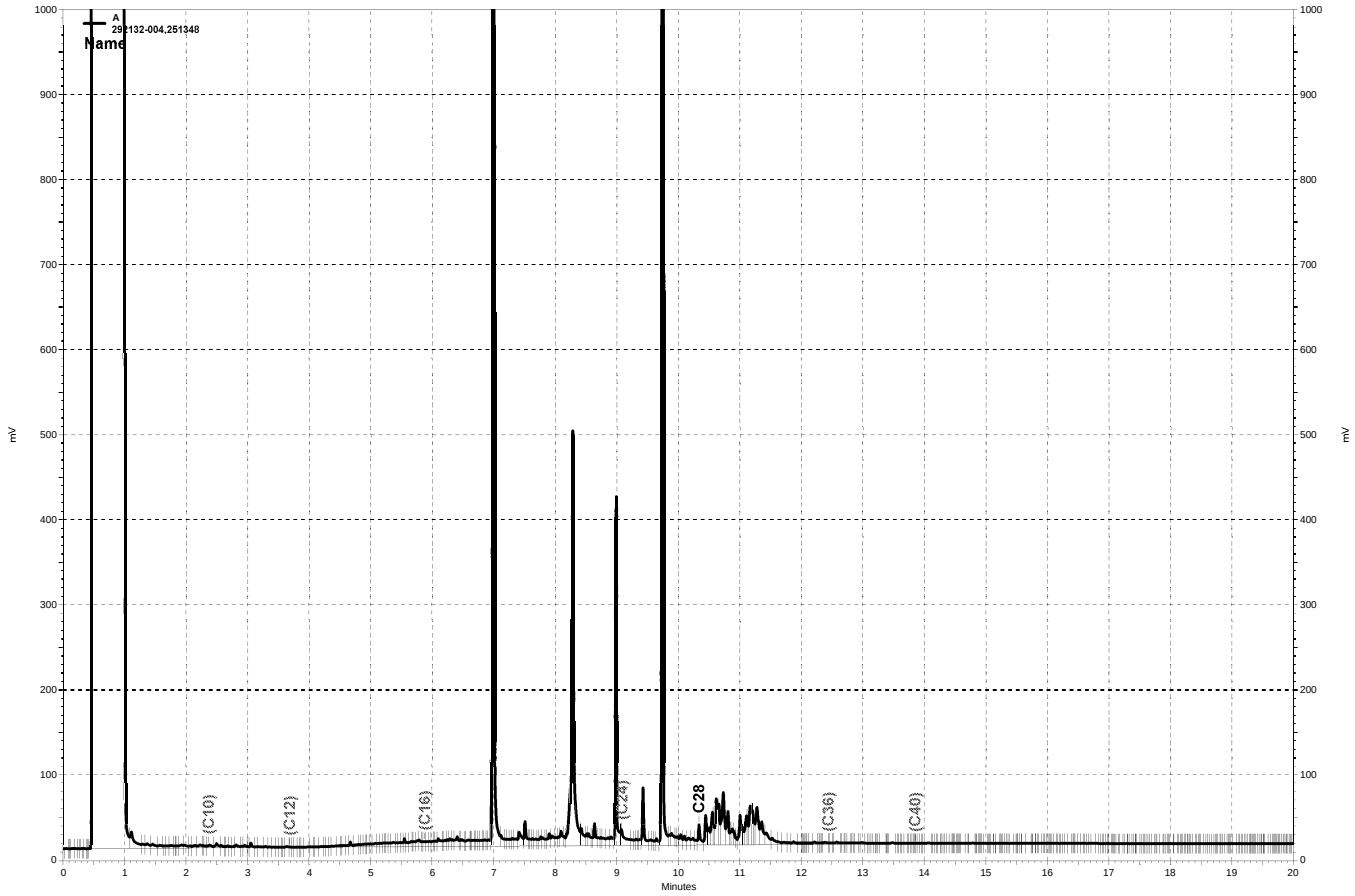

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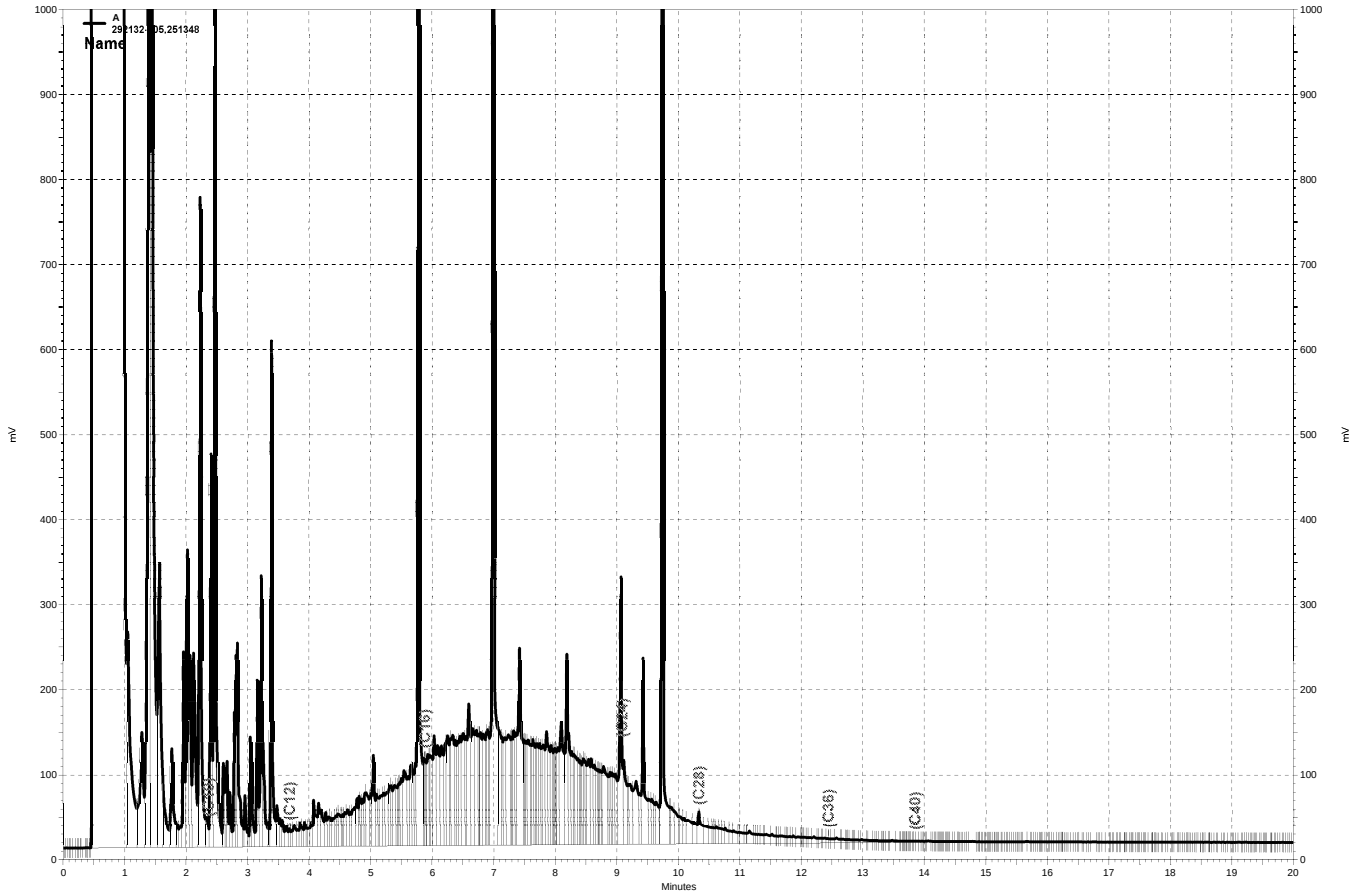

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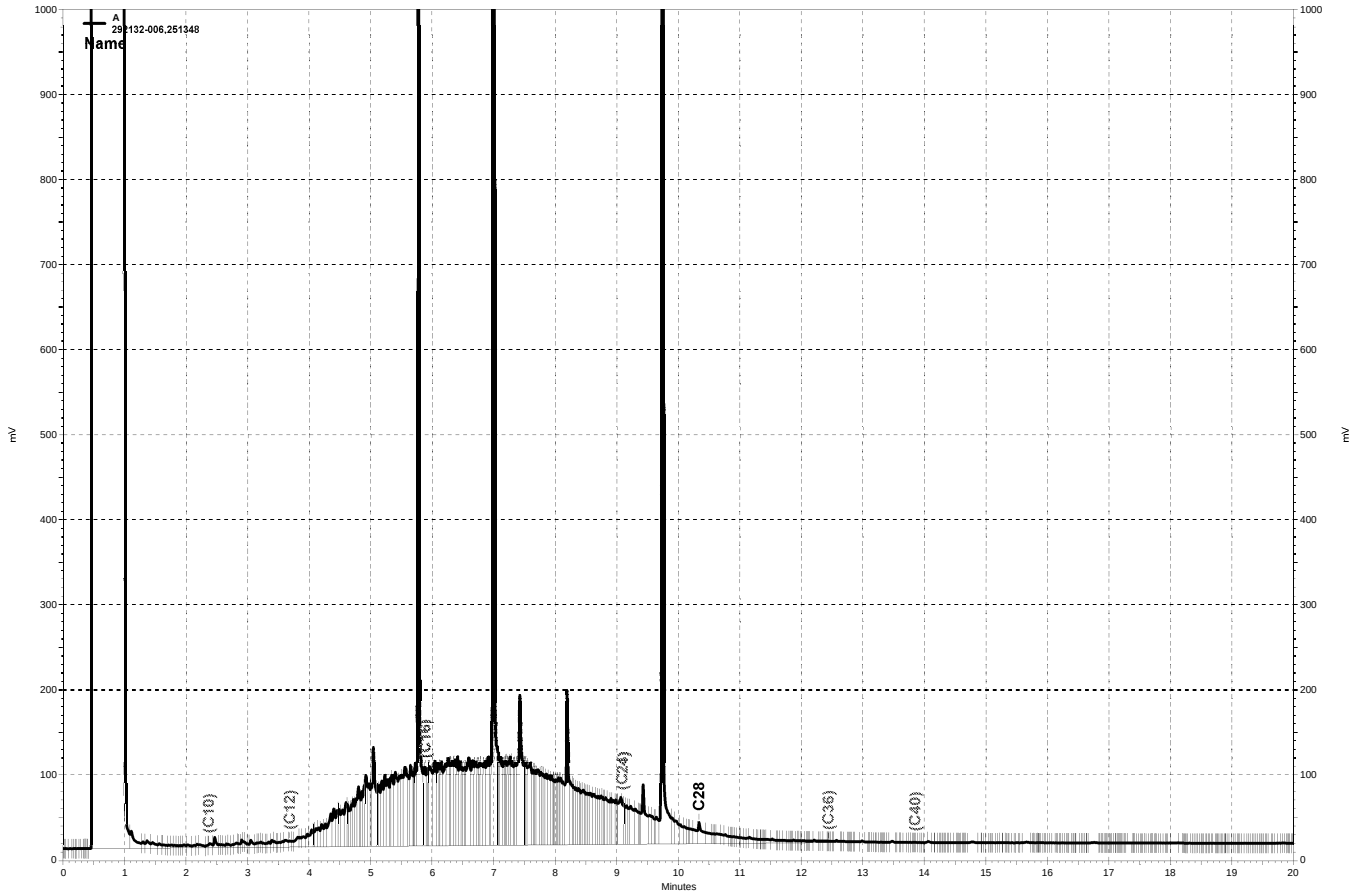

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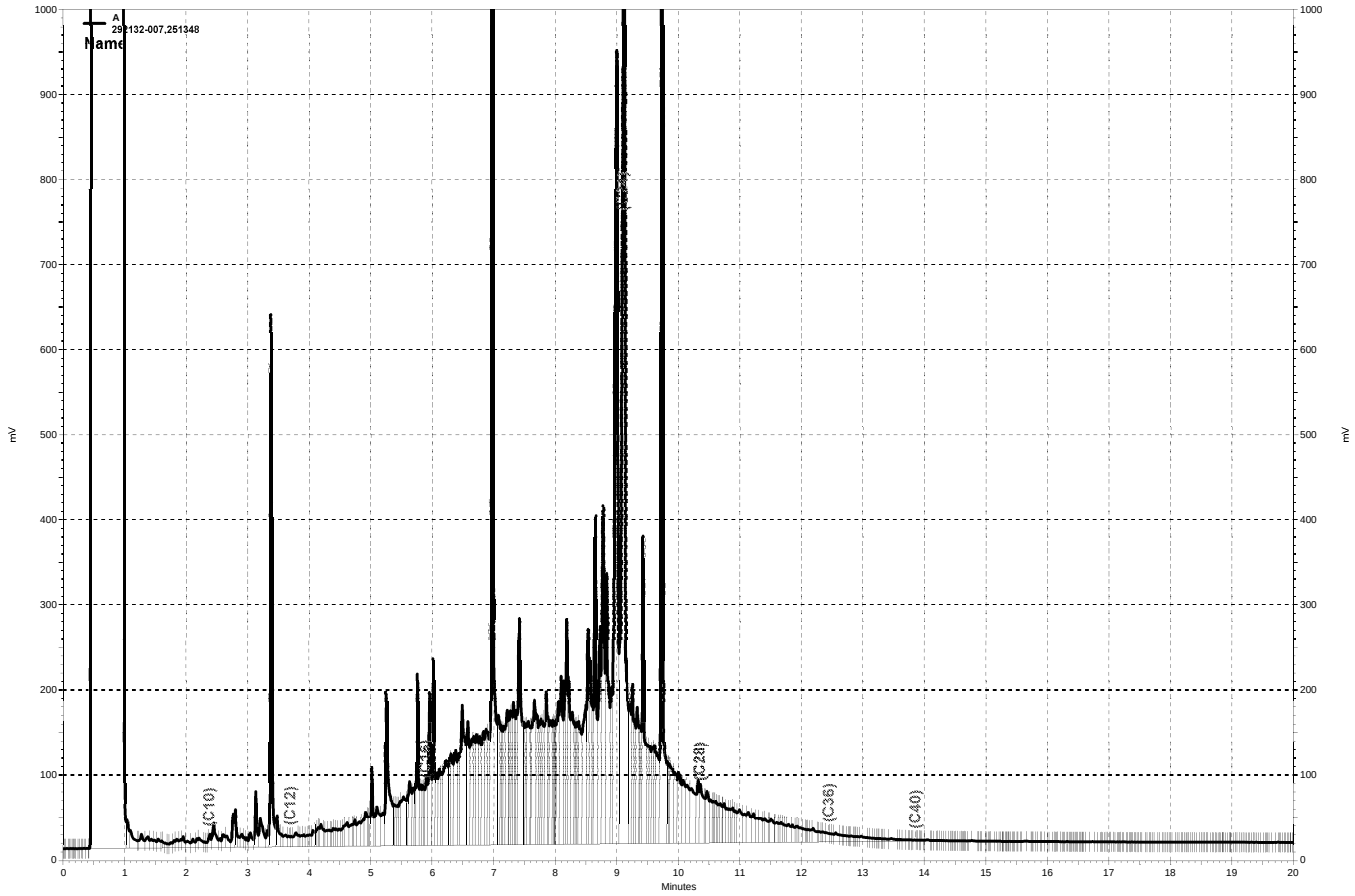

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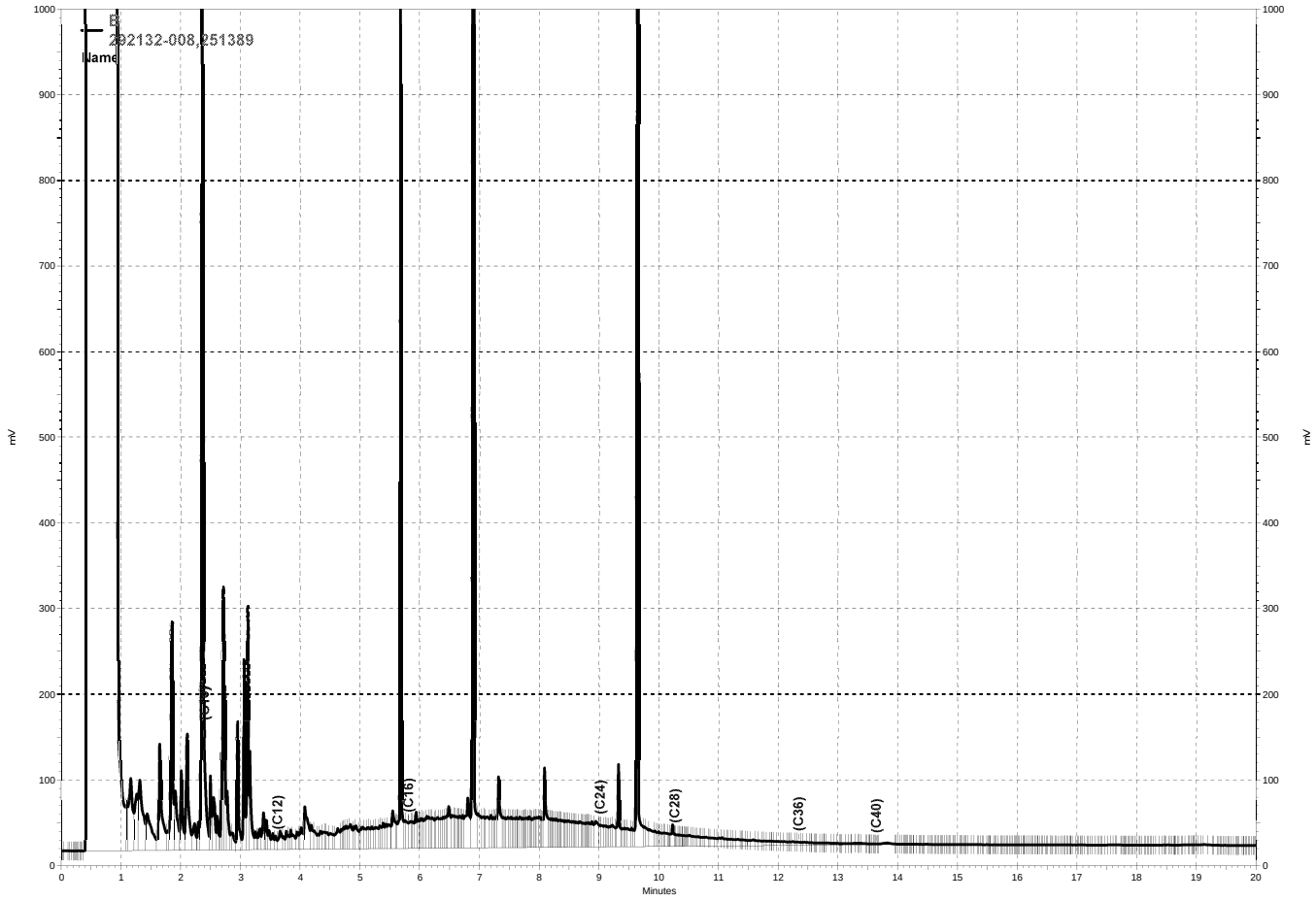

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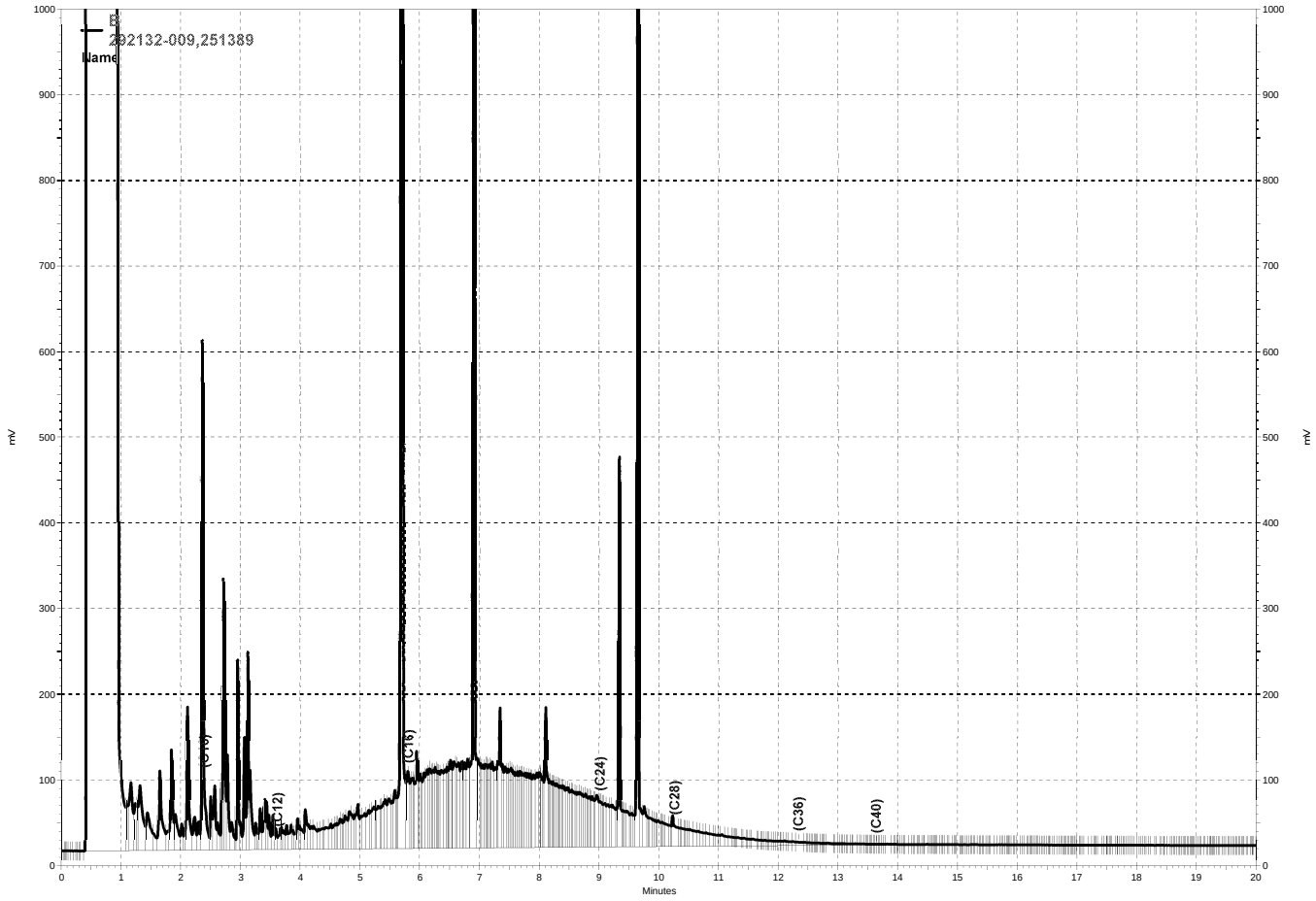

