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FIRST SEMI-ANNUAL 2014 GROUNDWATER MONITORING, PRODUCT EXTRACTION, AND LIMITED SUBSURAFCE INVESTIGATION REPORT

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

Prepared for:

EMERYBAY COMMERCIAL ASSOCIATION
EMERYVILLE, CA 94608

May 2014

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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

May 14, 2014

Project No. 2007-65

STELLAR
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May 14, 2014

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

Subject: First Semiannual 2014 Groundwater Monitoring, Product Extraction, and Limited Subsurface Investigation Report, Bridgewater Apartments Phase I Condo Parking Garage
6400 Christie Avenue, Emeryville, California

Dear Mr. Detterman:

Enclosed is the Stellar Environmental Solutions, Inc. report summarizing the site investigation and semiannual monitoring activities conducted in January through April 2014 at the referenced site. This report is being submitted on behalf of the owner and Responsible Party, Emerybay Commercial Association. The subject site activities included a limited subsurface investigation in the area between monitoring wells MW-3 and MW-18, a product extraction event and the first semiannual 2014 groundwater monitoring event.

This report summarizes the 21st sampling event conducted at the site since 1988, and includes results of a limited subsurface investigation conducted between wells MW-3 and MW-18 in an effort to better understand the 2013 increase in diesel concentration in well MW-3. Although the bulk of the residual contamination beneath the site remains concentrated around wells MW-8, MW-12, MW-13, MW-14 and MW-15, and the plume underlying the parking garage had been relatively stable until late 2012, construction dewatering occurring at the re-development site across 64th Street during 2013 influenced groundwater flow direction, and was suspected to have mobilized contaminants towards MW-3. In accordance with regulatory requirements, an electronic copy of this report has been uploaded to ACEH and to the State Water Resources Control Board's GeoTracker system.

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

Sincerely,

Richard S. Makdisi, P.G.
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.