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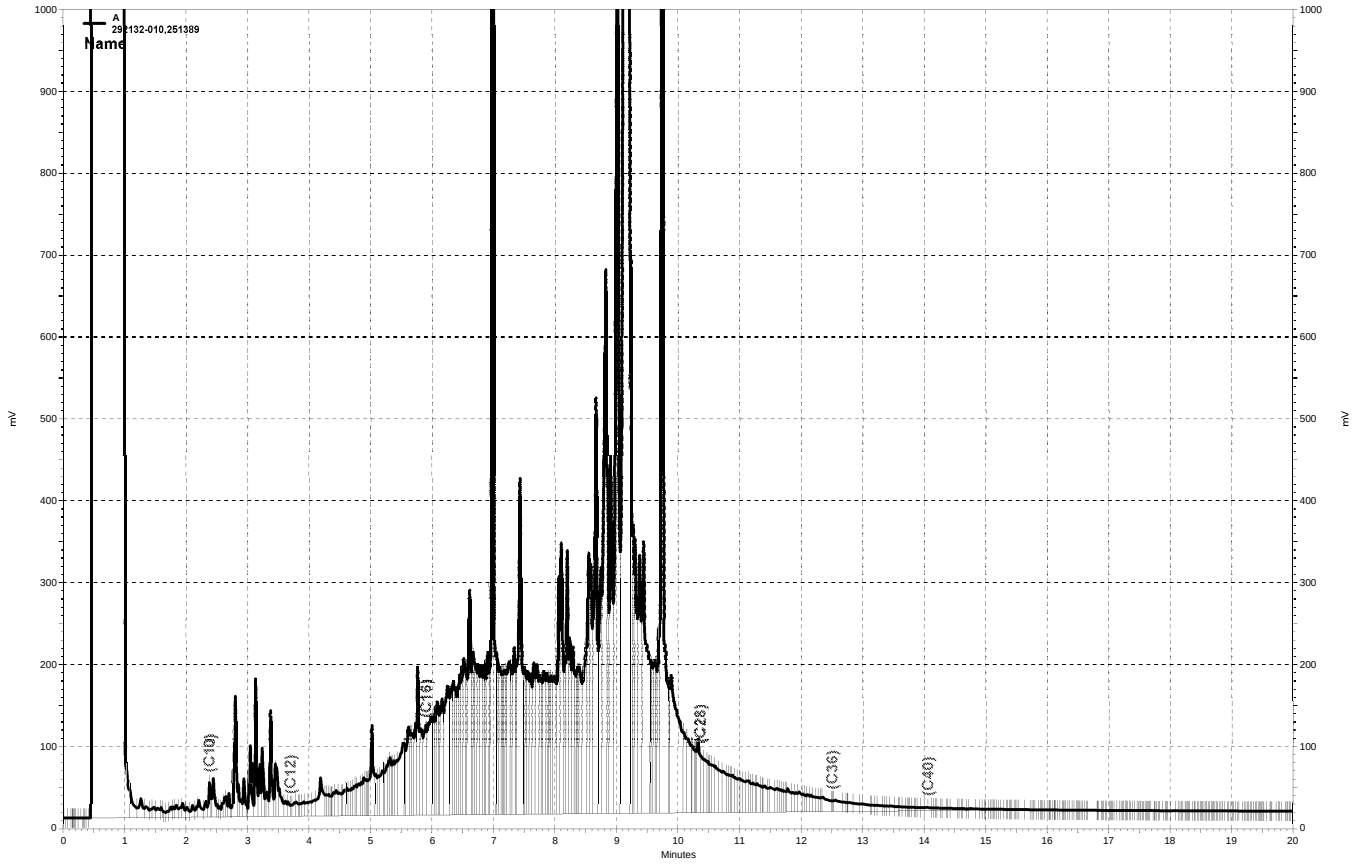

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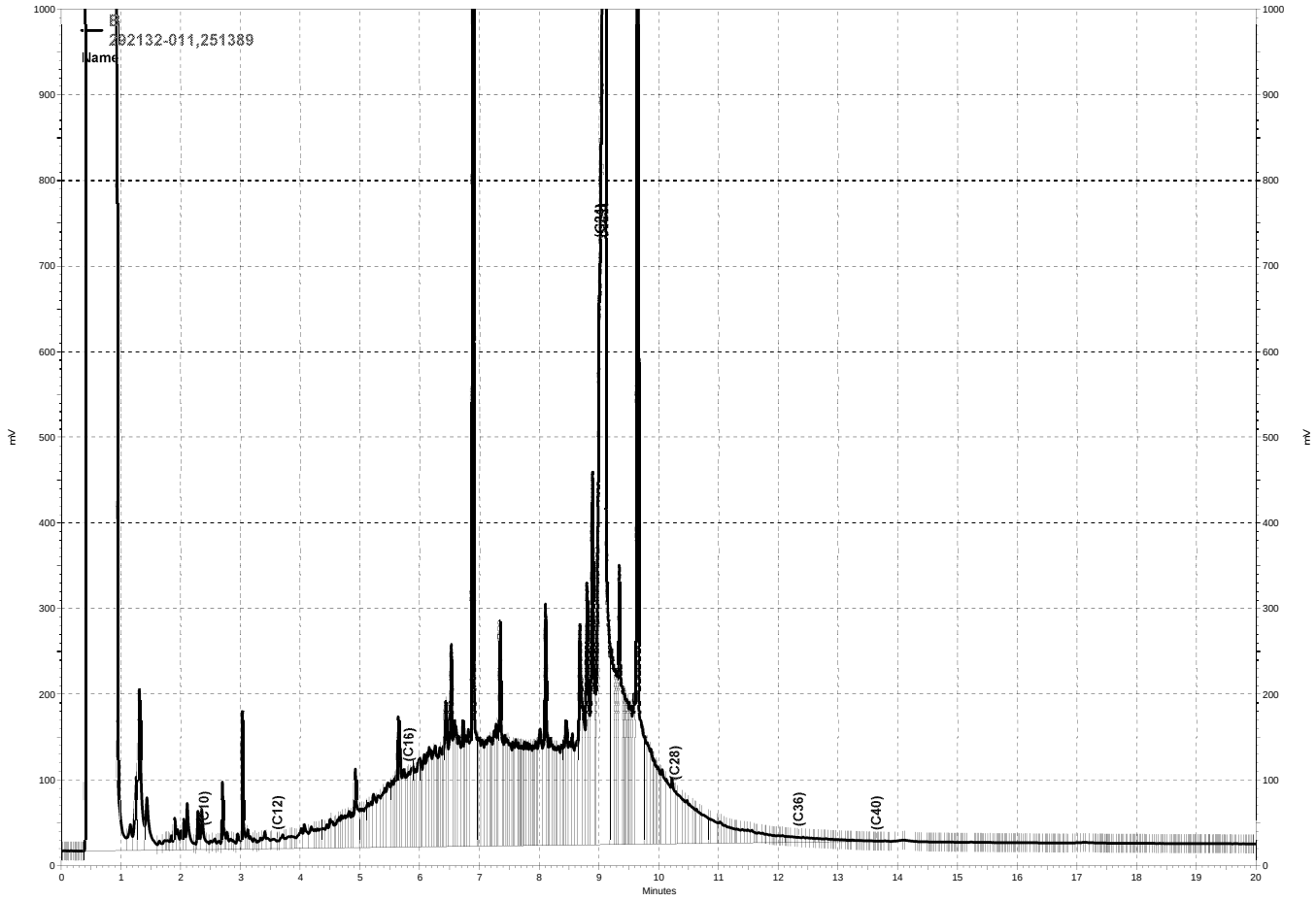

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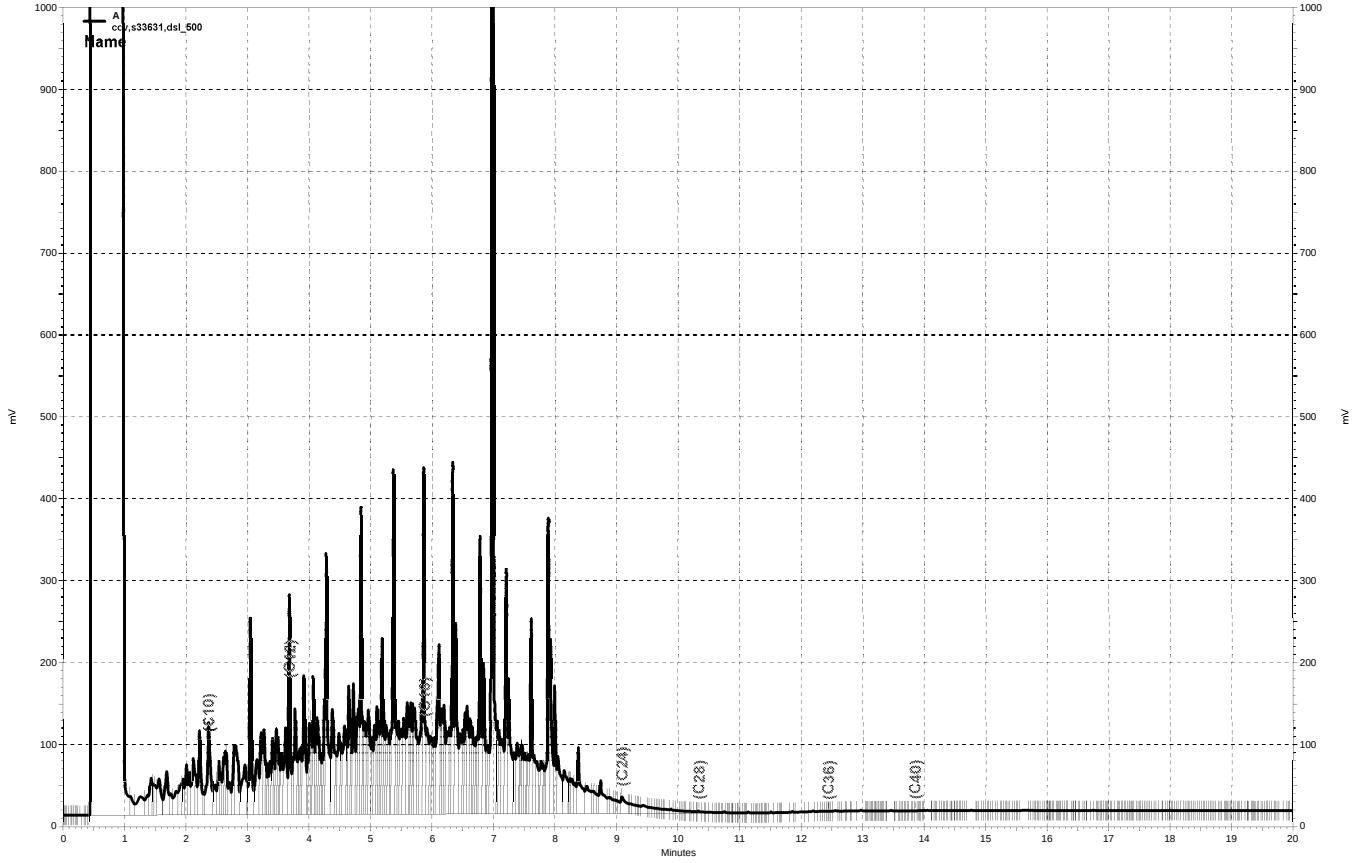

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ENTHALPY

ANALYTICAL

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

Laboratory Job Number 292071
ANALYTICAL REPORT

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

Sample ID	Lab ID
TAM	292071-001
TBM	292071-002
TCM	292071-003

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: _____ Date: 09/11/2017

Patrick McCarthy
Project Manager
patrick.mccarthy@enthalpy.com
(510) 204-2236

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**292071**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**09/01/17**
Samples Received:	**09/01/17**

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

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
TAM (lab # 292071-001), TBM (lab # 292071-002), and TCM (lab # 292071-003) were diluted due to client history of high non-target or organic acid interference. No other analytical problems were encountered.

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

Metals (EPA 6010B):
Iron was detected above the RL in the method blank for batch 251360; this analyte was not detected in samples at or above the RL. No other analytical problems were encountered.

Ion Chromatography (EPA 300.0):
TAM (lab # 292071-001), TBM (lab # 292071-002), and TCM (lab # 292071-003) were diluted due to problematic matrix. No other analytical problems were encountered.

Dissolved Oxygen (SM4500O-G):
No analytical problems were encountered.

Oxidation-Reduction Potential (SM2580B):
No analytical problems were encountered.

pH (EPA 9040C):
No analytical problems were encountered.

292071

Chain of Custody Record

Lab job no. _____
Date _____
Page 1 of 1

Laboratory EnThalpy
Address 2323 Fifth St
Berkeley CA

Method of Shipment Delivered
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager R. Makdisi
Telephone No. 510.644-3123
Fax No. _____
Samplers: (Signature) S Bittman

Project Owner _____
Site Address 6460 Christie Ave
Emeryville CA
Project Name Bay Center
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	Analysis Required: Nitrate	Sulfate	pH	redox	Dissolved O2	TPHd	TPHg MBTEX	Dissolved Fe	Remarks
TAM		9/1/17		W	1 Liter Poly	✓	Ø		1	X	X	X	X					
TAM				W	250 ml glass	✓	Ø		1					X				
TAM				W	500 ml glass	✓	Ø		2					X	X			
TAM				W	40 ml VOA	✓	HCl		3							X		
TAM				W	250 ml Poly	✓	Ø		1								X	
TBM				W	1 Liter Poly	✓	Ø		1	X	X	X	X					
TBM				W	250 ml glass	✓	Ø		1					X				
TBM				W	500 ml glass	✓	Ø		2						X			
TBM				W	40 ml VOA	✓	HCl		3							X		
TBM		9-1-17		W	250 ml poly	✓	Ø		1								X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Steve Bittman	9-1-17	Signature		Signature		Signature	9-1-17
Printed Steve Bittman	Time 1330	Printed	Time	Printed	Time	Printed Eleanor Su	Time 1330
Company SES		Company		Company		Company EnThalpy	

Turnaround Time: Normal 5 Day

Comments: Note - Filter Dissolved Fe Sample !

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

292071

Chain of Custody Record

Lab job no. _____
Date _____
Page 1 of 1

Laboratory Enthalpy
Address 2323 Fifth St
Berkeley CA

Project Owner _____
Site Address 6400 Christie St
Emeryville CA
Project Name Bay Center
Project Number 2002-65

Method of Shipment Delivered
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager R. Makdisi
Telephone No. 510-644-3123
Fax No. _____
Samplers: (Signature) S. Bittman

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: Nitrates	Sulfates	pH	Color	Dissolved O2	TPH-d	TPH-g MBTEX	Dissolved Fe	Remarks
TCM		9-1-17		W	1 Liter Poly	-	Ø		1	X	X	X	X					
TCM				W	250 ml glass	-	Ø		1					X				
TCM				W	500 ml glass	-	Ø		2						X			
TCM				W	40 ml VOA	-	HCl		3							X		
TCM		9-1-17		W	250 ml poly	-	Ø		1								X	

Relinquished by: Signature	Steve Bittman	Date	9-1-17	Received by: Signature		Date	
Printed	Steve Bittman	Time	1335	Printed	Patrick M	Time	
Company	SES			Company	C&T		
Relinquished by: Signature		Date		Received by: Signature		Date	9-1-17
Printed		Time		Printed	Elena L	Time	1350
Company				Company	Enthalpy		
Relinquished by: Signature		Date		Received by: Signature		Date	
Printed		Time		Printed		Time	
Company				Company			

Turnaround Time: Normal 5 Day
Comments: Note - Filter Dissolved Fe Sample !

COOLER RECEIPT CHECKLIST

ENTHALPY Berkeley

Login # 292071 Date Received 09/1/17 Number of coolers 1
Client Stellar Environmental Project 2007-65

Date Opened 09/1/17 By (print) EHS (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labelled ↓ By (print) ↓ (sign) ↓

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

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

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

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

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

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

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

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

COMMENTS _____

Rev 14, 8/01/17

ENTHALPY ANALYTICAL

Detections Summary for 292071

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

Client : Stellar Environmental Solutions
Project : 2007-65
Location : Bay Center Apts

Client Sample ID : TAM Laboratory Sample ID : 292071-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	16,000		1,000	ug/L	As Recd	20.00	EPA 8015B	EPA 5030B
Benzene	3,100		10	ug/L	As Recd	20.00	EPA 8021B	EPA 5030B
Toluene	74		10	ug/L	As Recd	20.00	EPA 8021B	EPA 5030B
Ethylbenzene	750		10	ug/L	As Recd	20.00	EPA 8021B	EPA 5030B
m,p-Xylenes	82		10	ug/L	As Recd	20.00	EPA 8021B	EPA 5030B
o-Xylene	29		10	ug/L	As Recd	20.00	EPA 8021B	EPA 5030B
Diesel C10-C24	9,800		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Sulfate	3,400		500	mg/L	TOTAL	1000	EPA 300.0	METHOD
pH	7.1		1.0	SU	TOTAL	1.000	EPA 9040C	METHOD

Client Sample ID : TBM Laboratory Sample ID : 292071-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	2,600		130	ug/L	As Recd	2.500	EPA 8015B	EPA 5030B
Benzene	690		1.3	ug/L	As Recd	2.500	EPA 8021B	EPA 5030B
Toluene	13		1.3	ug/L	As Recd	2.500	EPA 8021B	EPA 5030B
Ethylbenzene	2.4		1.3	ug/L	As Recd	2.500	EPA 8021B	EPA 5030B
m,p-Xylenes	7.4		1.3	ug/L	As Recd	2.500	EPA 8021B	EPA 5030B
o-Xylene	3.9	C	1.3	ug/L	As Recd	2.500	EPA 8021B	EPA 5030B
Diesel C10-C24	1,900		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Dissolved Oxygen	3.4		1.0	mg/L	TOTAL	1.000	SM4500O-G	
pH	7.1		1.0	SU	TOTAL	1.000	EPA 9040C	METHOD

Client Sample ID : TCM Laboratory Sample ID : 292071-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	6,500		420	ug/L	As Recd	8.333	EPA 8015B	EPA 5030B
Benzene	1,600		4.2	ug/L	As Recd	8.333	EPA 8021B	EPA 5030B
Ethylbenzene	25		4.2	ug/L	As Recd	8.333	EPA 8021B	EPA 5030B
m,p-Xylenes	7.4	C	4.2	ug/L	As Recd	8.333	EPA 8021B	EPA 5030B
o-Xylene	6.5	C	4.2	ug/L	As Recd	8.333	EPA 8021B	EPA 5030B
Diesel C10-C24	6,600		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C
Sulfate	6,500		500	mg/L	TOTAL	1000	EPA 300.0	METHOD
pH	7.0		1.0	SU	TOTAL	1.000	EPA 9040C	METHOD

C = Presence confirmed, but RPD between columns exceeds 40%

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/01/17
Units:	ug/L	Received:	09/01/17
Batch#:	251335		

Field ID:	TAM	Diln Fac:	20.00
Type:	SAMPLE	Analyzed:	09/07/17
Lab ID:	292071-001		

Analyte	Result	RL	Analysis
Gasoline C7-C12	16,000	1,000	EPA 8015B
MTBE	ND	40	EPA 8021B
Benzene	3,100	10	EPA 8021B
Toluene	74	10	EPA 8021B
Ethylbenzene	750	10	EPA 8021B
m,p-Xylenes	82	10	EPA 8021B
o-Xylene	29	10	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	84	80-122	EPA 8015B
Bromofluorobenzene (PID)	83	80-124	EPA 8021B

Field ID:	TBM	Diln Fac:	2.500
Type:	SAMPLE	Analyzed:	09/07/17
Lab ID:	292071-002		

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,600	130	EPA 8015B
MTBE	ND	5.0	EPA 8021B
Benzene	690	1.3	EPA 8021B
Toluene	13	1.3	EPA 8021B
Ethylbenzene	2.4	1.3	EPA 8021B
m,p-Xylenes	7.4	1.3	EPA 8021B
o-Xylene	3.9 C	1.3	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	104	80-122	EPA 8015B
Bromofluorobenzene (PID)	105	80-124	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/01/17
Units:	ug/L	Received:	09/01/17
Batch#:	251335		

Field ID:	TCM	Diln Fac:	8.333
Type:	SAMPLE	Analyzed:	09/07/17
Lab ID:	292071-003		

Analyte	Result	RL	Analysis
Gasoline C7-C12	6,500	420	EPA 8015B
MTBE	ND	17	EPA 8021B
Benzene	1,600	4.2	EPA 8021B
Toluene	ND	4.2	EPA 8021B
Ethylbenzene	25	4.2	EPA 8021B
m,p-Xylenes	7.4 C	4.2	EPA 8021B
o-Xylene	6.5 C	4.2	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	105	80-122	EPA 8015B
Bromofluorobenzene (PID)	105	80-124	EPA 8021B

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC899664	Analyzed:	09/06/17

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)	82	80-122	EPA 8015B
Bromofluorobenzene (PID)	85	80-124	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	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:	QC899659	Batch#:	251335
Matrix:	Water	Analyzed:	09/06/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	968.0	97	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-122

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	251335
Units:	ug/L	Analyzed:	09/06/17
Diln Fac:	1.000		

Type: BS Lab ID: QC899660

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.14	101	62-131
Benzene	10.00	9.093	91	80-120
Toluene	10.00	8.668	87	80-120
Ethylbenzene	10.00	9.114	91	79-120
m,p-Xylenes	10.00	8.636	86	80-120
o-Xylene	10.00	8.695	87	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	93	80-124

Type: BSD Lab ID: QC899661

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	21.93	110	62-131	8	38
Benzene	20.00	19.86	99	80-120	9	20
Toluene	20.00	18.89	94	80-120	9	20
Ethylbenzene	20.00	19.10	96	79-120	5	27
m,p-Xylenes	20.00	19.37	97	80-120	11	26
o-Xylene	20.00	19.14	96	80-120	10	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	108	80-124

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-6	Batch#:	251335
MSS Lab ID:	292132-002	Sampled:	09/05/17
Matrix:	Water	Received:	09/05/17
Units:	ug/L	Analyzed:	09/07/17
Diln Fac:	1.000		

Type: MS Lab ID: QC899662

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	29.62	2,000	1,903	94	79-120

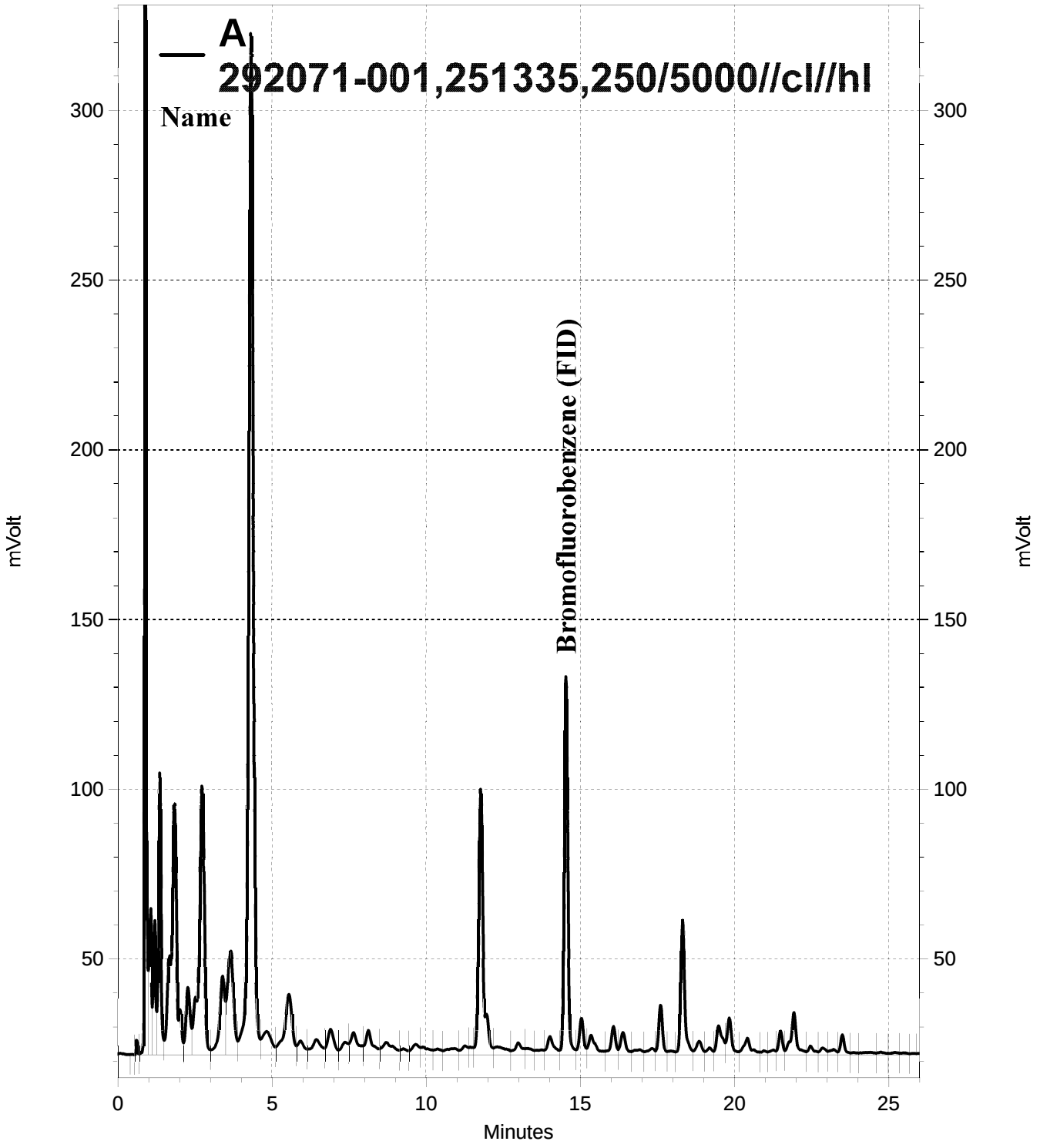
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-122

Type: MSD Lab ID: QC899663

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,906	94	79-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-122

RPD= Relative Percent Difference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200
150
100
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5
10
15
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25
Minutes
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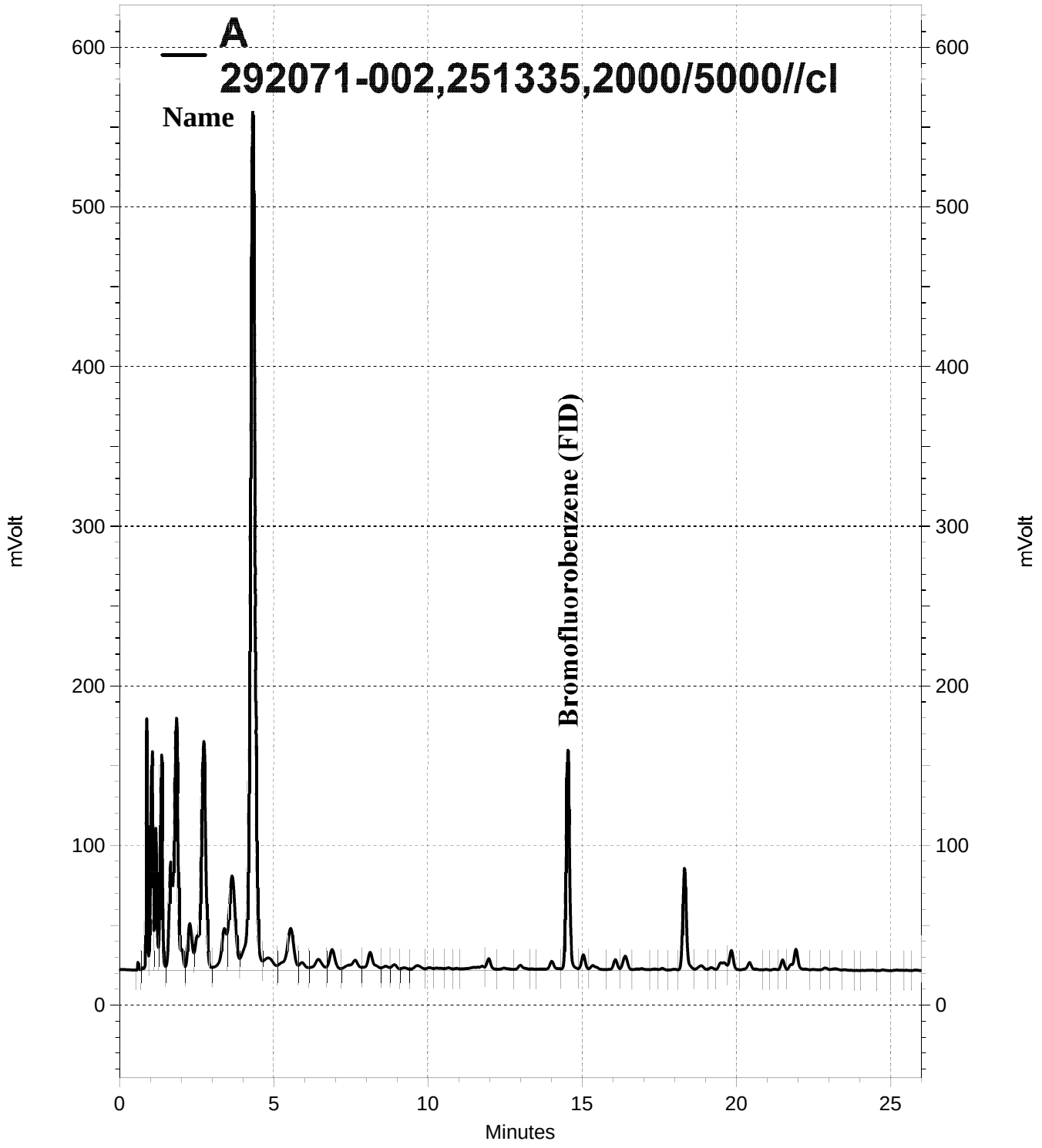
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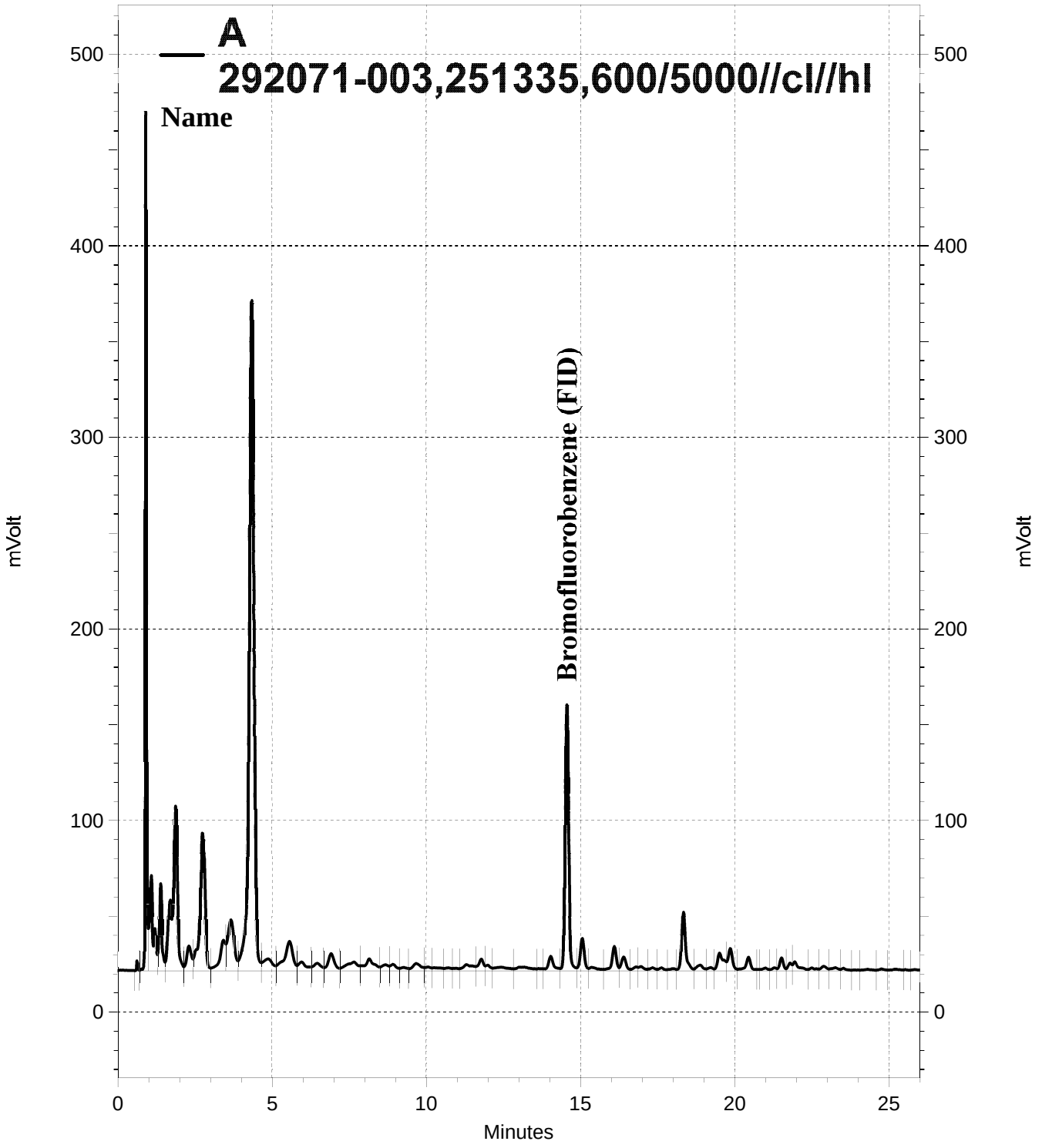
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200
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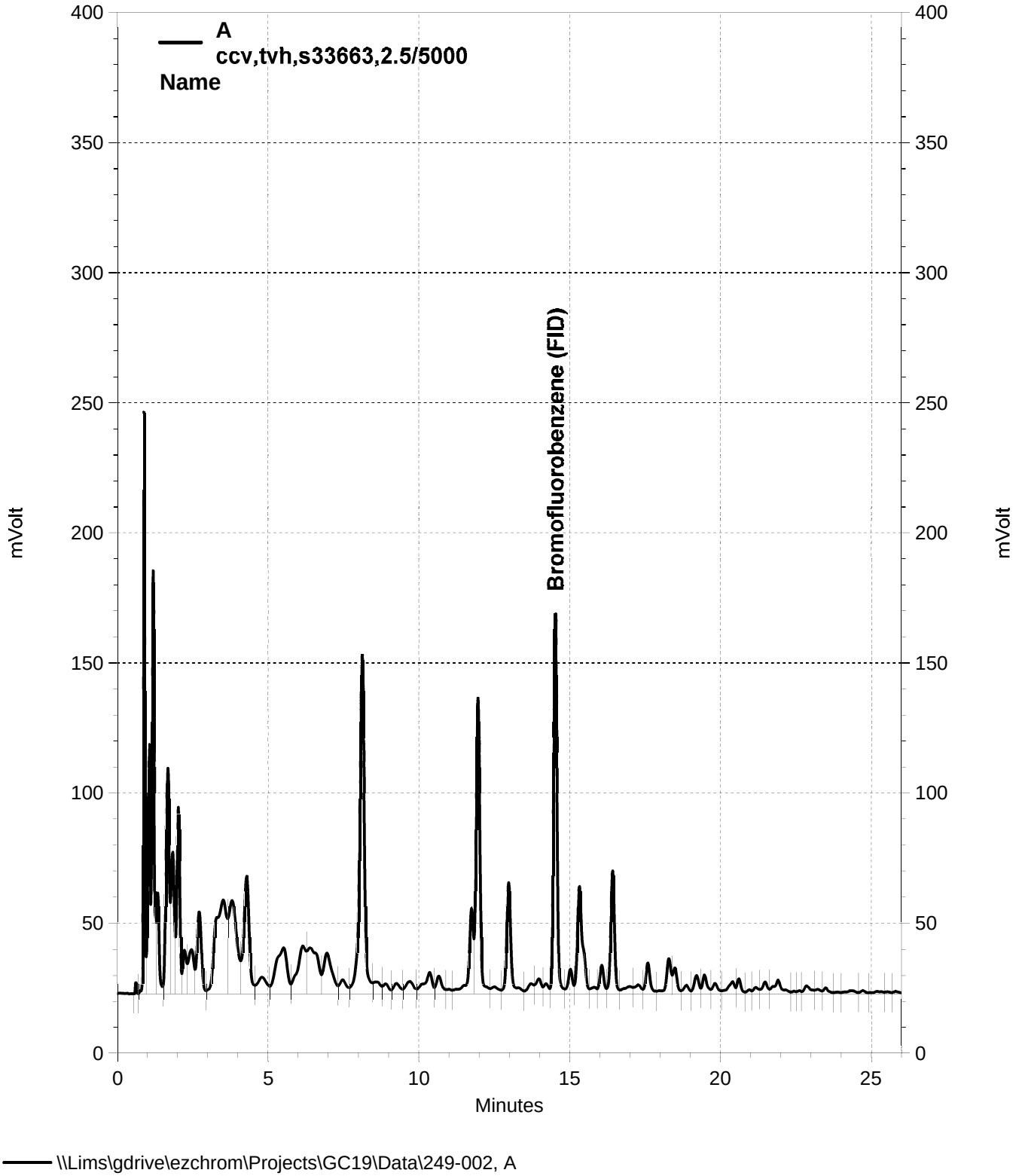
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Minutes
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300
250
200
150
100
50
0
0
5
10
15
20
25
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ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/01/17
Units:	ug/L	Received:	09/01/17
Diln Fac:	1.000	Prepared:	09/05/17
Batch#:	251299		

Field ID: TAM — Lab ID: 292071-001
Type: SAMPLE — Analyzed: 09/07/17

Analyte	Result	RL
Diesel C10-C24	9,800	49

Surrogate	%REC	Limits
o-Terphenyl	97	52-138

Field ID: TBM — Lab ID: 292071-002
Type: SAMPLE — Analyzed: 09/07/17

Analyte	Result	RL
Diesel C10-C24	1,900	49

Surrogate	%REC	Limits
o-Terphenyl	100	52-138

Field ID: TCM — Lab ID: 292071-003
Type: SAMPLE — Analyzed: 09/08/17

Analyte	Result	RL
Diesel C10-C24	6,600	49

Surrogate	%REC	Limits
o-Terphenyl	90	52-138

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

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	108	52-138

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	251299
Units:	ug/L	Prepared:	09/05/17
Diln Fac:	1.000	Analyzed:	09/06/17

Type: BS Lab ID: QC899540

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

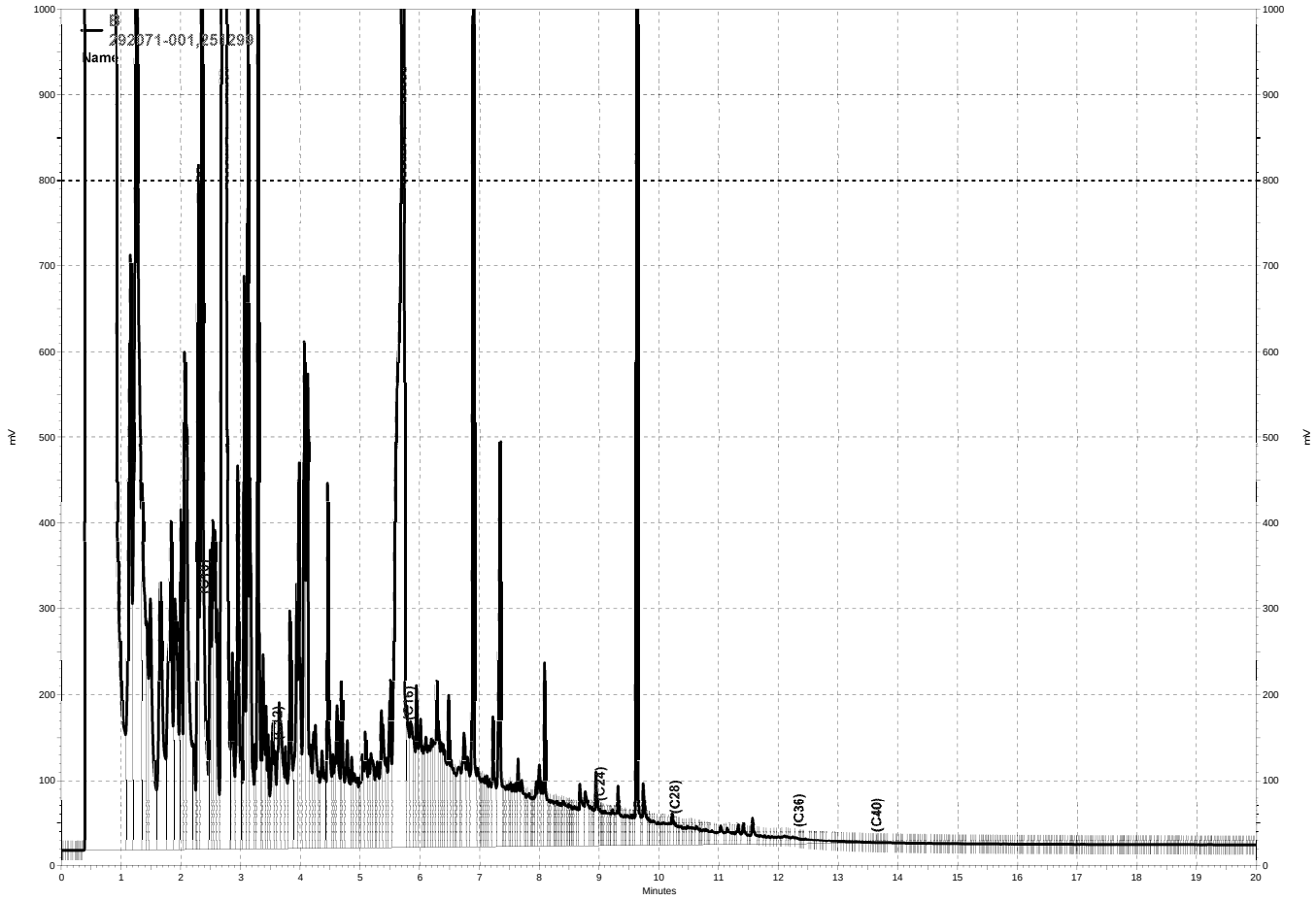
Surrogate	%REC	Limits
o-Terphenyl	109	52-138