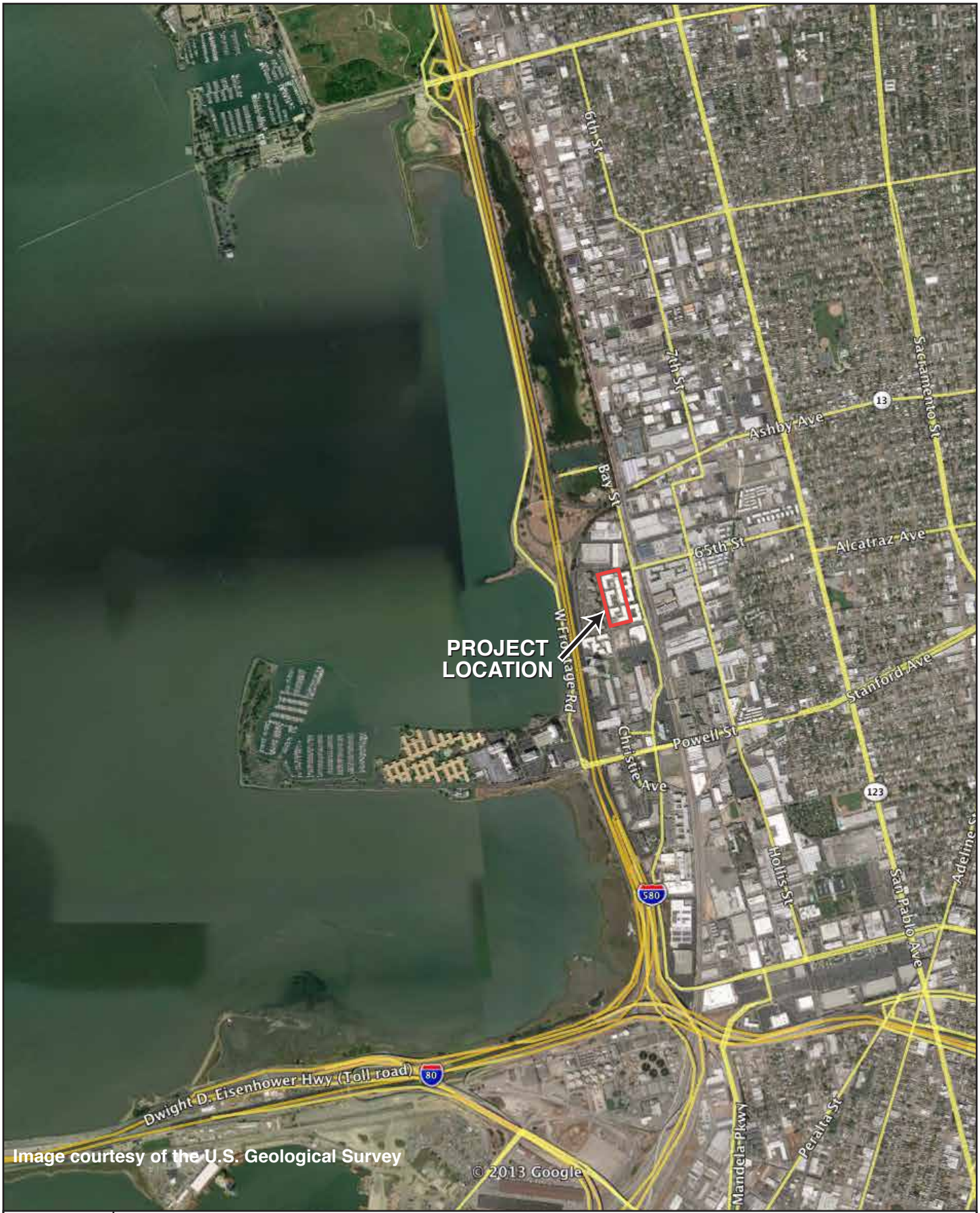
SITE AND VICINITY DESCRIPTION

The project site is located at 6400 Christie Avenue in Emeryville, California (see Figure 1). The project site, is wholly developed with an open ground-floor parking area and apartment complex known as the Bridgewater Apartments and parking garage. The area of monitoring and product extraction is primarily located in the northeastern portion of the parking garage. Figure 2 is a site plan. The site is bordered to the east by the Emery Bay Phase II Condos and parking garage, to the north by 65th Avenue, beyond Christie Avenue and to the west by the Bay Center Offices, and to the south by 64th Avenue. The surrounding area is developed with apartment complexes, offices, and commercial stores.

PREVIOUS INVESTIGATIONS

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

The subject property parcel was developed as early as 1958 with the Garrett Motor Freight Station, associated with Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day apartment complex and parking garage. The trucking terminal 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 property 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 | NOVEMBER 2013