Type: BSD Lab ID: QC899541

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

Surrogate	%REC	Limits
o-Terphenyl	112	52-138

RPD= Relative Percent Difference



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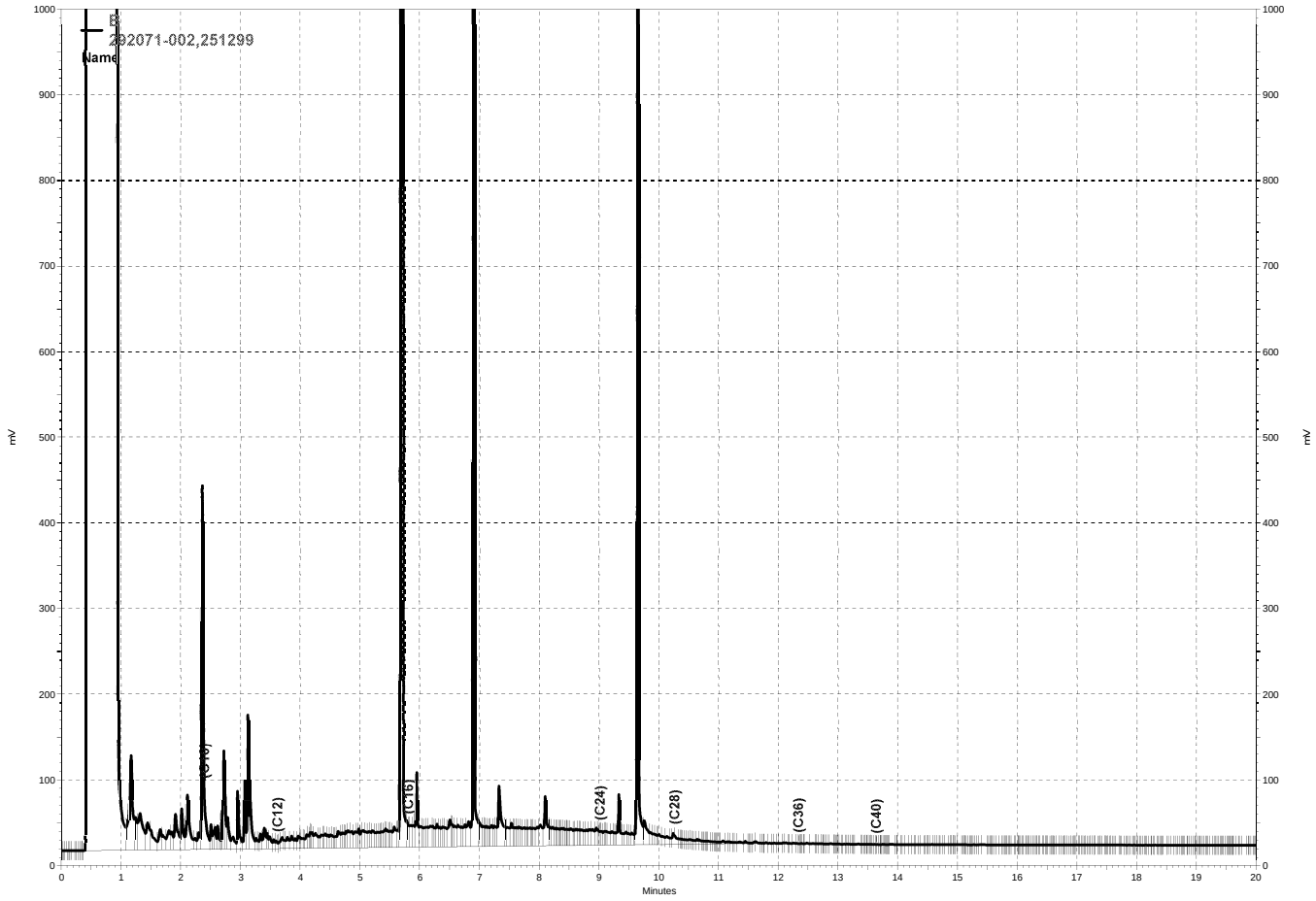

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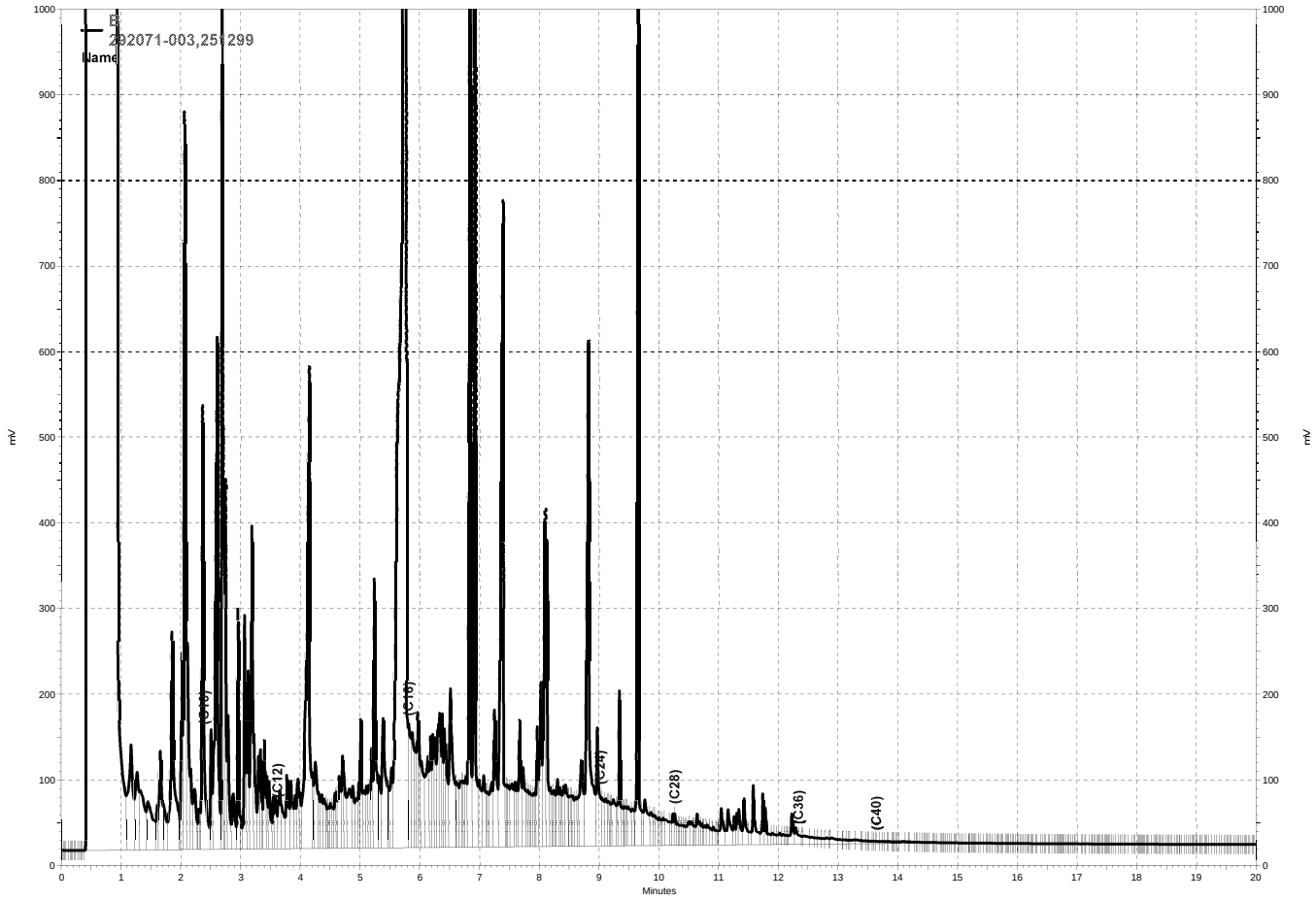

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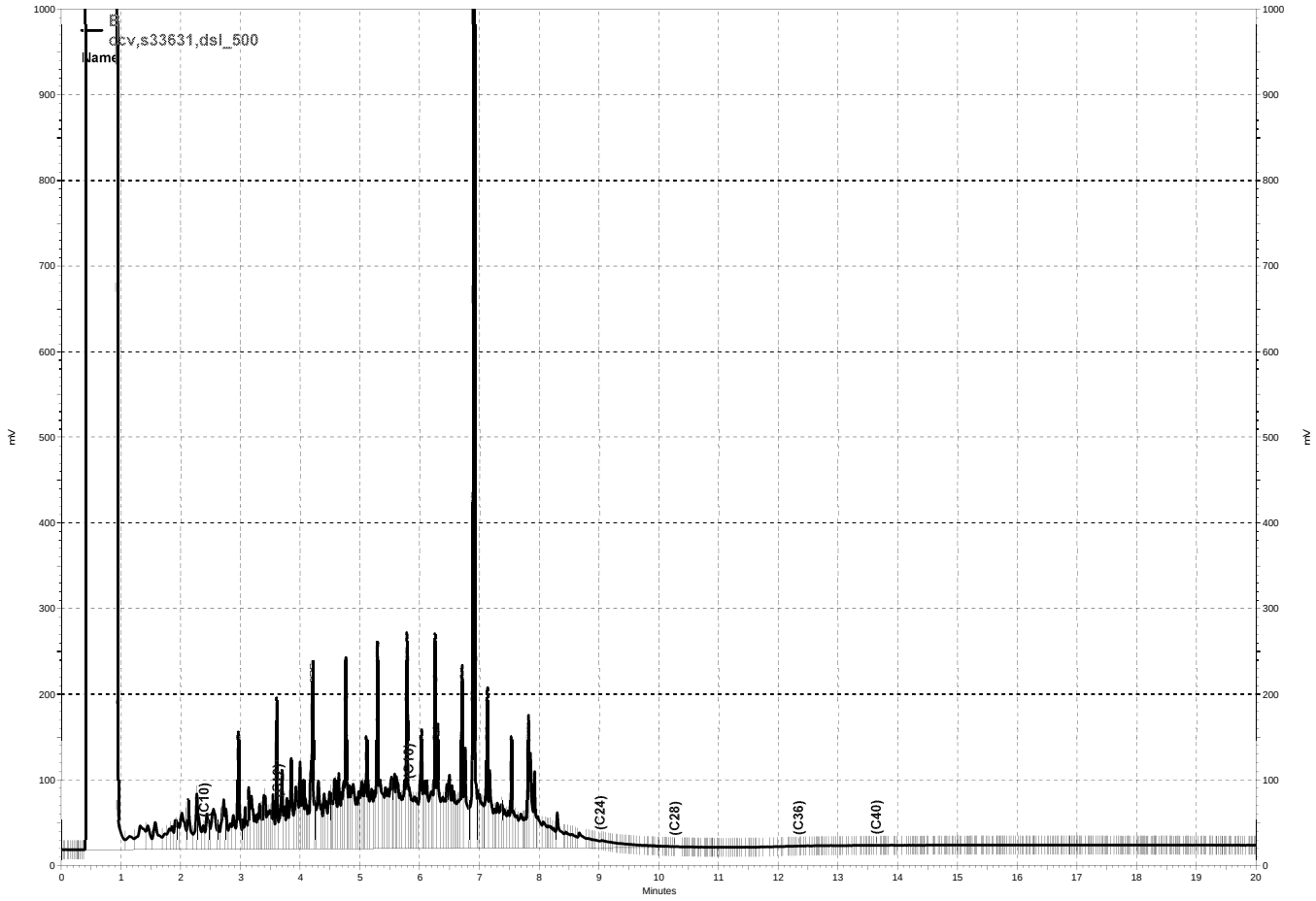

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ENTHALPY ANALYTICAL

Dissolved Iron

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 6010B
Analyte:	Iron	Sampled:	09/01/17
Matrix:	Filtrate	Received:	09/01/17
Units:	ug/L	Prepared:	09/06/17
Diln Fac:	1.000	Analyzed:	09/06/17
Batch#:	251360		

Field ID	Type	Lab ID	Result	RL
TAM	SAMPLE	292071-001	ND	100
TBM	SAMPLE	292071-002	ND	100
TCM	SAMPLE	292071-003	ND	100
	BLANK	QC899761	250 b	100

b= See narrative
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved Iron

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 6010B
Analyte:	Iron	Batch#:	251360
Field ID:	ZZZZZZZZZZ	Sampled:	08/31/17
MSS Lab ID:	292050-001	Received:	08/31/17
Matrix:	Filtrate	Prepared:	09/06/17
Units:	ug/L	Analyzed:	09/06/17
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC899762		10,000	9,880	99	80-125		
BSD	QC899763		10,000	9,862	99	80-125	0	34
MS	QC899764	24.50	10,000	9,990	100	72-135		
MSD	QC899765		10,000	10,180	102	72-135	2	20

RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 300.0
Matrix:	Water	Sampled:	09/01/17
Units:	mg/L	Received:	09/01/17
Batch#:	251245		

Field ID: TAM
Type: SAMPLE
Lab ID: 292071-001

Analyte	Result	RL	Diln Fac	Analyzed
Nitrogen, Nitrate	ND	1.0	20.00	09/01/17 15:16
Sulfate	3,400	500	1,000	09/01/17 21:10

Field ID: TBM
Type: SAMPLE
Lab ID: 292071-002
Diln Fac: 2.000
Analyzed: 09/01/17 15:50

Analyte	Result	RL
Nitrogen, Nitrate	ND	0.10
Sulfate	ND	1.0

Field ID: TCM
Type: SAMPLE
Lab ID: 292071-003

Analyte	Result	RL	Diln Fac	Analyzed
Nitrogen, Nitrate	ND	2.5	50.00	09/01/17 16:25
Sulfate	6,500	500	1,000	09/01/17 21:27

Type: BLANK
Lab ID: QC899342
Diln Fac: 1.000
Analyzed: 09/01/17 10:26

Analyte	Result	RL
Nitrogen, Nitrate	ND	0.05
Sulfate	ND	0.50

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 300.0
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC899343	Batch#:	251245
Matrix:	Water	Analyzed:	09/01/17 10:43
Units:	mg/L		

Analyte	Spiked	Result	%REC	Limits
Nitrogen, Nitrate	0.5000	0.4748	95	80-120
Sulfate	5.000	5.104	102	80-120

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 300.0
Field ID:	ZZZZZZZZZZ	Diln Fac:	25.00
MSS Lab ID:	292085-001	Batch#:	251245
Matrix:	Water	Sampled:	09/01/17 09:05
Units:	mg/L	Received:	09/01/17

Type: MS Analyzed: 09/01/17 23:29
Lab ID: QC899344

Analyte	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrate	0.05469	6.250	6.151	98	80-120
Sulfate	7.478	62.50	71.43	102	80-120

Type: MSD Analyzed: 09/01/17 23:46
Lab ID: QC899345

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrate	6.250	5.921	94	80-120	4	21
Sulfate	62.50	73.51	106	80-120	3	20

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 300.0
Field ID:	ZZZZZZZZZZ	Diln Fac:	25.00
Type:	SSPIKE	Batch#:	251245
MSS Lab ID:	292085-002	Sampled:	09/01/17 10:15
Lab ID:	QC899346	Received:	09/01/17
Matrix:	Water	Analyzed:	09/02/17 00:21
Units:	mg/L		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrate	0.05174	6.250	6.035	96	80-120
Sulfate	8.950	62.50	73.02	103	80-120

ENTHALPY ANALYTICAL

Dissolved Oxygen

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Analysis:	SM4500O-G
Project#:	2007-65		
Analyte:	Dissolved Oxygen	Batch#:	251239
Matrix:	Water	Sampled:	09/01/17
Units:	mg/L	Received:	09/01/17
Diln Fac:	1.000	Analyzed:	09/01/17 13:45

Field ID	Lab ID	Result	RL
TAM	292071-001	ND	1.0
TBM	292071-002	3.4	1.0
TCM	292071-003	ND	1.0

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Dissolved Oxygen

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Analysis:	SM4500O-G
Project#:	2007-65		
Analyte:	Dissolved Oxygen	Units:	mg/L
Field ID:	TAM	Diln Fac:	1.000
Type:	SDUP	Batch#:	251239
MSS Lab ID:	292071-001	Sampled:	09/01/17
Lab ID:	QC899328	Received:	09/01/17
Matrix:	Water	Analyzed:	09/01/17 13:45

MSS Result	Result	RL	RPD	Lim
<1.000	<1.000	1.000	NC	20

NC= Not Calculated
RL= Reporting Limit
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

pH

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 9040C
Analyte:	pH	Batch#:	251238
Matrix:	Water	Sampled:	09/01/17
Units:	SU	Received:	09/01/17
Diln Fac:	1.000	Analyzed:	09/01/17 13:49

Field ID	Lab ID	Result	RL
TAM	292071-001	7.1	1.0
TBM	292071-002	7.1	1.0
TCM	292071-003	7.0	1.0

RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

pH

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2007-65	Analysis:	EPA 9040C
Analyte:	pH	Units:	SU
Field ID:	TAM	Diln Fac:	1.000
Type:	SDUP	Batch#:	251238
MSS Lab ID:	292071-001	Sampled:	09/01/17
Lab ID:	QC899327	Received:	09/01/17
Matrix:	Water	Analyzed:	09/01/17 13:49

MSS Result	Result	RL	RPD	Lim
7.060	7.060	1.000	0	20

RL= Reporting Limit
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Oxidation-Reduction Potential

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Analysis:	SM2580B
Project#:	2007-65		
Analyte:	Oxidation-Reduction Potential	Batch#:	251241
Matrix:	Water	Sampled:	09/01/17
Units:	Eh	Received:	09/01/17
Diln Fac:	1.000	Analyzed:	09/01/17

Field ID	Lab ID	Result	RL
TAM	292071-001	-180	1.0
TBM	292071-002	-29	1.0
TCM	292071-003	-260	1.0

RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Oxidation-Reduction Potential

Lab #:	292071	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Analysis:	SM2580B
Project#:	2007-65		
Analyte:	Oxidation-Reduction Potential	Units:	Eh
Field ID:	TAM	Diln Fac:	1.000
Type:	SDUP	Batch#:	251241
MSS Lab ID:	292071-001	Sampled:	09/01/17
Lab ID:	QC899330	Received:	09/01/17
Matrix:	Water	Analyzed:	09/01/17

MSS Result	Result	RL	RPD	Lim
-183.7	-182.0	1.000	1	20

RL= Reporting Limit
RPD= Relative Percent Difference

ENTHALPY

ANALYTICAL

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

Laboratory Job Number 292162
ANALYTICAL REPORT

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

Sample ID	Lab ID
RW-1	292162-001
MW-3	292162-002
MW-15	292162-003
MW-14	292162-004
MW-13	292162-005
MW-10	292162-006
MW-8	292162-007

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

Signature: Tracy Babjar Date: 09/13/2017

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

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE

Laboratory number:	**292162**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**09/06/17**
Samples Received:	**09/06/17**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 09/06/17. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
A number of samples were diluted due to client history of high non-target or organic acid interference. No other analytical problems were encountered.