Figure 1

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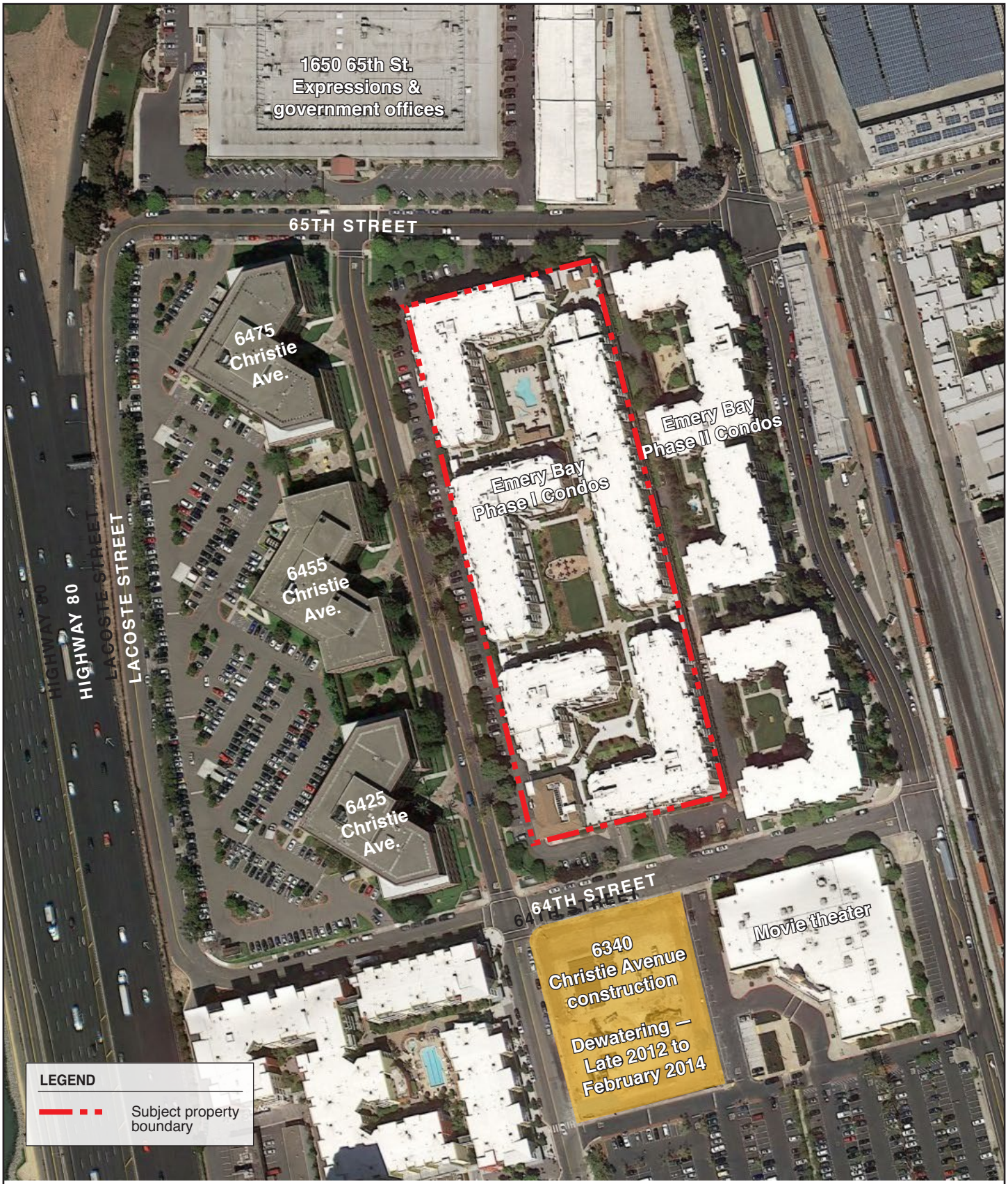
2007-65-01



SITE PLAN AND ADJACENT LAND USE

N	6400 Christie Ave. Emeryville, CA	By: MJC	APRIL 2014
		Figure 2	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
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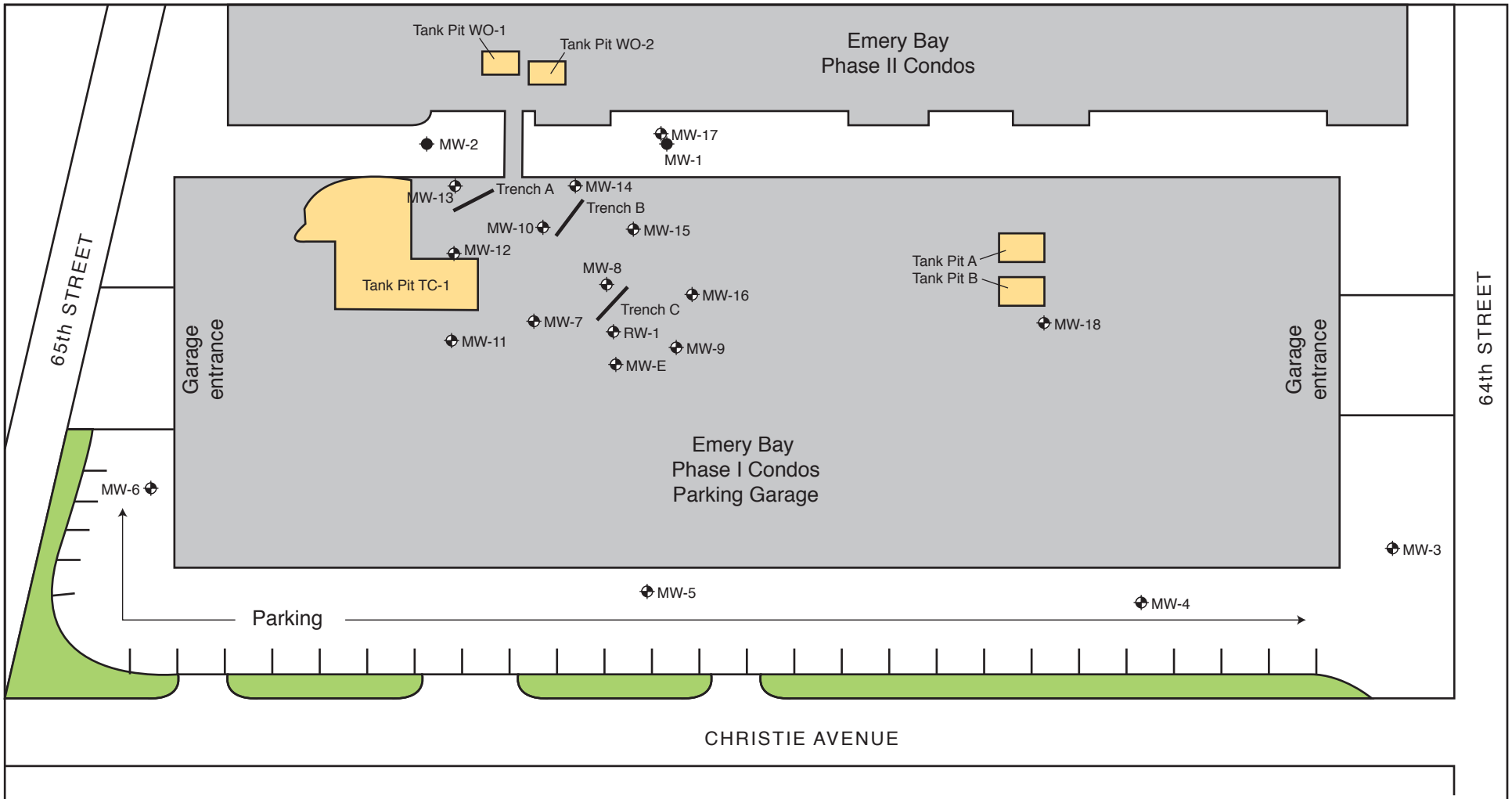
2007-65-80

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 Bridgewater 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 Apartment complex, while three were beneath the Emery Bay Phase II Condo complex to the east. Figure 2 shows the historical locations where the tanks were removed.

To remediate the hydrocarbon contamination beneath the affected area beneath the parking garage, 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 wells MW-1 through MW-6 occurred in December 1988. The second monitoring event, which also included MW-E and RW-1, was conducted in March 1989. Subsequently, the groundwater extraction system operated by GTI was closed in late 1990 when corrosion and other mechanical problems caused the system to fail. Recovery of LNAPL continued manually on RW-1 until 1991, and a third groundwater sampling event occurred in February 1991. In 1994, the GTI system was abandoned. Appendix A contains the historical analytical results. Figure 3 shows the locations of the monitoring wells and trenches.

No groundwater monitoring events had occurred at the site between 1991 and 2004, when PES Environmental, Inc. (PES) was retained to evaluate and implement remediation of the residual contamination at the TC-1 (former location of seven UFSTs) area. (Note: Harding Lawson Associates conducted soil and groundwater sampling on the Phase II Apartment complex area to the east during this time, but not for the purpose of product extraction or remediation.) In 2004, PES installed an additional 10 groundwater monitoring wells (monitoring wells MW-1 and MW-2 were either abandoned or paved over with asphalt during construction), bringing the current total to 17 monitoring wells and one extraction well in the Bridgewater Apartments parking garage area. The first groundwater monitoring event for the current wells was conducted in March 2004 and the second event conducted in December 2006. A previous Stellar Environmental report



LEGEND

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

0 60

SCALE: 1/2" = 60 FEET

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MONITORING WELL AND TRENCH LOCATIONS

6400 Christie Ave., Emeryville, CA

Figure 3

by: MJC | MAY 2013

2007-65-02

(Stellar Environmental, 2007) discusses previous site remediation and investigations, site geology and hydrogeology, and residual site contamination. Tabular summaries of historical groundwater well water elevations and analytical results are included in Appendices D and A, respectively.