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

ENTHALPY

Chain of Custody Record

Lab job no. 292162
Date 9-6-17
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)	BTEX + MTBE (8260B)	TPH-G + M/BTEX	Remarks
RW-1		9-6-17	1157		VOA/500mL Amber					X		X	
MW-3			1117							X		X	
MW-15			1032							X		X	
MW-14			0958							X		X	
MW-13			0918							X		X	
MW-10			0824							X		X	
MW-8			0747							X		X	

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature Phil Alonzo	9-6-17	Signature Pat Gonzalez	9/6/17
Printed Phil Alonzo	Time 13:28	Printed Pat Gonzalez	Time 13:25
Company Blaine Tech Services		Company Enthalpy	

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

COOLER RECEIPT CHECKLIST

ENTHALPY Berkeley

Login # 292162 Date Received 09/06/17 Number of coolers 1
Client Stellar Environmental Solutions Project 2007-65

Date Opened 09/06/17 By (print) EHS (sign)
Date Logged in " By (print) " (sign) "
Date Labelled " By (print) " (sign) "

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.2

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

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

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

COMMENTS (20) 1/3 VOAs arrived with bubble in sample 5

Rev 14, 8/01/17

ENTHALPY ANALYTICAL

Detections Summary for 292162

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

Client : Stellar Environmental Solutions
Project : 2007-65
Location : Bay Center Apts

Client Sample ID : RW-1 Laboratory Sample ID : 292162-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	660		50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Benzene	86		0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Ethylbenzene	3.0		0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
m,p-Xylenes	1.6	C	0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
o-Xylene	1.8	C	0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Diesel C10-C24	680		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-3 Laboratory Sample ID : 292162-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	380		50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
MTBE	6.3		2.0	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Benzene	17		0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
m,p-Xylenes	0.64	C	0.50	ug/L	As Recd	1.000	EPA 8021B	EPA 5030B
Diesel C10-C24	5,000		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-15 Laboratory Sample ID : 292162-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	16,000		2,500	ug/L	As Recd	50.00	EPA 8015B	EPA 5030B
Benzene	4,900		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Toluene	68		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Ethylbenzene	43	C	25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
m,p-Xylenes	46	C	25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Diesel C10-C24	2,900		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-14 Laboratory Sample ID : 292162-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	8,600		2,500	ug/L	As Recd	50.00	EPA 8015B	EPA 5030B
Benzene	2,200		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Toluene	97		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Ethylbenzene	120		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
m,p-Xylenes	62		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Diesel C10-C24	3,900		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-13 Laboratory Sample ID : 292162-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	13,000		2,500	ug/L	As Recd	50.00	EPA 8015B	EPA 5030B
Benzene	3,100		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Toluene	58	C	25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Ethylbenzene	340		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
m,p-Xylenes	120		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Diesel C10-C24	7,200		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-10 Laboratory Sample ID : 292162-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	8,700		2,500	ug/L	As Recd	50.00	EPA 8015B	EPA 5030B
Benzene	1,900		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Toluene	65		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
m,p-Xylenes	42		25	ug/L	As Recd	50.00	EPA 8021B	EPA 5030B
Diesel C10-C24	1,800		50	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

Client Sample ID : MW-8 Laboratory Sample ID : 292162-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	24,000		4,200	ug/L	As Recd	83.33	EPA 8015B	EPA 5030B
Benzene	6,400		42	ug/L	As Recd	83.33	EPA 8021B	EPA 5030B
Toluene	82		42	ug/L	As Recd	83.33	EPA 8021B	EPA 5030B
Ethylbenzene	550		42	ug/L	As Recd	83.33	EPA 8021B	EPA 5030B
m,p-Xylenes	170		42	ug/L	As Recd	83.33	EPA 8021B	EPA 5030B
Diesel C10-C24	7,100		49	ug/L	As Recd	1.000	EPA 8015B	EPA 3520C

C = Presence confirmed, but RPD between columns exceeds 40%

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/06/17
Units:	ug/L	Received:	09/06/17
Batch#:	251390		

Field ID:	RW-1	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-001		

Analyte	Result	RL	Analysis
Gasoline C7-C12	660	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	86	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	3.0	0.50	EPA 8021B
m,p-Xylenes	1.6 C	0.50	EPA 8021B
o-Xylene	1.8 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	94	80-121	EPA 8015B
Bromofluorobenzene (PID)	92	74-135	EPA 8021B

Field ID:	MW-3	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-002		

Analyte	Result	RL	Analysis
Gasoline C7-C12	380	50	EPA 8015B
MTBE	6.3	2.0	EPA 8021B
Benzene	17	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	0.64 C	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	110	80-121	EPA 8015B
Bromofluorobenzene (PID)	102	74-135	EPA 8021B

Field ID:	MW-15	Diln Fac:	50.00
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-003		

Analyte	Result	RL	Analysis
Gasoline C7-C12	16,000	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	4,900	25	EPA 8021B
Toluene	68	25	EPA 8021B
Ethylbenzene	43 C	25	EPA 8021B
m,p-Xylenes	46 C	25	EPA 8021B
o-Xylene	ND	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	80-121	EPA 8015B
Bromofluorobenzene (PID)	98	74-135	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/06/17
Units:	ug/L	Received:	09/06/17
Batch#:	251390		

Field ID:	MW-14	Diln Fac:	50.00
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-004		

Analyte	Result	RL	Analysis
Gasoline C7-C12	8,600	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	2,200	25	EPA 8021B
Toluene	97	25	EPA 8021B
Ethylbenzene	120	25	EPA 8021B
m,p-Xylenes	62	25	EPA 8021B
o-Xylene	ND	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	80-121	EPA 8015B
Bromofluorobenzene (PID)	99	74-135	EPA 8021B

Field ID:	MW-13	Diln Fac:	50.00
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-005		

Analyte	Result	RL	Analysis
Gasoline C7-C12	13,000	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	3,100	25	EPA 8021B
Toluene	58 C	25	EPA 8021B
Ethylbenzene	340	25	EPA 8021B
m,p-Xylenes	120	25	EPA 8021B
o-Xylene	ND	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	101	80-121	EPA 8015B
Bromofluorobenzene (PID)	102	74-135	EPA 8021B

Field ID:	MW-10	Diln Fac:	50.00
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-006		

Analyte	Result	RL	Analysis
Gasoline C7-C12	8,700	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	1,900	25	EPA 8021B
Toluene	65	25	EPA 8021B
Ethylbenzene	ND	25	EPA 8021B
m,p-Xylenes	42	25	EPA 8021B
o-Xylene	ND	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	80-121	EPA 8015B
Bromofluorobenzene (PID)	101	74-135	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	09/06/17
Units:	ug/L	Received:	09/06/17
Batch#:	251390		

Field ID:	MW-8	Diln Fac:	83.33
Type:	SAMPLE	Analyzed:	09/08/17
Lab ID:	292162-007		

Analyte	Result	RL	Analysis
Gasoline C7-C12	24,000	4,200	EPA 8015B
MTBE	ND	170	EPA 8021B
Benzene	6,400	42	EPA 8021B
Toluene	82	42	EPA 8021B
Ethylbenzene	550	42	EPA 8021B
m,p-Xylenes	170	42	EPA 8021B
o-Xylene	ND	42	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	97	80-121	EPA 8015B
Bromofluorobenzene (PID)	97	74-135	EPA 8021B

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC899872	Analyzed:	09/07/17

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)	88	80-121	EPA 8015B
Bromofluorobenzene (PID)	88	74-135	EPA 8021B

C= Presence confirmed, but RPD between columns exceeds 40%
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	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:	QC899867	Batch#:	251390
Matrix:	Water	Analyzed:	09/07/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	970.7	97	80-122

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-121

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	251390
Units:	ug/L	Analyzed:	09/07/17
Diln Fac:	1.000		

Type: BS Lab ID: QC899868

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.34	103	45-130
Benzene	10.00	9.624	96	80-120
Toluene	10.00	9.278	93	80-120
Ethylbenzene	10.00	9.467	95	78-120
m,p-Xylenes	10.00	9.395	94	78-120
o-Xylene	10.00	9.316	93	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	100	74-135

Type: BSD Lab ID: QC899869

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.46	105	45-130	1	58
Benzene	10.00	9.496	95	80-120	1	20
Toluene	10.00	9.010	90	80-120	3	20
Ethylbenzene	10.00	9.330	93	78-120	1	28
m,p-Xylenes	10.00	9.041	90	78-120	4	26
o-Xylene	10.00	9.019	90	80-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	94	74-135

RPD= Relative Percent Difference

Batch QC Report

Enthalpy Analytical - Berkeley Analytical Report

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	RW-1	Batch#:	251390
MSS Lab ID:	292162-001	Sampled:	09/06/17
Matrix:	Water	Received:	09/06/17
Units:	ug/L	Analyzed:	09/08/17
Diln Fac:	1.000		

Type: MS Lab ID: QC899870

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	656.4	2,000	2,368	86	78-120

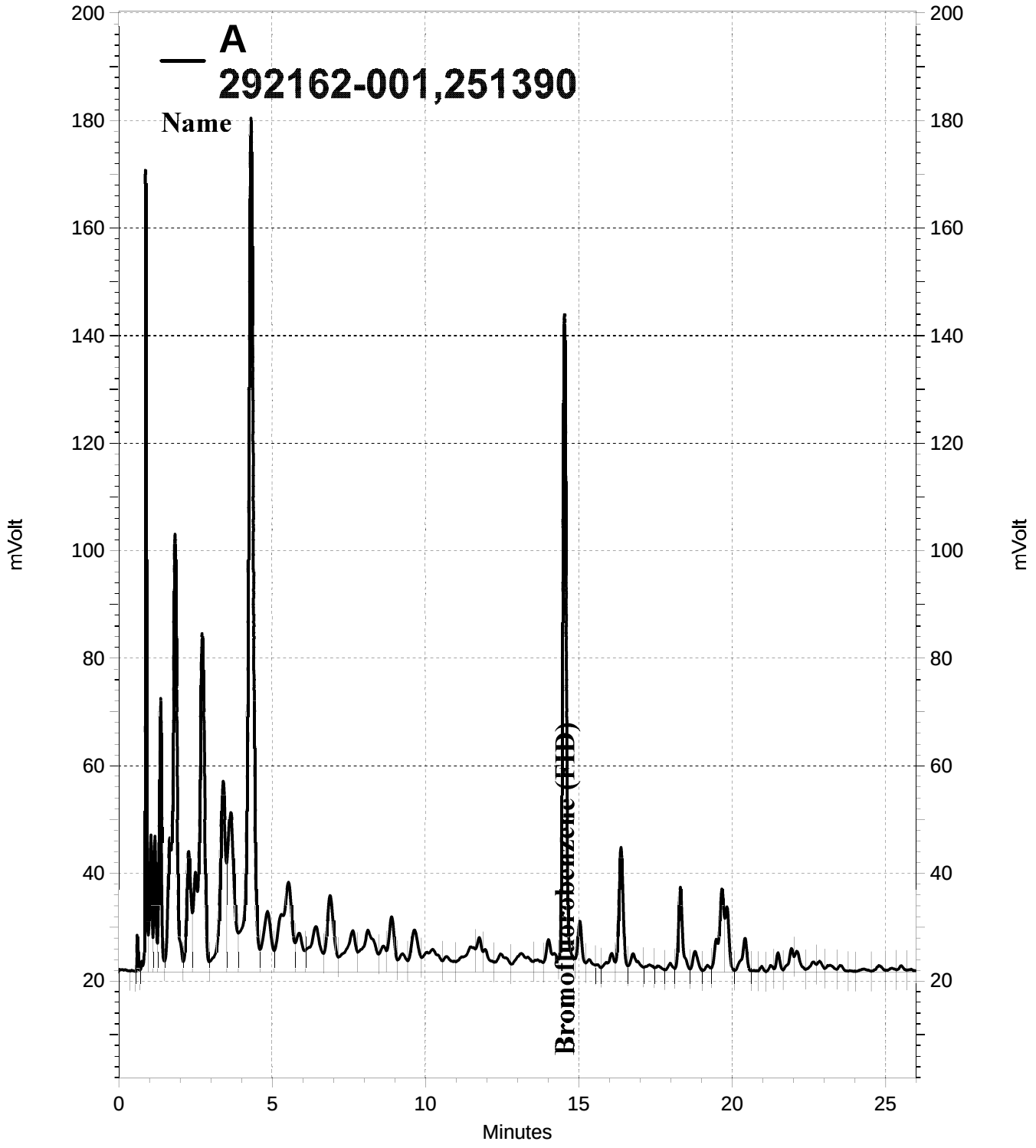
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	80-121

Type: MSD Lab ID: QC899871

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,459	90	78-120	4	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	80-121

RPD= Relative Percent Difference



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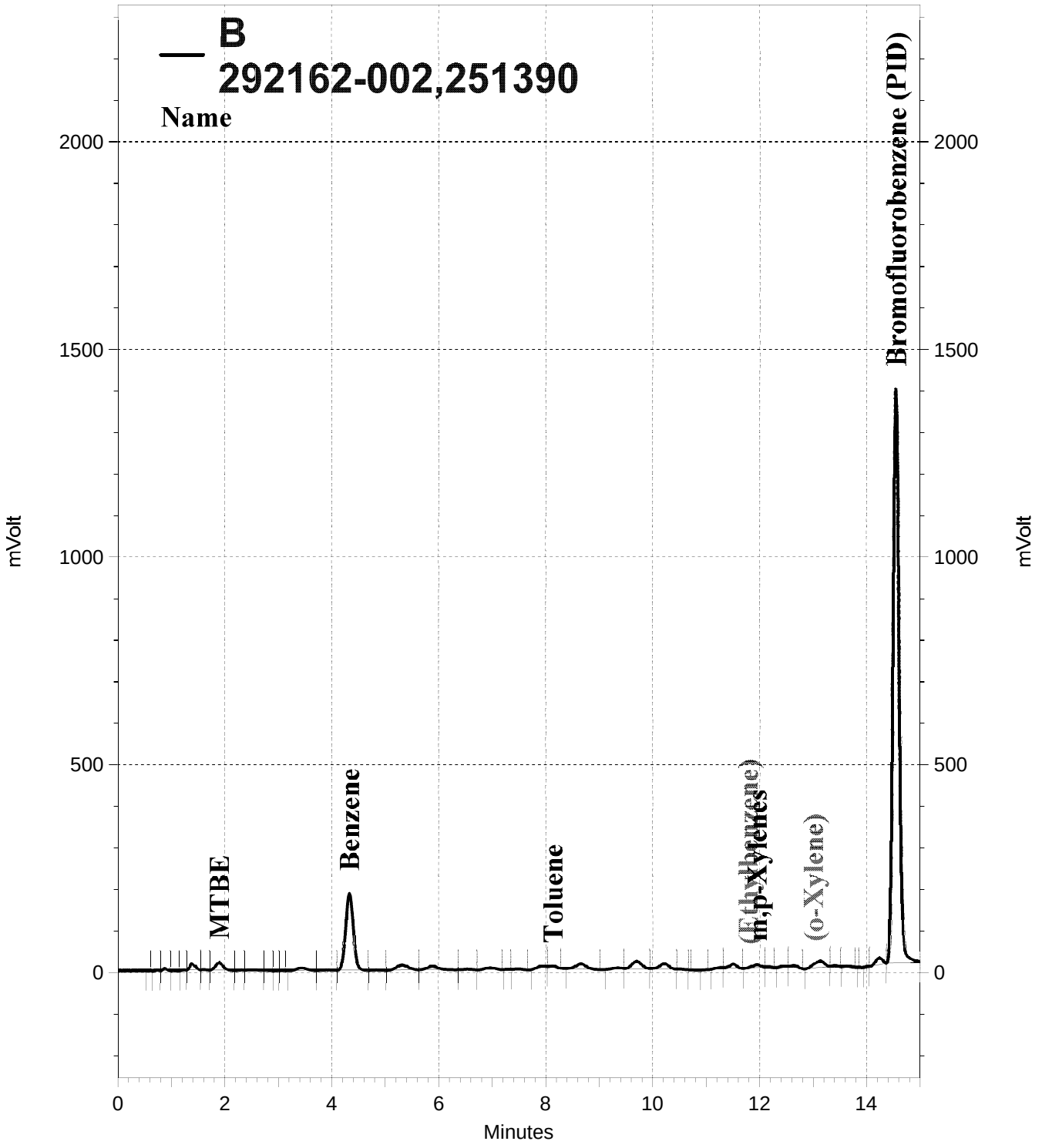