OBJECTIVES AND SCOPE OF WORK

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

- LNAPL passive product extraction from Trenches A and C, and active product extraction on select groundwater monitoring wells, trench sump wells, and recovery well RW-1
- Measuring water levels in site wells to determine groundwater flow direction
- Sampling of site wells for contaminant analysis
- Collection and laboratory analyses of grab groundwater samples from three borings advanced between wells MW-3 and MW-18
- Evaluation of hydrochemical and groundwater elevation trends in the context of plume stability and case closure assessment

REGULATORY OVERSIGHT

Alameda Department of Environmental Health (ACEH) is the lead regulatory agency for the case, acting as a Local Oversight Program for the Regional Water Quality Control Board (Water Board). There are currently no ACEH or Water Board cleanup orders for the site; however, all site work has been conducted under the oversight of ACEH. ACEH assigned the site to its fuel leak case system (RO #2799), and the case officer is currently Mr. Mark Detterman (who replaced Ms. Barbara Jakub of ACEH in mid-2010). In a November 2008 meeting with the Responsible Party (represented by Ms. Sarah Irving), Stellar Environmental (represented by Ms. Teal Glass and Mr. Richard Makdisi), and ACEH (represented by Ms. Jakub and Ms. Donna Drogos), 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 has conducted additional indoor air surveys in the ground floor office area in March 2010 and December 2013. The case has been assigned No. SLT2O05561 in the Water Board's GeoTracker system. Electronic uploads of required data/reports are submitted to both ACEH and the State Geotracker database.

2.0 PHYSICAL SETTING

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

TOPOGRAPHY AND DRAINAGE

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

The nearest receiving water body is San Francisco Bay, located approximately 700 feet to the west of the subject property. East of the site lies the Oakland/Berkeley 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. Several storm drains exist 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

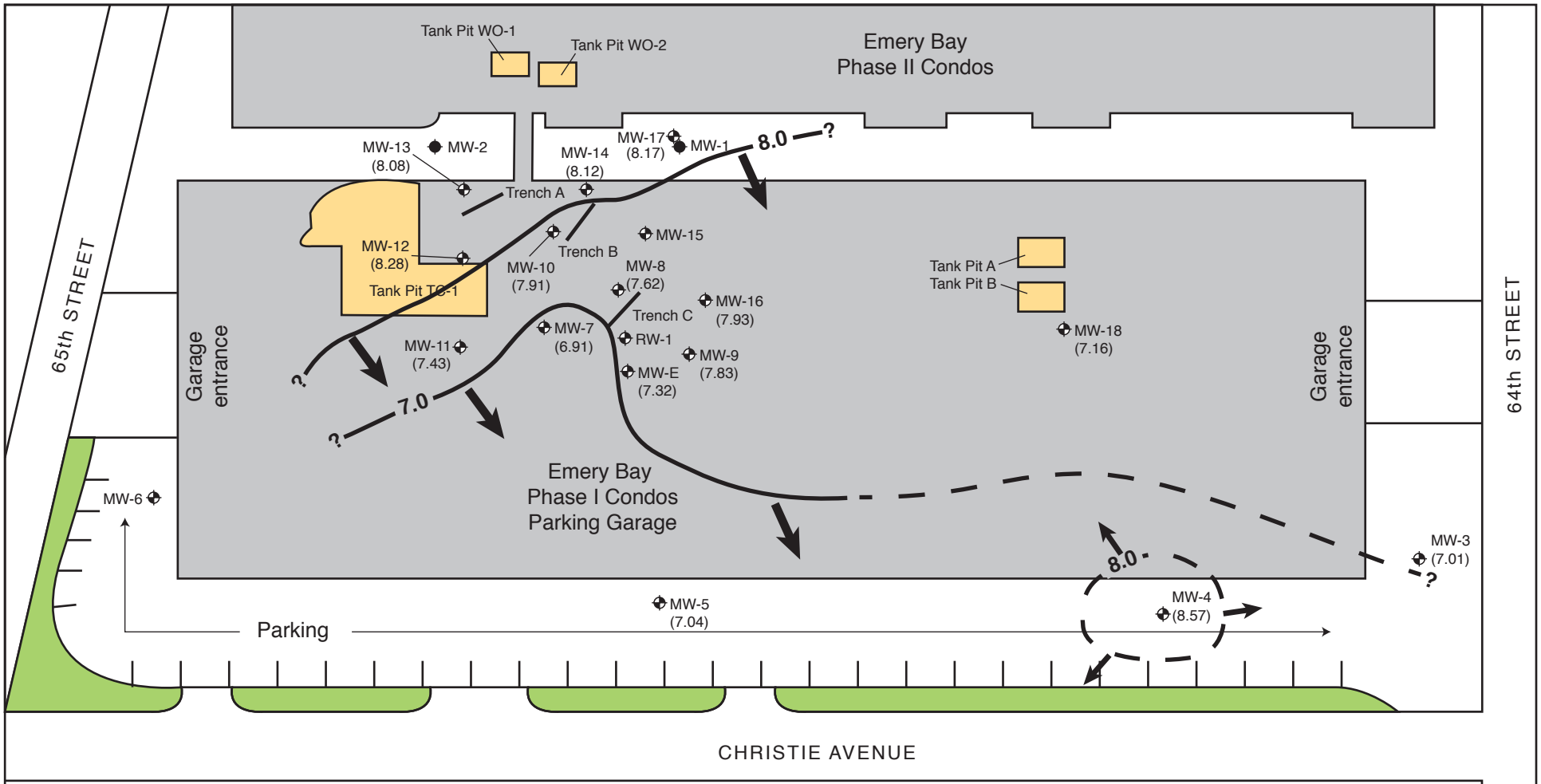
fault zone, the legislatively defined zone of restricted land use 200 feet around an active fault due to the high probability of ground rupture.