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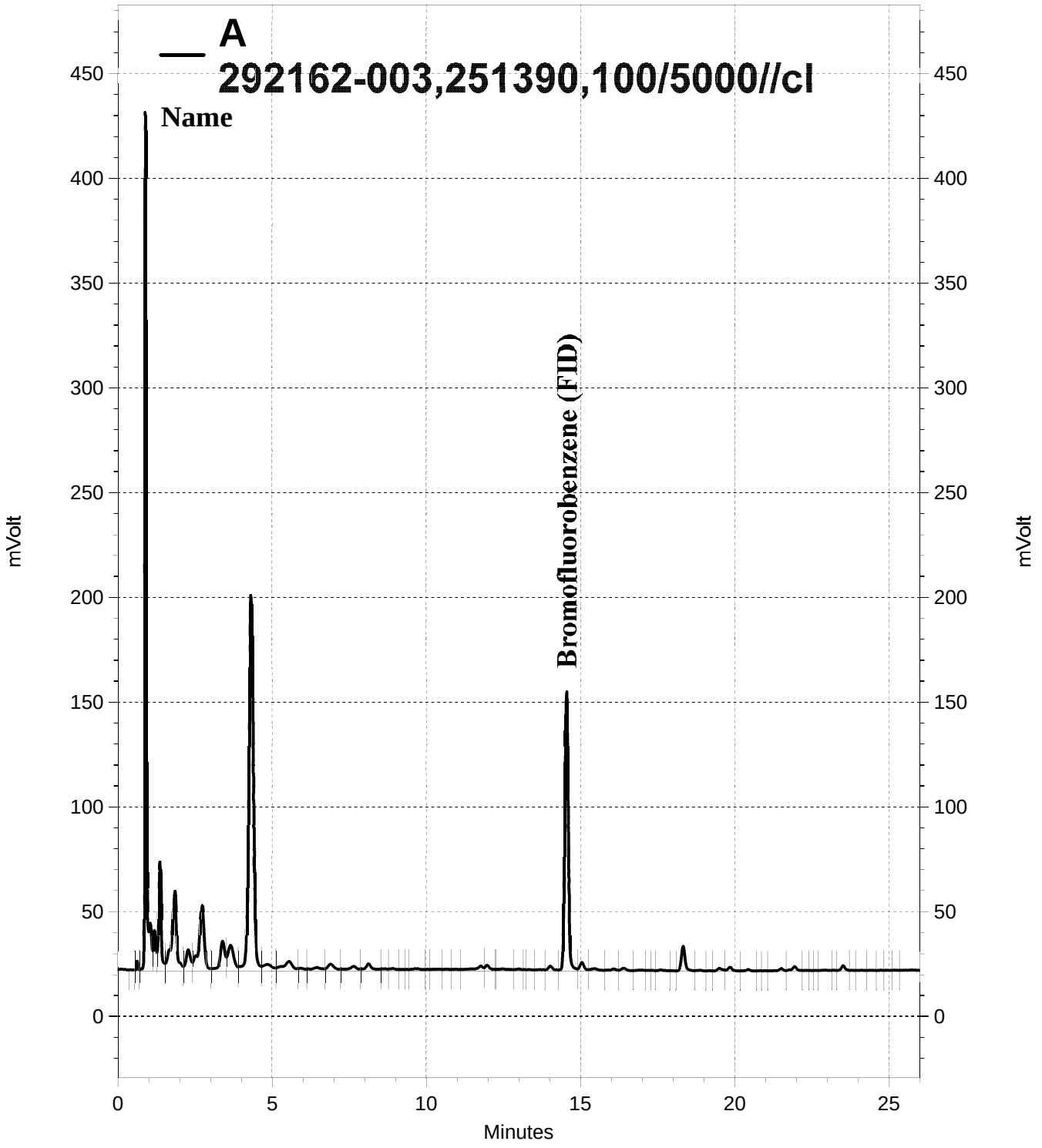
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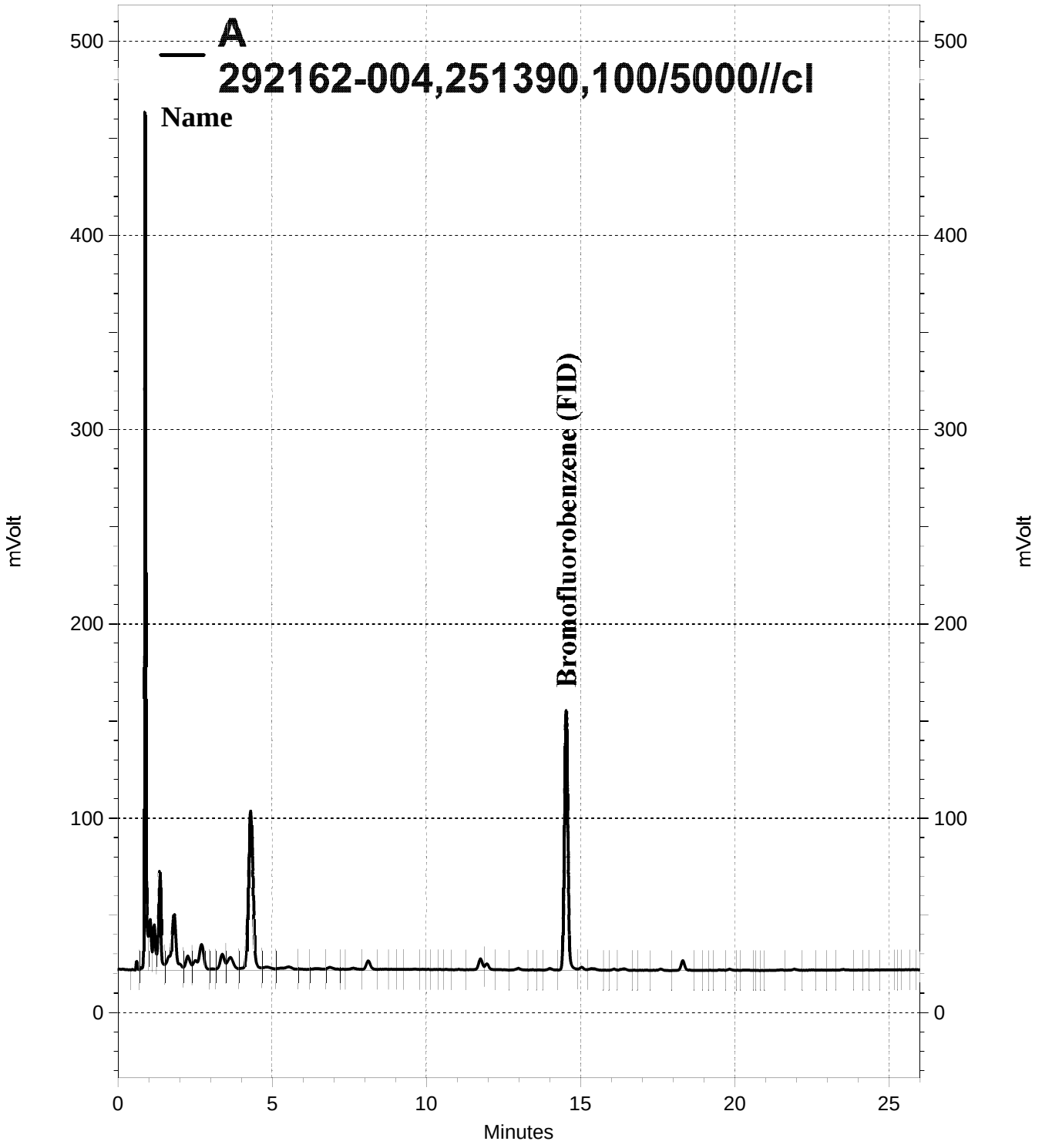
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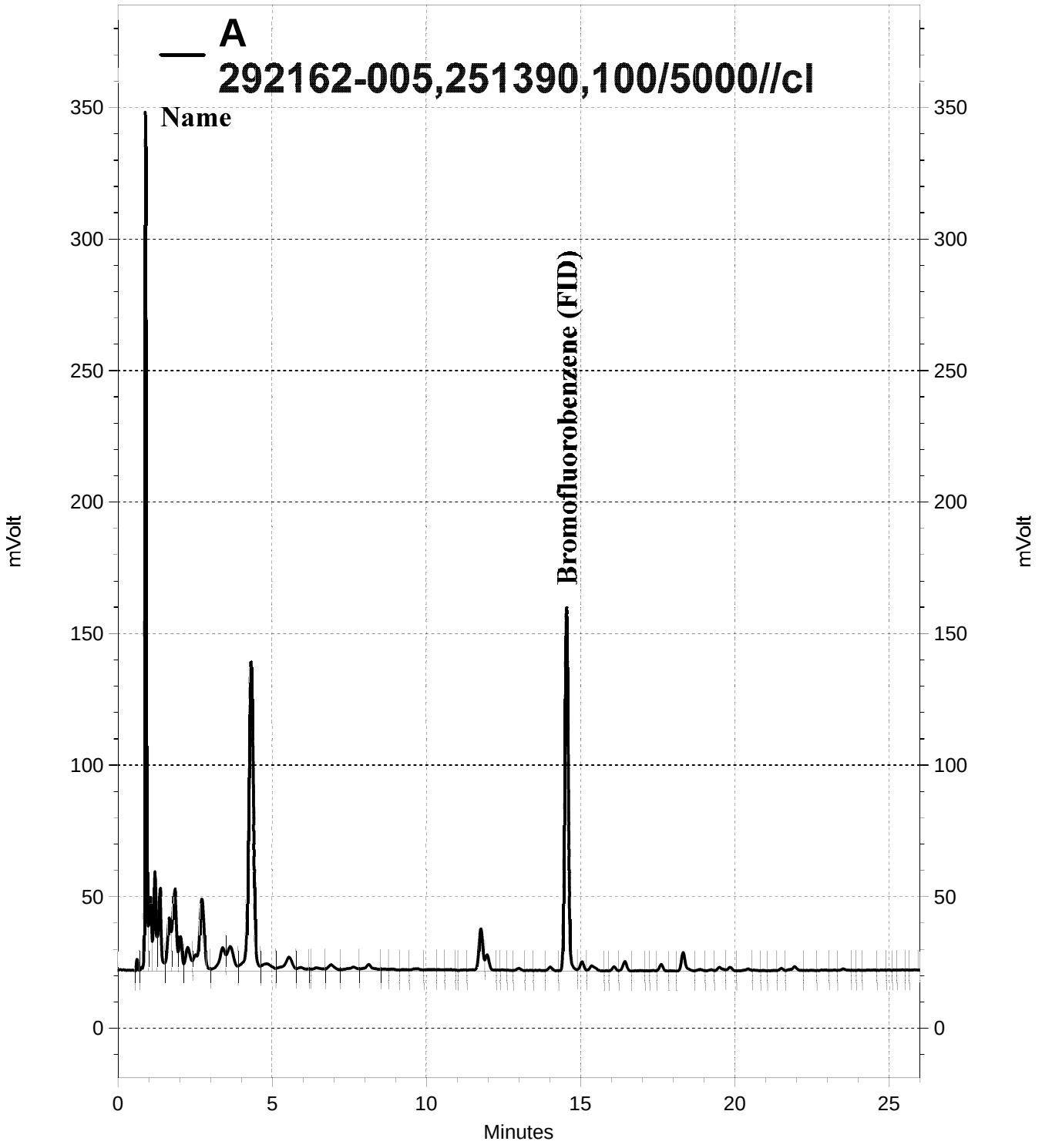
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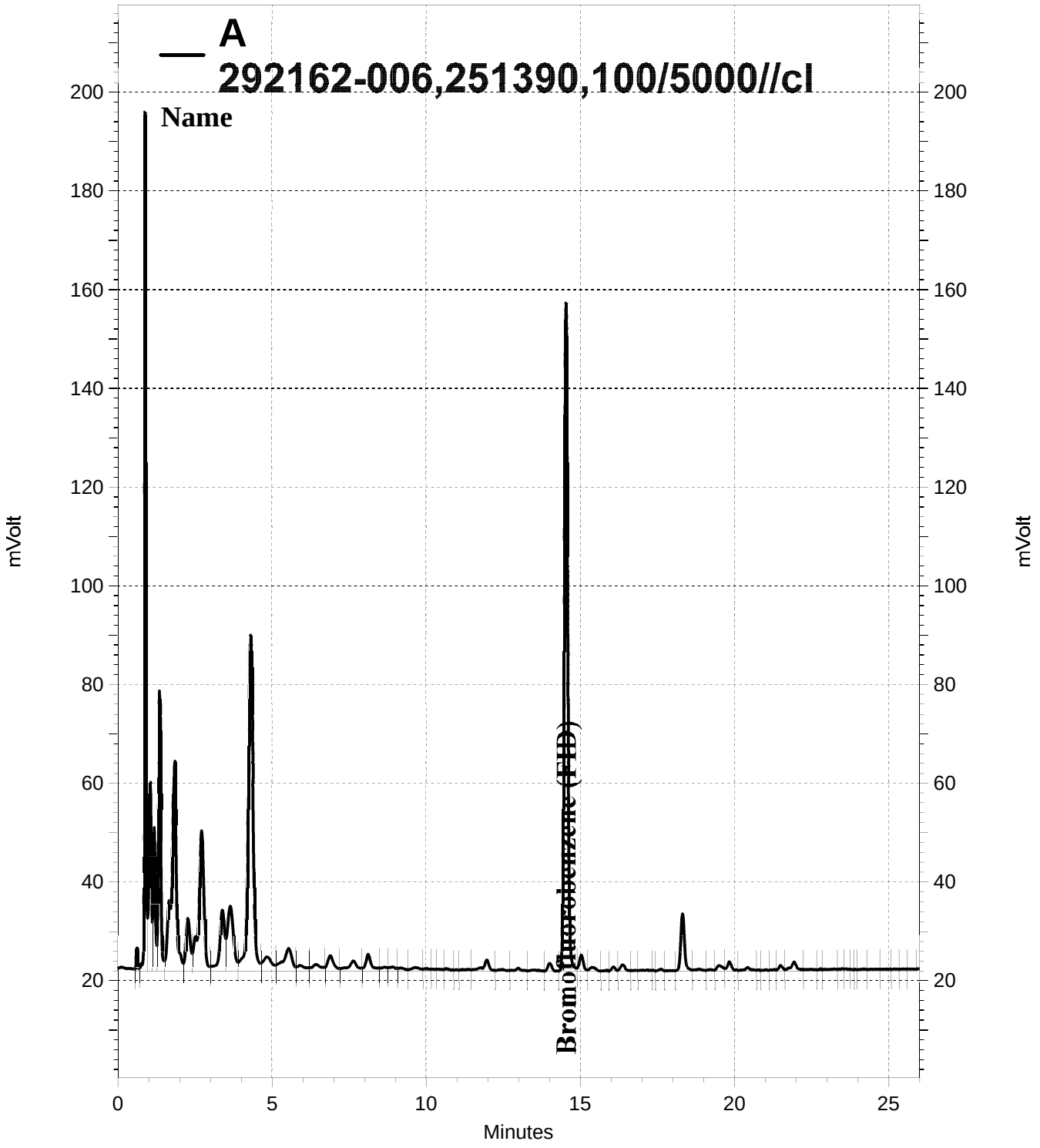
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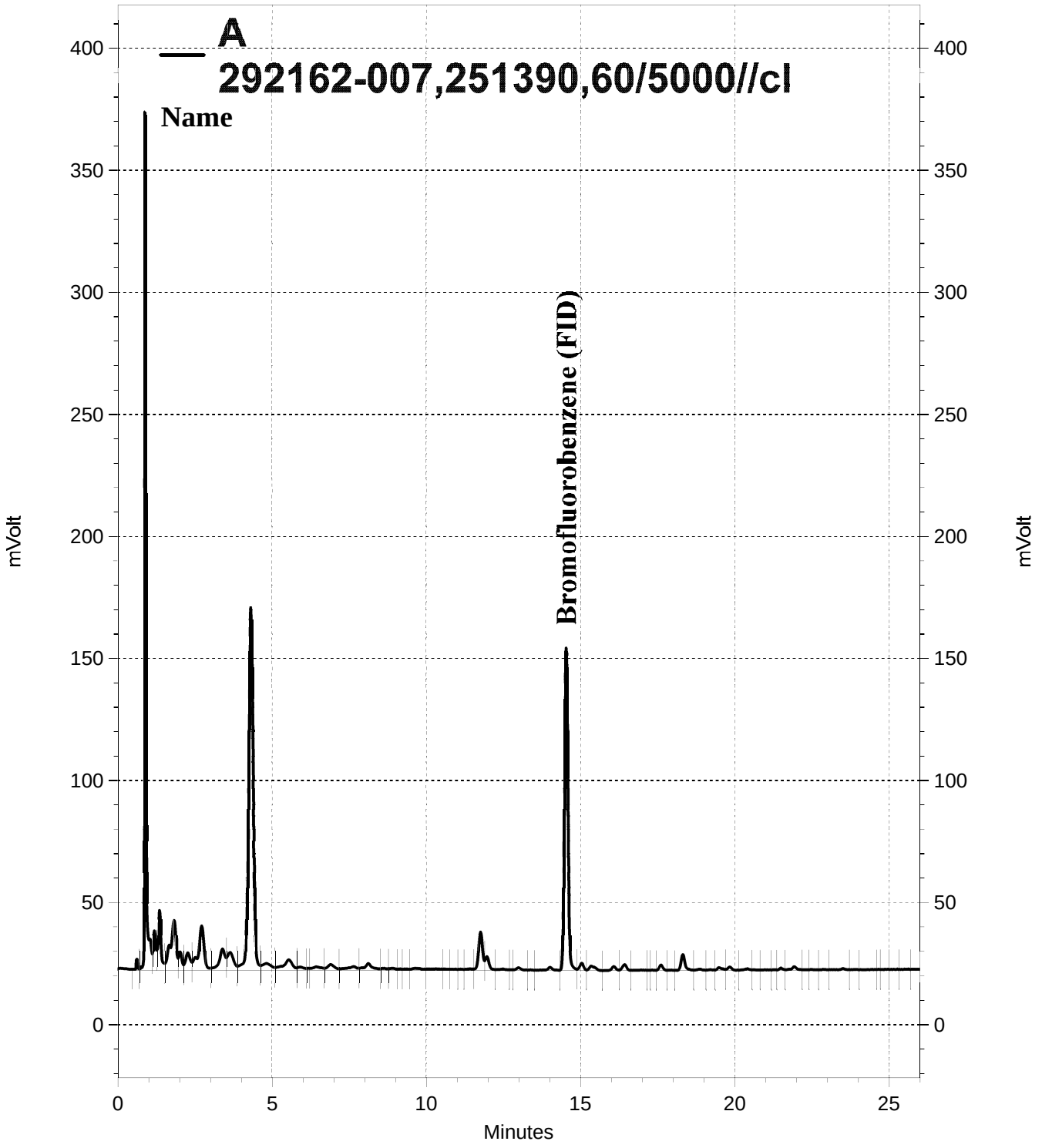
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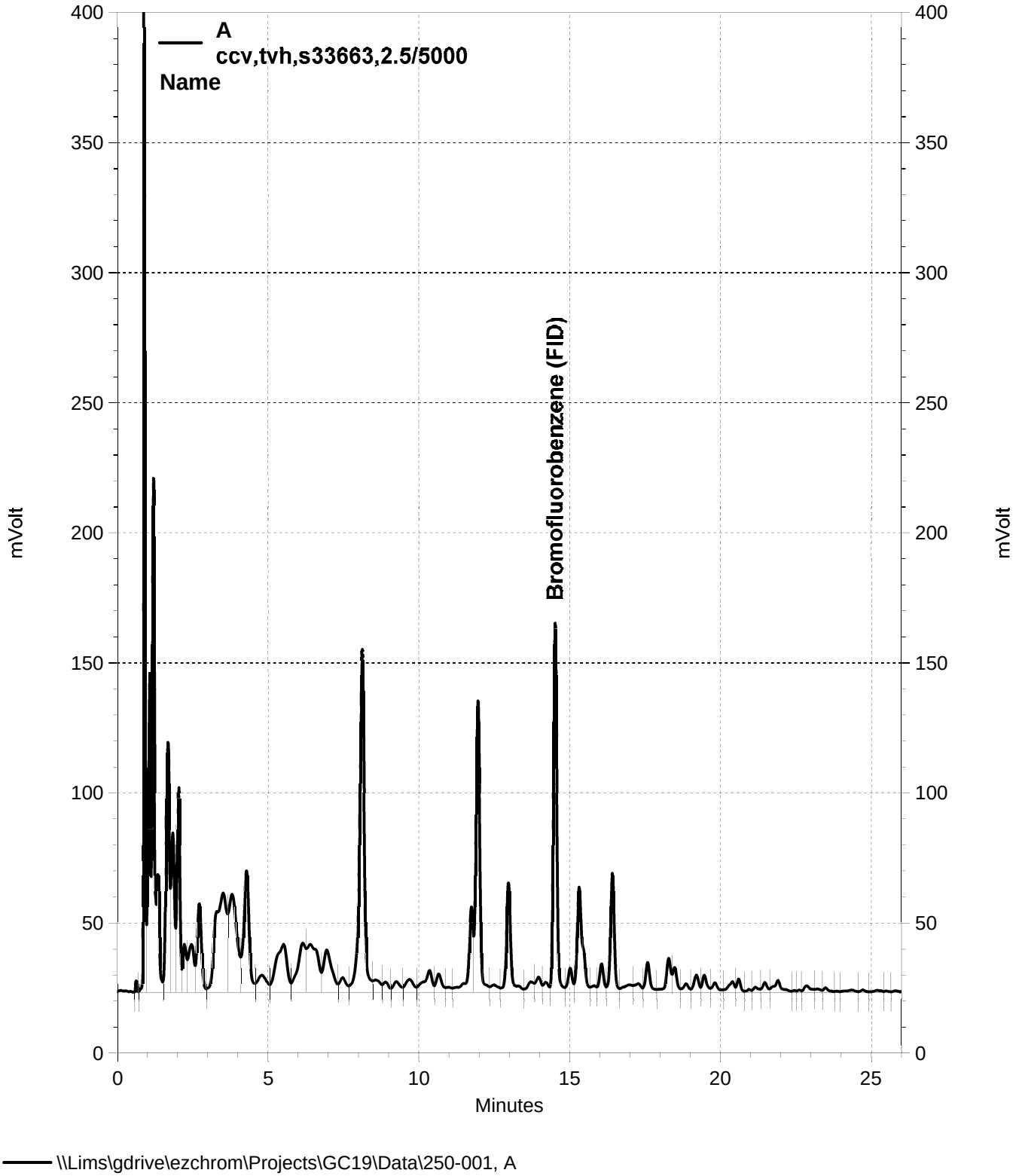
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ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/06/17
Units:	ug/L	Received:	09/06/17
Diln Fac:	1.000	Prepared:	09/07/17
Batch#:	251389		

Field ID: RW-1 Lab ID: 292162-001
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	680	50

Surrogate	%REC	Limits
o-Terphenyl	108	51-134

Field ID: MW-3 Lab ID: 292162-002
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	5,000	50

Surrogate	%REC	Limits
o-Terphenyl	110	51-134

Field ID: MW-15 Lab ID: 292162-003
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	2,900	50

Surrogate	%REC	Limits
o-Terphenyl	106	51-134

Field ID: MW-14 Lab ID: 292162-004
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	3,900	50

Surrogate	%REC	Limits
o-Terphenyl	102	51-134

Field ID: MW-13 Lab ID: 292162-005
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	7,200	50

Surrogate	%REC	Limits
o-Terphenyl	108	51-134

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Total Extractable Hydrocarbons

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	09/06/17
Units:	ug/L	Received:	09/06/17
Diln Fac:	1.000	Prepared:	09/07/17
Batch#:	251389		

Field ID: MW-10 Lab ID: 292162-006
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	1,800	50

Surrogate	%REC	Limits
o-Terphenyl	108	51-134

Field ID: MW-8 Lab ID: 292162-007
Type: SAMPLE Analyzed: 09/11/17

Analyte	Result	RL
Diesel C10-C24	7,100	49

Surrogate	%REC	Limits
o-Terphenyl	111	51-134

Type: BLANK Analyzed: 09/08/17
Lab ID: QC899863

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	99	51-134

ND= Not Detected
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	292162	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	251389
Units:	ug/L	Prepared:	09/07/17
Diln Fac:	1.000	Analyzed:	09/08/17