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 March 2014 monitoring event was generally towards the southwest. The localized, approximately southerly direction to groundwater flow in the area of MW-3 noted in the two previous monitoring events, thought to be the result of construction dewatering that had been occurring during 2013 at the re-development site across 64th Street, was not as pronounced 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 6 to 11 feet below ground surface (bgs). Groundwater elevations recorded during the March 2014 sampling event ranged from 7.01 (MW-3) to 10.49 (MW-6) feet above mean sea level. Some groundwater mounding may be occurring in area of MW-4 and MW-6 due to contributions from irrigation. The average groundwater gradient for the current monitoring event was 0.003 foot/foot.

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



LEGEND

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

0 60

SCALE: 1/2" = 60 FEET

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GROUNDWATER ELEVATION MAP — MARCH 27, 2014

6400 Christie Ave., Emeryville, CA

Figure 4

by: MJC | APRIL 2014

2007-65-82

3.0 MARCH 2014 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES

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

SAMPLING METHODS AND ACTIVITIES

Activities for this event include:

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

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

CURRENT MONITORING EVENT

Blaine Tech Services conducted groundwater monitoring well level measurements, purging, sampling, and field analyses on March 27, 2014 under the supervision of Stellar Environmental personnel. Groundwater sampling was conducted in accordance with State of California guidelines for sampling dissolved analytes in groundwater associated with leaking UFSTs. As the first task of the monitoring event, static water levels and free product levels were measured in the 18 wells using an electric water level indicator. The depth of free product was recorded, and the water level was adjusted to reflect the groundwater elevation.

Table 1

March 27, 2014
Groundwater Monitoring Well Construction and Groundwater Elevation Data
6400 Christie Avenue, Emeryville, California

Well	Well Depth (feet bgs)	Screened Interval	Top of Well Casing Elevation [(a)]	Depth to Free Product (TOC)	Thickness of Free Product (feet)	Groundwater Elevation (March 27, 2014)
MW-3	25	5 to 20	16.65	9.61	0.03	7.01
MW-4	25	5 to 20	16.29	NP	NP	8.57
MW-5	25	5 to 20	16.72	NP	NP	7.04
MW-6	25	5 to 20	16.82	NP	NP	10.49
MW-7	20	5 to 20	17.73	NP	NP	6.91
MW-8	16	5 to 16	17.84	10.19	0.03	7.62
MW-9	20	5 to 20	17.84	NP	NP	7.83
MW-10	20	5 to 20	17.83	9.64	0.28	7.91
MW-11	20	5 to 20	17.76	NP	NP	7.43
MW-12	20	5 to 20	17.83	NP	NP	8.28
MW-13	20	5 to 20	17.66	NP	NP	8.08
MW-14	20	5 to 20	17.60	NP	NP	8.12
MW-15	20	5 to 20	17.80	NM	NM	7.62
MW-16	20	5 to 20	17.74	NP	NP	7.93
MW-17	20	5 to 20	18.17	NP	NP	8.17
MW-18	20	5 to 20	16.35	NP	NP	7.16
MW-E	47	7 to 40	17.47	NP	NP	7.32
RW-1	30	unknown	16.70	9.12	0.01	NM
TA-E	11-13	6-8 to 11-13	17.20	NM	NM	NM
TA-M	11-13	6-8 to 11-13	17.21	NM	NM	NM
TA-W	11-13	6-8 to 11-13	17.28	NM	NM	NM
TB-E	11-13	6-8 to 11-13	17.24	NM	NM	NM
TB-M	11-13	6-8 to 11-13	17.30	NM	NM	NM
TB-W	11-13	6-8 to 11-13	17.33	NM	NM	NM
TC-E	11-13	6-8 to 11-13	17.07	NM	NM	NM
TC-M	11-13	6-8 to 11-13	17.37	NM	NM	NM
TC-W	11-13	6-8 to 11-13	17.32	NM	NM	NM

Notes:

[(a)] Relative to mean sea level.

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

bgs = below ground surface
TOC = below top of casing
NP = no free product in well)
NM = depth to groundwater and/or free product could not be determined due to the presence of product

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

Approximately 50 gallons of purge water and equipment decontamination rinse water from the current groundwater sampling event was placed in the onsite 1,100 gallon above ground storage tank (AST) located in a locked fenced area on the northeast corner of the property. In addition, approximately 1,050 gallons of water and 0.338 gallons of product were removed/purged from wells during the active product removal including about 2 ounces of product that was recovered by the passive product skimmer in trench well TA-E.

Safety Kleen Corporation visited the site on May 13, 2014 to vacuum out and transport the estimated 1,100 gallons of water and oil to its recycling facility under manifest using EPA ID No. CAL000374146 (see Appendix F).

4.0 REGULATORY CONSIDERATIONS, ANALYTICAL RESULTS, AND DISCUSSION OF FINDINGS

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

REGULATORY CONSIDERATIONS

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

The Water Board publishes Environmental Screening Levels (ESLs) for residential and commercial/industrial properties where groundwater is/is not a likely drinking water resource. As stipulated in the ESL document (Water Board, 2013), ESLs are not cleanup criteria; rather, they are conservative screening-level criteria designed to be protective of both drinking water resources and aquatic environments. The groundwater ESLs are composed of one or more components—including ceiling value, human toxicity, indoor air impacts, and aquatic life protection. Exceedance of ESLs suggests that additional remediation and/or investigation (e.g., monitoring plume stability to demonstrate no risk to sensitive receptors where drinking water is not threatened) may be warranted. Because the subject property is a residential property where groundwater is not a likely drinking water resource, the contaminant levels at the site will be compared to the ESLs for these criteria.

Contaminants detected above the ESLs during this sampling event include gasoline, diesel, benzene, toluene, ethylbenzene, and total xylenes. In general, concentrations of gasoline and diesel have decreased as compared to both the previous quarter and the same quarter last year.

GROUNDWATER SAMPLE RESULTS

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

Table 2
Groundwater Sample Analytical Results – March 27, 2014
6400 Christie Avenue, Emeryville, California