Type: BS Lab ID: QC899865

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,192	88	50-123

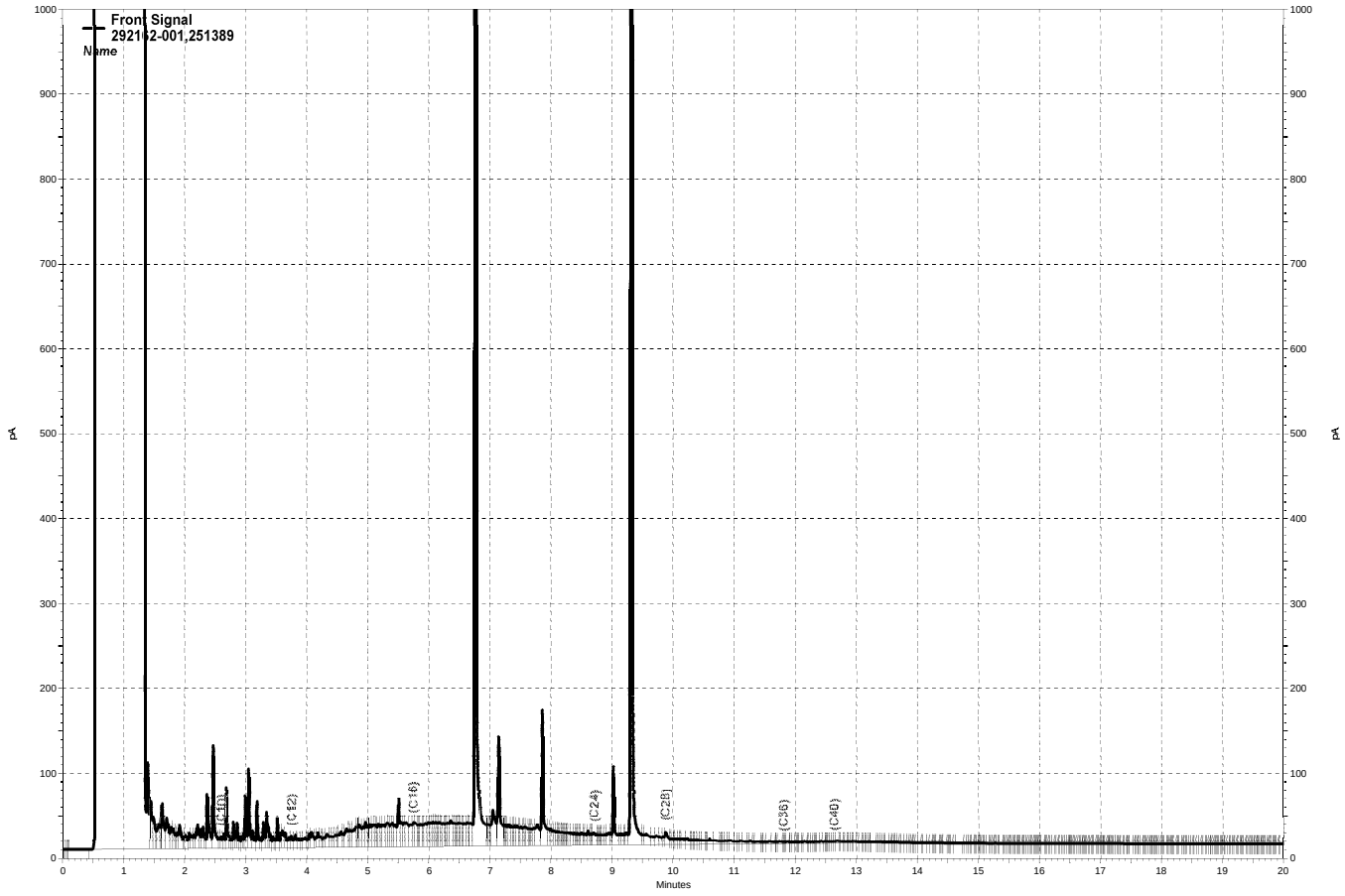
Surrogate	%REC	Limits
o-Terphenyl	110	51-134

Type: BSD Lab ID: QC899866

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,277	91	50-123	4	34

Surrogate	%REC	Limits
o-Terphenyl	109	51-134

RPD= Relative Percent Difference



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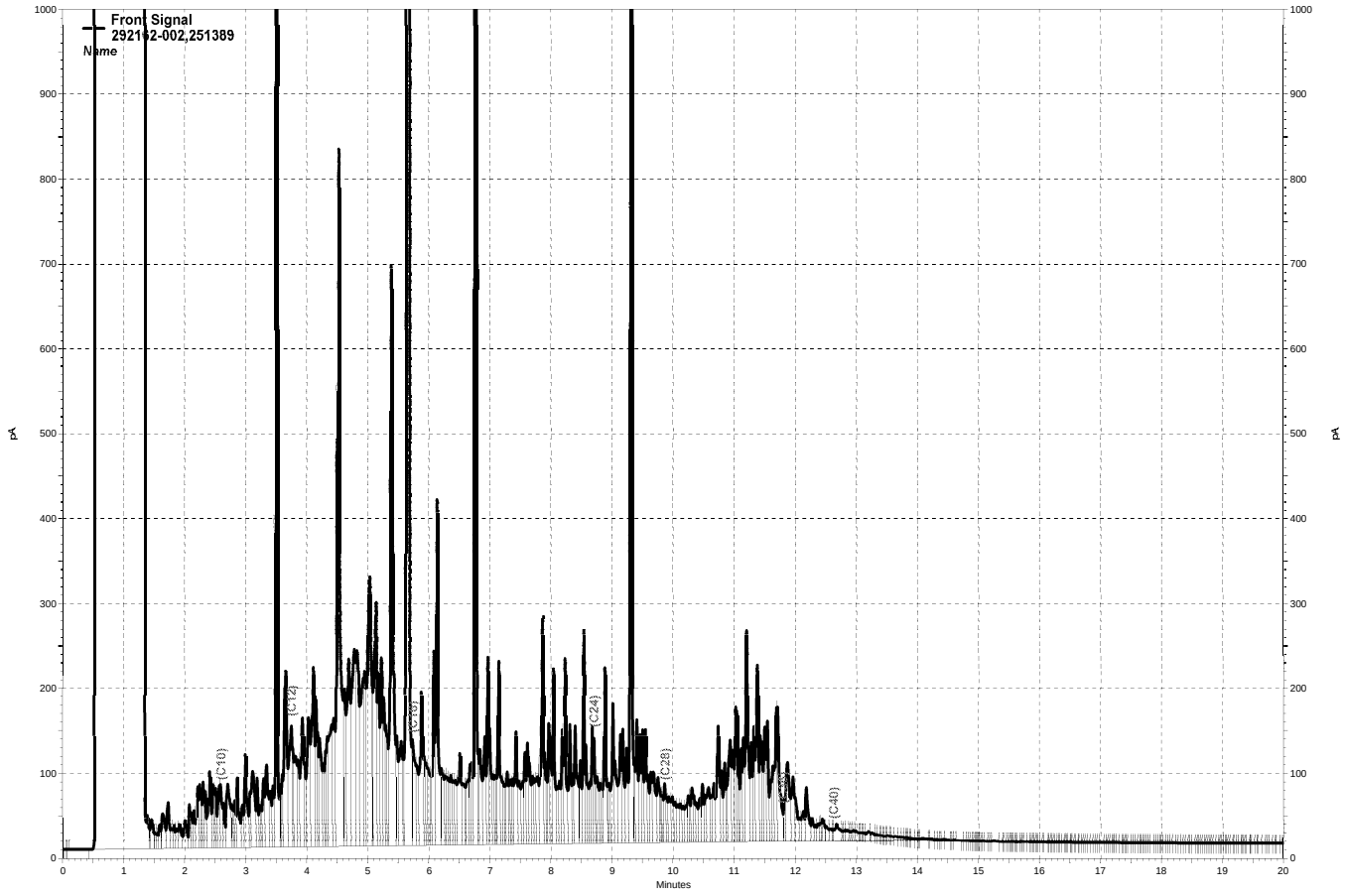

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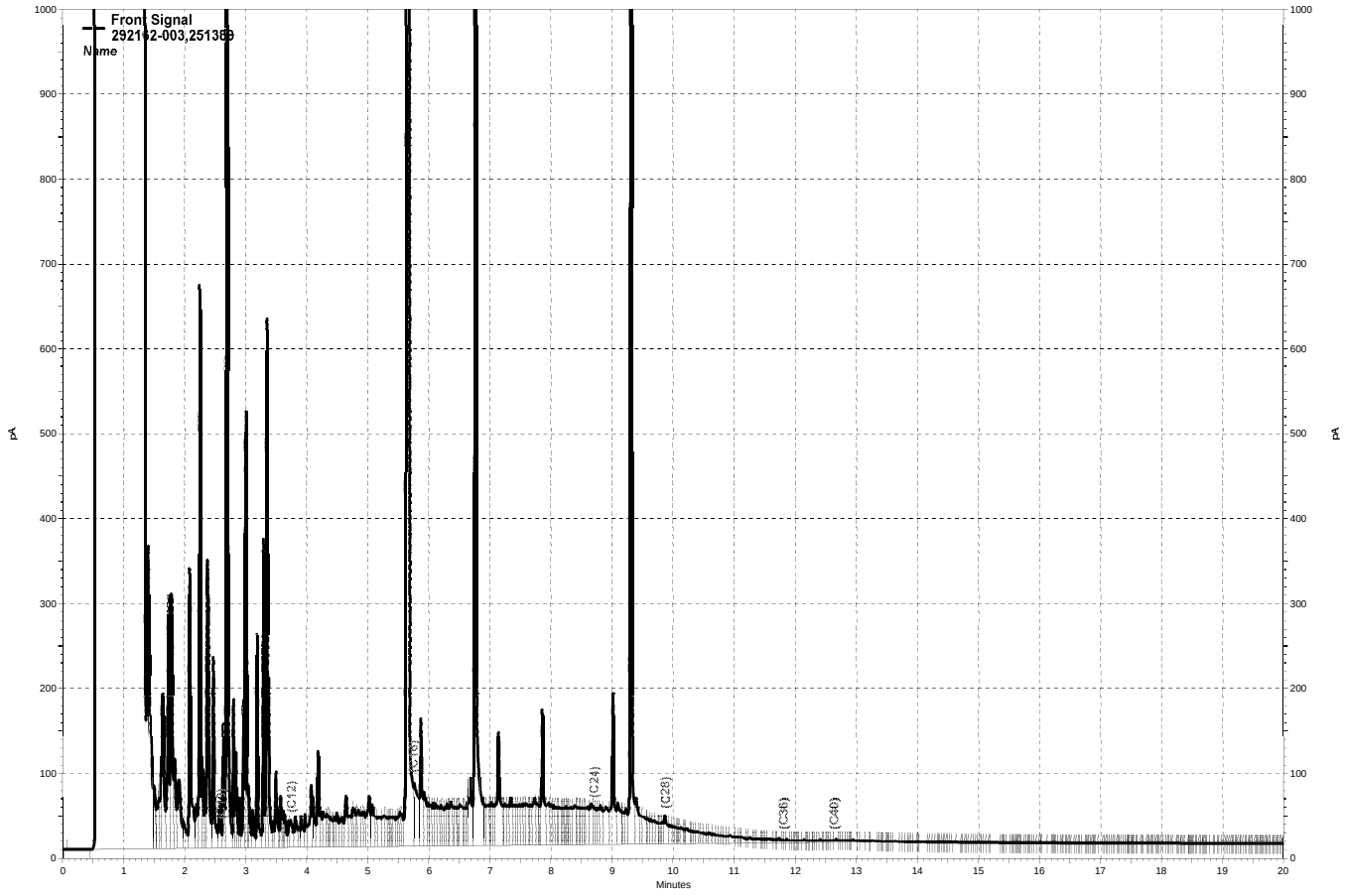

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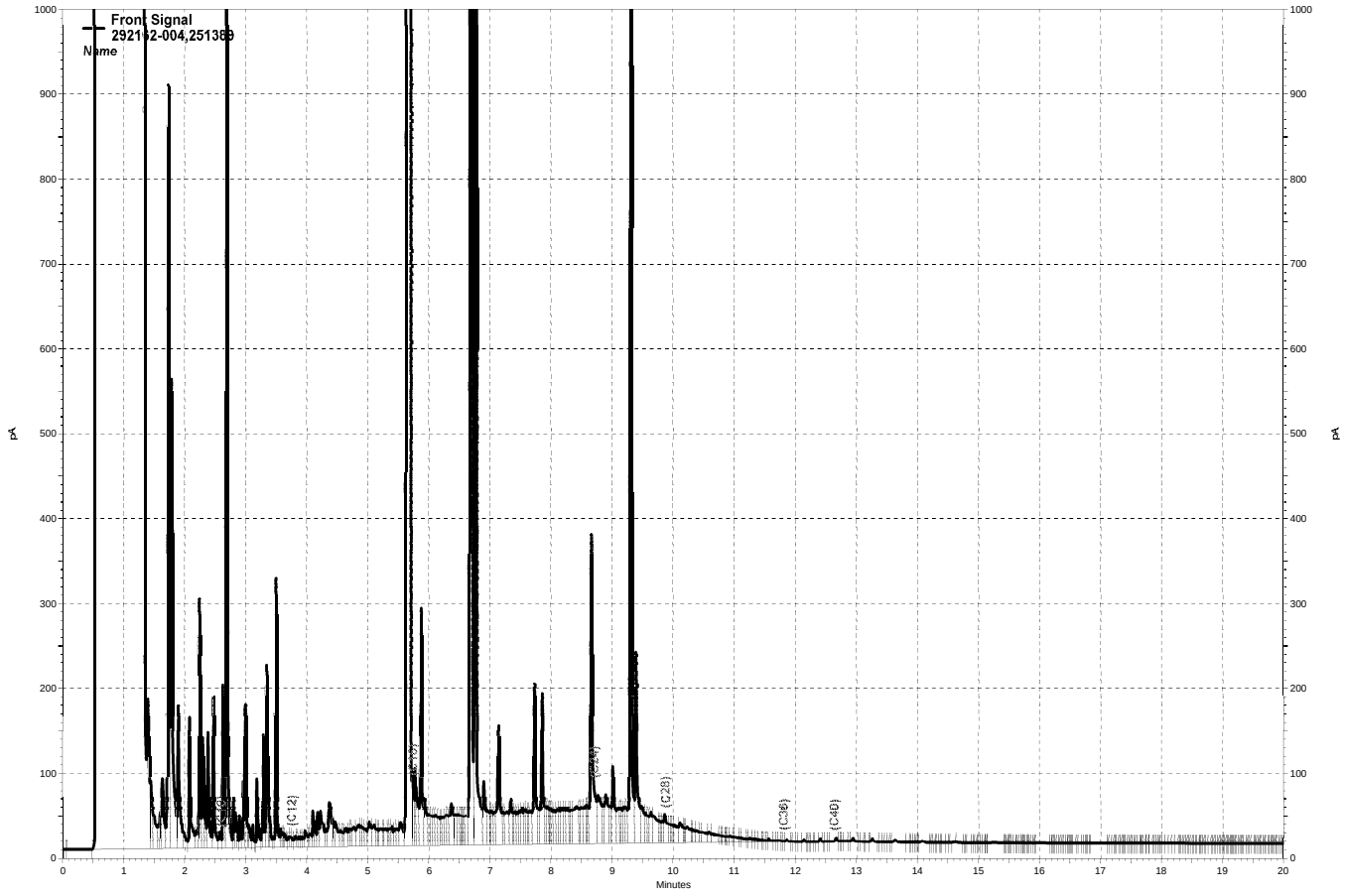

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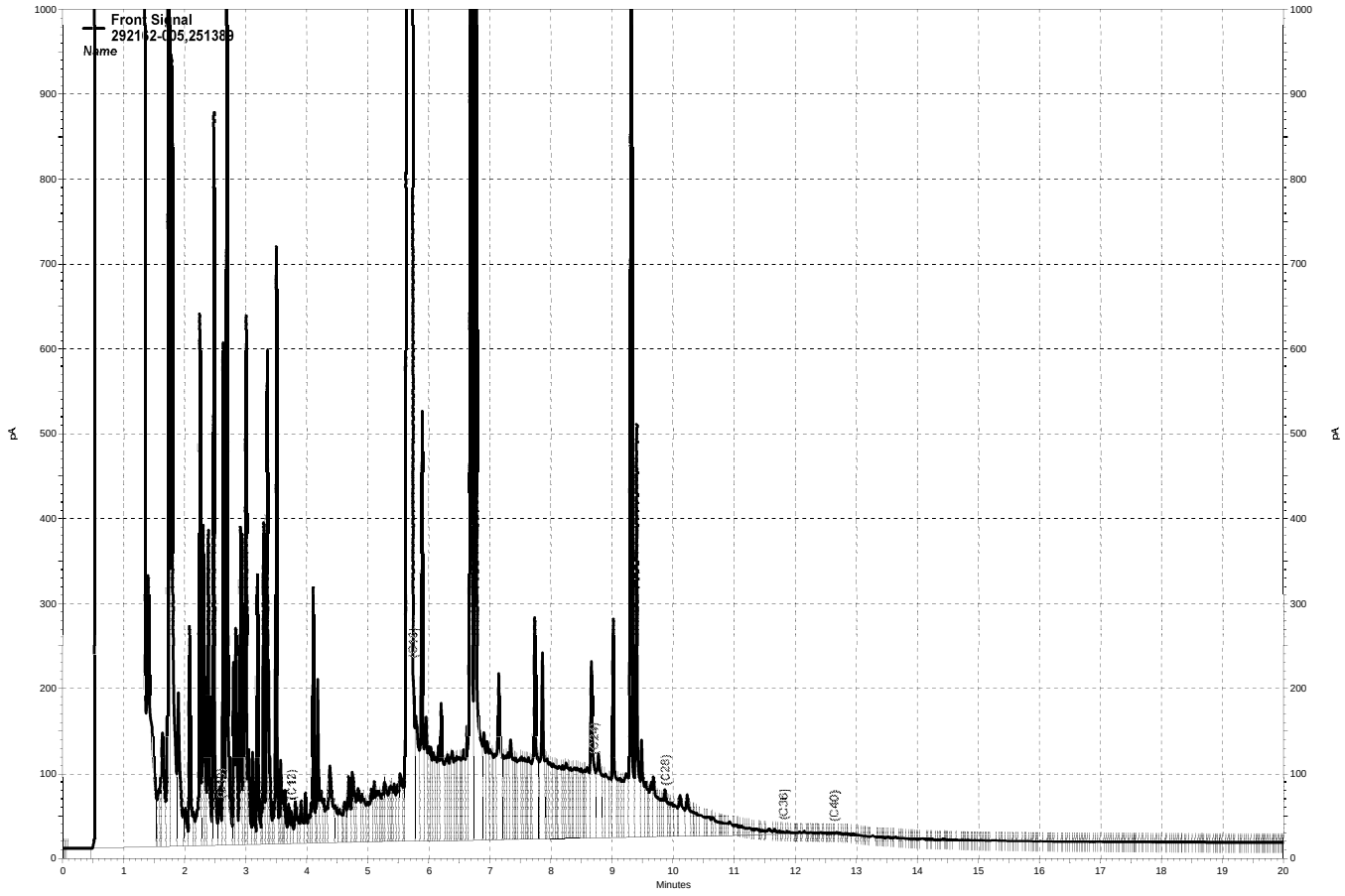

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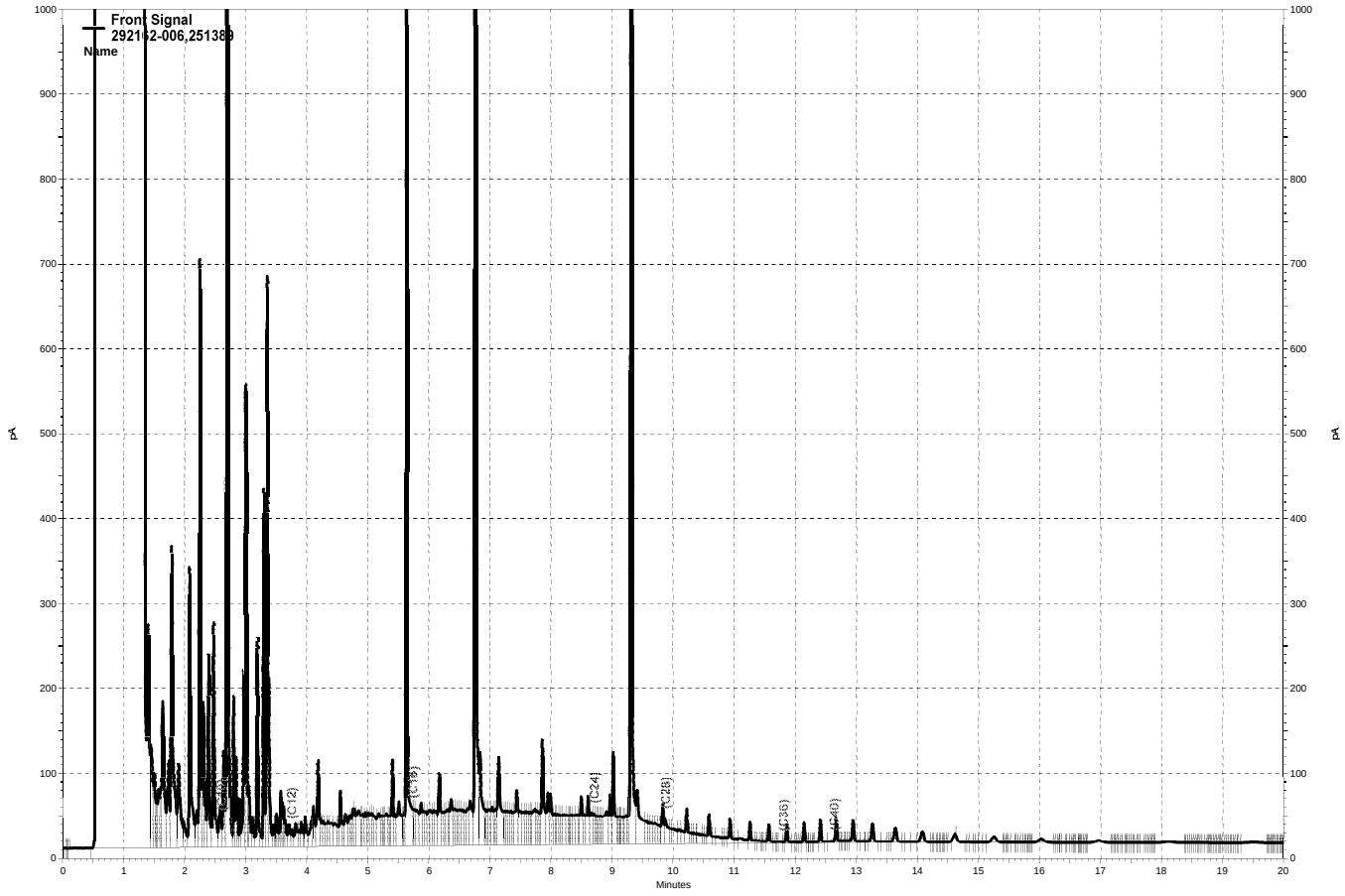

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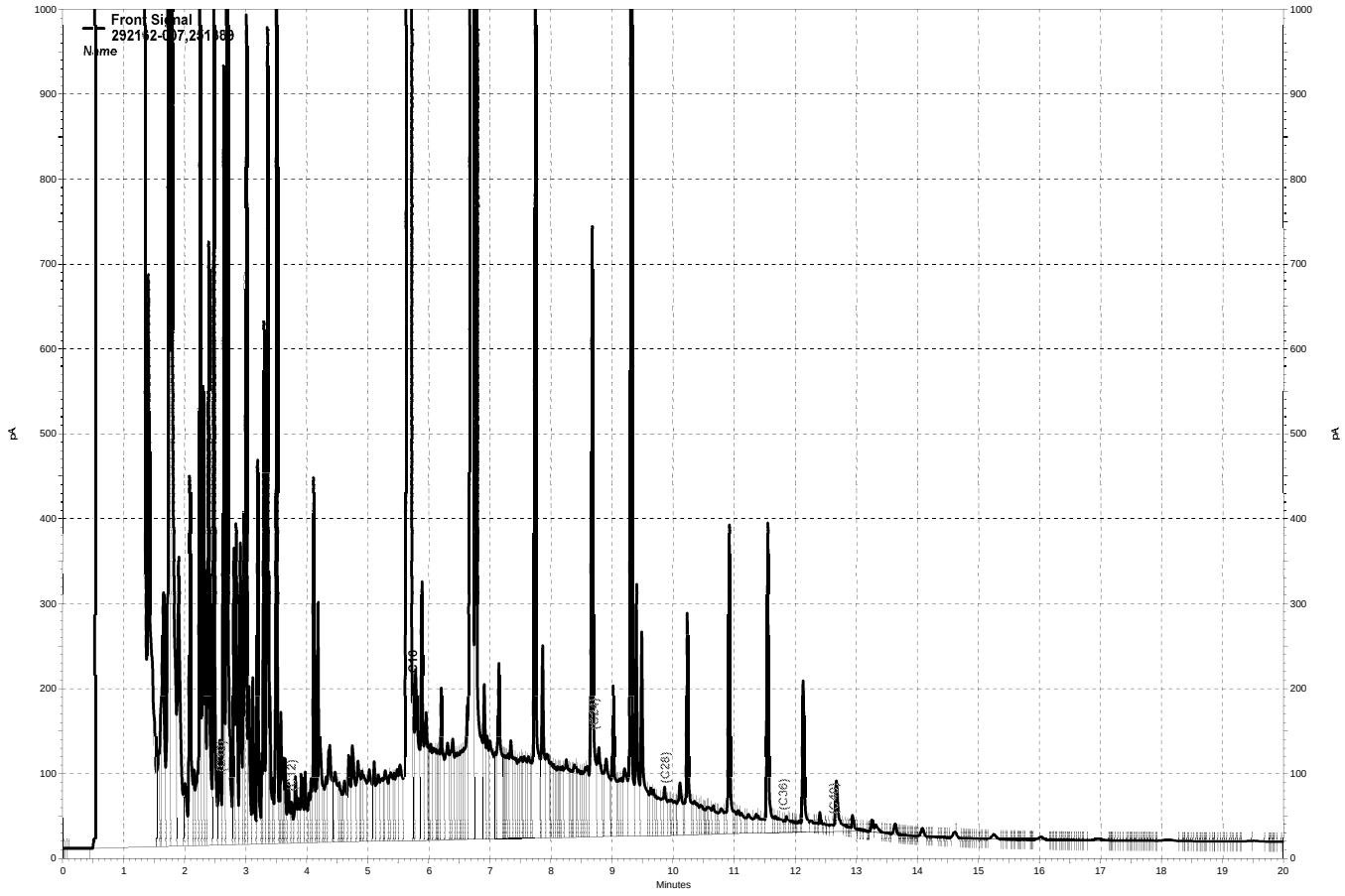

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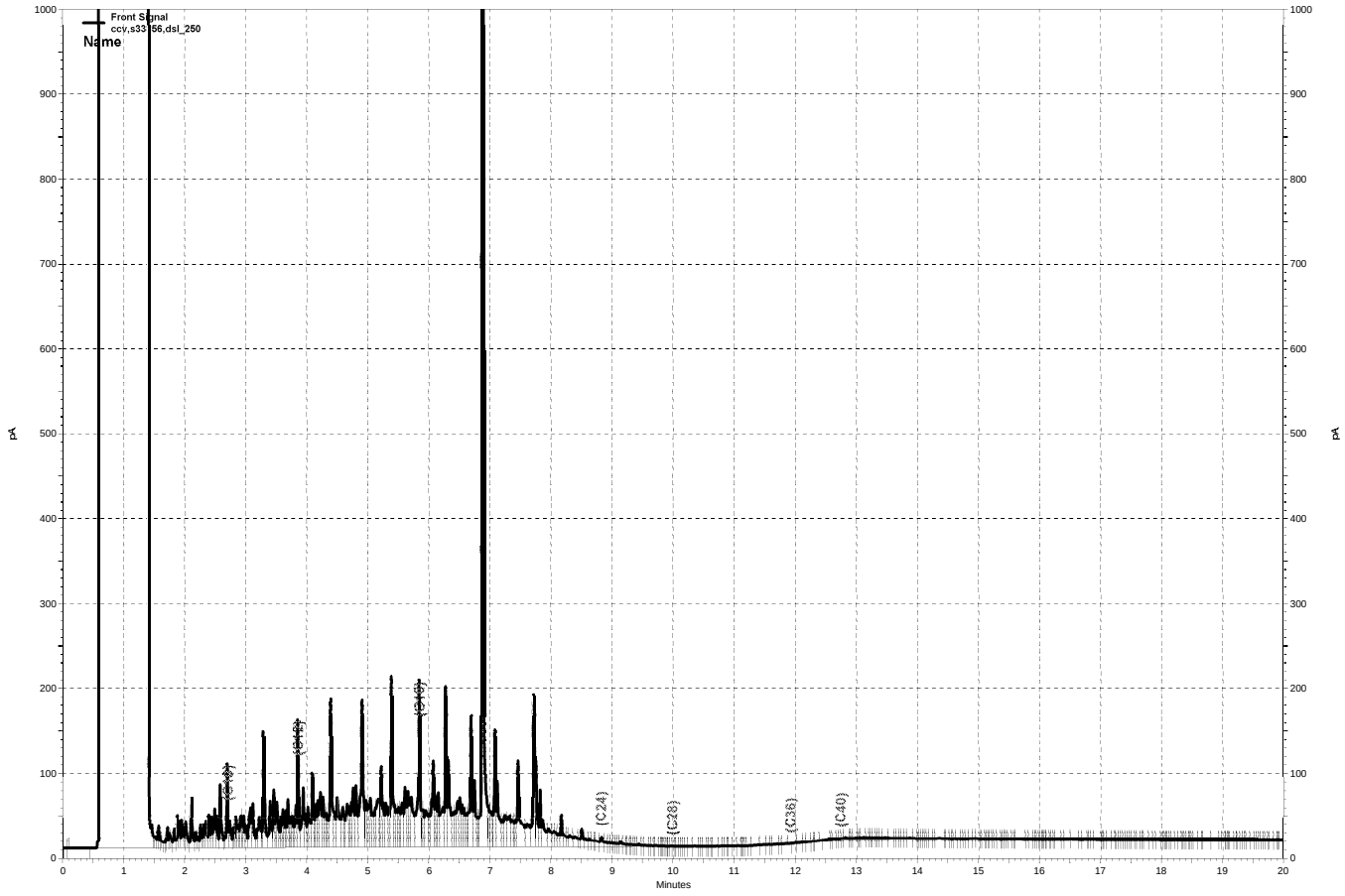

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APPENDIX D

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
20	Sep-13	16.65	11.50	NM	5.15
21	Mar-14	16.65	9.64	9.61	7.01
22	Sep-14	16.65	NM	10.85	NM
23	Mar-15	16.65	9.40	9.35	7.25
24	Sep-15	16.65	9.00	7.22	7.65
25	Mar-16	16.65	11.35	NM	5.30
26	Sep-16	16.65	11.01	NM	5.64
27	Mar-17	16.65	10.60	10.59	6.05
28	Sep-17	16.65	11.35	NM	5.30

*Thick pro

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
20	Sep-13	16.29	8.00	NP	8.29
21	Mar-14	16.29	7.72	NP	8.57
22	Sep-14	16.29	8.23	NP	8.06
23	Mar-15	16.29	8.42	NP	7.87
24	Sep-15	16.29	7.68	NP	8.61
25	Mar-16	16.29	NM	NM	--
26	Sep-16	16.29	8.48	NP	7.81
27	Mar-17	16.29	7.27	NP	9.02
28	Sep-17	16.29	8.88	NP	7.41

MW-5					
Sampling	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**

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
20	Sep-13	16.72	10.20	NP	6.52
21	Mar-14	16.72	9.68	NP	7.04
22	Sep-14	16.72	9.73	NP	6.99
23	Mar-15	16.72	9.59	NP	7.13
24	Sep-15	16.72	9.78	NP	6.94
25	Mar-16	16.72	8.03	NP	8.69
27	Mar-17	16.72	7.27	NP	9.45
28	Sep-17	16.72	9.65	NP	7.07

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
20	Sep-13	16.82	5.65	NP	11.17
21	Mar-14	16.82	6.33	NP	10.49
22	Sep-14	16.82	8.13	NP	8.69
23	Mar-15	16.82	7.63	NP	9.19
24	Sep-15	16.82	9.09	NP	7.73
25	Mar-16	16.82	6.39	NP	10.43
26	Sep-16	16.82	7.75	NP	9.07
27	Mar-17	16.82	5.73	NP	11.09
28	Sep-17	16.82	7.65	NP	9.17

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
17	Sep-13	17.73	5.50	NP	12.23
18	Mar-14	17.73	10.82	NP	6.91
19	Sep-14	17.73	10.61`	NP	7.02
20	Mar-15	17.73	10.57	NP	7.16
21	Sep-15	17.73	10.54	NP	7.19
22	Mar-16	17.73	10.51	NP	7.22
24	Mar-17	17.73	10.10	NP	7.63
25	Sep-17	17.73	10.72	NP	7.01

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
17	Sep-13	17.84	10.32	10.28	7.52
18	Mar-14	17.84	10.22	10.28	7.62
19	Sep-14	17.84	9.91	9.85	7.93
20	Mar-15	17.84	9.71	9.47	8.13
21	Sep-15	17.84	9.88	9.93	7.96
22	Mar-16	17.84	9.51	9.46	8.33
23	Sep-16	17.84	9.90	9.89	7.94
24	Mar-17	17.84	9.42	9.15	8.42
25	Sep-17	17.84	9.94	9.70	7.90

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
17	Sep-13	17.84	10.13	NP	7.71
18	Mar-14	17.84	10.01	NP	7.83
19	Mar-15	17.84	9.98	NP	7.86
20	Sep-15	17.84	10.05	NP	7.79
21	Mar-16	17.84	9.72	NP	8.12
22	Sep-16	17.84	10.02	NP	7.82
23	Mar-17	17.84	9.65	NP	8.19
24	Sep-17	17.84	10.05	NP	7.79

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
17	Sep-13	17.83	10.02	9.65	7.81
18	Mar-14	17.83	9.92	9.65	7.91
19	Sep-14	17.83	9.74	9.36	8.09
20	Mar-15	17.83	9.19	9.16	8.64
21	Sep-15	17.83	9.69	9.34	8.14
22	Mar-16	17.83	9.30	9.29	8.53
23	Sep-16	17.83	9.28	9.27	8.55
24	Mar-17	17.83	8.73	9.27	9.10
25	Sep-17	17.83	8.82	8.80	9.01

MW-11					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed May 2004					
1	Nov-06[(d)]	17.76[(c)]	10.33	NP	7.43
2	Dec-07	17.76	10.27	NP	7.49
3	Mar-08	17.76	10.34	NP	7.42
4	Jun-08	17.76	10.20	NP	8.16
5	Sep-08	17.76	10.03	NP	7.73
6	Dec-08	17.76	10.34	NP	7.42
7	Mar-09	17.76	10.20	NP	7.56
8	Sep-10	17.76	10.25	NP	7.51
9	Mar-10	17.76	10.23	NP	7.53
10	Sep-10	17.76	10.24	NP	7.52
11	Mar-11	17.76	10.10	NP	7.66
12	Sep-11	17.76	10.30	NP	7.46
13	Mar-12	17.76	10.18	NP	7.58
14	Sep-12	17.76	10.24	NP	7.52
15	Mar-13	17.76	10.62	NP	7.14
16	Sep-13	17.76	10.21	NP	7.55
17	Mar-14	17.76	10.33	NP	7.43
18	Sep-14	17.76	10.40	NP	7.36
19	Mar-15	17.76	10.40	NP	7.36
20	Sep-15	17.76	10.48	NP	7.28
21	Mar-16	17.76	10.35	10.34	7.41
22	Sep-16	17.76	10.39	NP	7.37
23	Mar-17	17.76	10.19	NP	7.57
24	Sep-17	17.76	10.42	NP	7.34

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

13	Mar-12	17.83	7.79	NP	10.04
14	Sep-12	17.83	7.44	NP	10.39
15	Mar-13	17.83	9.39	NP	8.44
16	Sep-13	17.83	9.72	NP	8.11
17	Mar-14	17.83	9.55	NP	8.26
18	Sep-14	17.83	9.46	NP	8.37
19	Mar-15	17.83	9.18	NP	8.65
20	Sep-15	17.83	10.48	NP	7.35
21	Mar-16	17.83	9.19	NP	8.64
22	Sep-16	17.83	9.28	NP	8.55
23	Mar-17	17.83	8.75	NP	9.08
24	Sep-17	17.83	9.18	NP	8.65

MW-13					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed between 2004-2006					
1	Dec-06	17.66[(c)]	9.81	9.44	7.85
2	Dec-07	17.66	9.95	9.39	7.71
3	Mar-08	17.66	10.02	9.54	7.64
4	Jun-08	17.66	9.86	9.45	7.80
5	Sep-08	17.66	10.34	9.54	7.32
6	Dec-08	17.66	10.54	9.65	7.12
7	Mar-09	17.66	9.26	9.14	8.40
8	Sep-09	17.66	9.91[(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
16	Sep-13	17.66	9.48	9.45	8.18
17	Mar-14	17.66	9.58	9.45	8.08
18	Sep-14	17.66	8.89	8.87	8.77
19	Mar-15	17.66	9.13	9.12	8.53
20	Sep-15	17.66	9.59	9.57	8.07
21	Mar-16	17.66	9.24	9.23	8.42
22	Sep-16	17.66	9.36	9.35	8.30
23	Mar-17	17.66	8.70	8.45	8.96
24	Sep-17	17.66	8.28	8.45	9.38

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
16	Sep-13	17.60	9.49	9.47	8.11
17	Mar-14	17.60	9.48	9.47	8.12
18	Sep-14	17.60	9.16	NP	8.44
19	Mar-15	17.60	8.93	NP	8.67
20	Sep-15	17.60	8.41	NP	8.19
21	Mar-16	17.60	9.40	NP	8.20
22	Sep-16	17.60	9.05	NP	8.55
23	Mar-17	17.60	8.53	NP	9.07
24	Sep-17	17.60	9.00	NP	9.38

MW-15					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
Installed between 2004-2006					
1	Dec-06	17.80[c]	9.15	NP	8.65
2	Dec-07	17.80	9.30	NP	8.50
3	Mar-08	17.80	9.20	9.18	8.60
4	Jun-08	17.80	9.60	9.63	8.20
5	Sep-08	17.80	8.84	8.84[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
16	Sep-13	17.80	10.01	NP	7.79
17	Mar-14	17.80	10.18	NP	7.62
18	Sep-14	17.80	9.74	NP	8.06
19	Mar-15	17.80	9.34	NP	8.46
20	Sep-15	17.80	9.85	NP	7.95
21	Mar-16	17.80	9.36	9.35	8.44
22	Sep-16	17.80	9.76	9.75	8.04
23	Mar-17	17.80	8.97	9.75	8.83
24	Sep-17	17.80	9.57	9.55	8.23

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
16	Sep-13	17.74	10.03	NP	7.71
17	Mar-14	17.74	9.81	NP	7.93
18	Sep-14	17.74	9.80	NP	7.94
19	Mar-15	17.74	9.56	NP	8.18
20	Sep-15	17.74	8.50	NP	9.24
21	Mar-16	17.74	9.46	NP	8.28
22	Sep-16	17.74	10.31	NP	7.43
23	Mar-17	17.74	9.33	NP	8.41
24	Sep-17	17.74	9.80	NP	7.94

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
16	Sep-13	18.17	10.00	NP	8.17
17	Mar-14	18.17	10.00	NP	8.17
18	Sep-14	18.17	9.72	NP	8.45
19	Mar-15	18.17	9.51	NP	8.86
20	Sep-15	18.17	10.00	NP	8.17
21	Mar-16	18.17	9.98	NP	8.19
22	Sep-16	18.17	9.62	NP	8.55
23	Mar-17	18.17	9.06	9.05	9.11
24	Sep-17	18.17	9.50	NP	8.67

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
16	Sep-13	16.35	9.81	NP	6.54
17	Mar-14	16.35	9.19	NP	7.16
18	Sep-14	16.35	9.56	NP	6.79
19	Mar-15	16.35	8.51	NP	6.84
20	Sep-15	16.35	8.69	NP	7.66
21	Mar-16	16.35	8.66	NP	7.69
22	Sep-16	16.35	9.61	NP	6.74
23	Mar-17	16.35	7.64	NP	8.71
24	Sep-17	16.35	9.20	NP	7.15

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
20	Sep-13	17.47	10.21	NP	7.26
21	Mar-14	17.47	10.15	NP	7.32
22	Sep-14	17.47	9.98	NP	7.49
23	Mar-15	17.47	10.15	NP	7.32
24	Sep-15	17.47	10.07	NP	7.40
25	Mar-16	17.47	10.00	NP	7.47
26	Sep-16	17.47	10.15	NP	7.32
27	Mar-17	17.47	9.86	NP	7.61
28	Sep-17	17.47	10.17	NP	7.30

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
20	Sep-13	16.70	11.60	9.99	5.10
21	Mar-14	16.70	9.13	9.99	7.57
22	Sep-14	16.70	11.10	11.09	5.60
23	Mar-15	16.70	9.67	11.09	7.03
24	Sep-15	16.70	9.69	11.09	7.01
25	Mar-16	16.70	9.29	9.29	7.41
26	Sep-16	16.70	9.90	NA	6.80
27	Mar-17	16.70	8.81	8.80	7.89
28	Sep-17	16.70	9.71	NP	6.99

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/Could Not Measure

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

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

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
Sep-13	0.06	--	--	--	--	0.02	--	0.05	--	--	--	--	--	--	--	--	0.02	0.06	0.02	0.02	0.02	--	--	--	0.01	0.02	0.02	0.320
2013 Total																												**0.955**
Mar-14	0.08	--	--	--	--	--	--	0.023	--	--	--	--	--	0.015	--	--	0.01	0.09	0.03	0.03	0.015	--	--	--	0.015	0.015	0.015	0.338
Sep-14	--	--	--	--	--	--	--	0.031	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.031
2014 Total																												**0.369**
Mar-15	--	--	--	--	--	--	--	0.031	--	--	--	--	--	--	--	--	0.0078	0.0078	0.031	0.0228	0.0228	--	--	--	--	--	--	0.123
Sep-15	0.015	--	--	--	--	0.015	--	0.0078	--	--	--	--	--	--	--	--	--	0.015	--	--	--	--	--	--	--	--	--	0.053
2015 Total																												**0.176**
Mar-16	--	--	--	--	--	--	--	0.008	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.008
Sep-16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.008	--	--	--	--	--	--	--	--	--	0.008
2016 Total																												**0.016**
Mar-17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.000
Sep-17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.008	--	--	--	--	--	--	--	--	--	0.008
2017 Total																												**0.008**
Total Extracted	**1.74**	**0.00**	**0.40**	**0.50**	**0.04**	**3.75**	**0.03**	**4.62**	**0.31**	**2.72**	**0.61**	**0.16**	**2.50**	**0.28**	**1.89**	**0.06**	**0.26**	**76.85**	**22.03**	**25.96**	**28.80**	**2.51**	**3.02**	**2.31**	**4.83**	**3.08**	**3.08**	**194.94**

Note: All free product quantities presented in gallons

Product extraction events conducted before November 2007 were completed by PES Environmental

46 gallons removed from trench wells by PES between April 2006 and March 2007

About 30 of that was rec gallons removed from trench wells by PES between April 2006 and March 2008

The majori gallons removed from trench wells by PES between April 2006 and March 2009

Depth to w gallons removed from trench wells by PES between April 2006 and March 2010