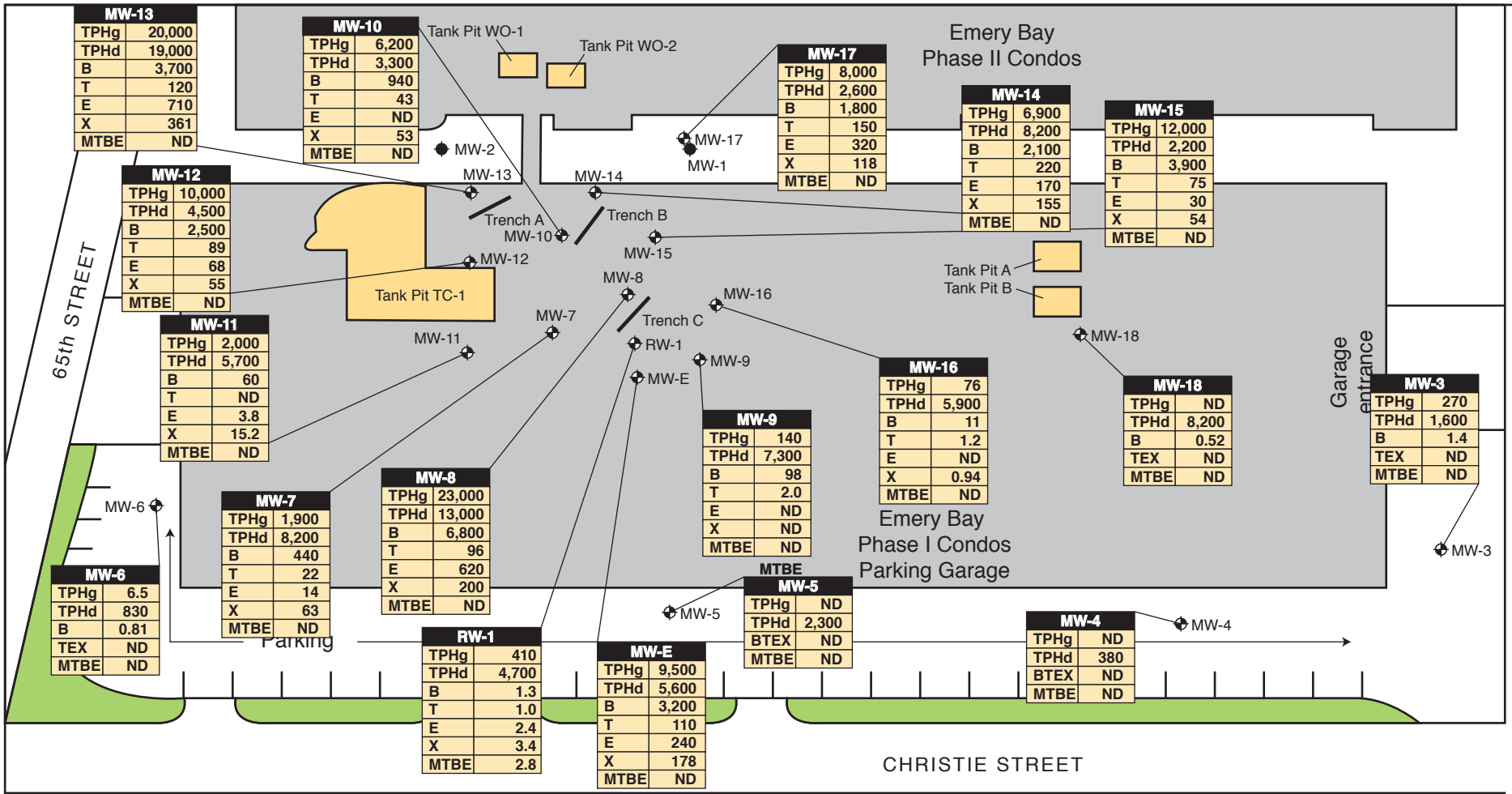
Well ID	Analytical Results						
	TVHg	TEHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	270	**1,600**	1.4	<0.5	<0.5	<0.5	<2.0
MW-4	*<50*	380	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-5	*<50*	**2,300**	<0.5	<0.5	<0.5	<0.5	< 2.0
MW-6	65	**830**	0.81	<0.5	<0.5	<0.5	< 2.0
MW-7	**1,900**	**8,200**	**440**	22	14	63	<29
MW-8	**23,000**	**13,000**	**6,800**	96	**620**	**200**	<200
MW-9	140	**7,300**	9.8	2.0	<0.5	<0.5	<2.0
MW-10	**6,200**	**3,300**	**940**	43	<0.5	5.3	<40
MW-11	**2,000**	**5,700**	**60**	<0.5	3.8	15.2	<2.0
MW-12	**10,000**	**4,500**	**2,500**	39	**68**	55	<100
MW-13	**20,000**	**19,000**	**3,700**	120	**710**	**361**	<200
MW-14	**6,900**	**8,200**	**2,100**	**220**	**170**	**155**	<110
MW-15	**12,000**	**2,200**	**3,900**	75	30	54	<2.0
MW-16	76	**5,900**	11	1.2	*<0.5*	0.94	<2.0
MW-17	**8,600**	**2,600**	**1,800**	150	**320**	**118**	<67
MW-18	<50	**8,200**	<0.5	<0.5	<0.5	<0.5	<2.0
MW-E	**9,500**	**5,600**	**3,200**	110	**240**	**178**	<140
RW-1	410	**4,700**	1.3	1.0	2.4	3.4	<2.0
ESLs [(a)]	**100 / 500**	**100 / 640**	**1.0 / 27**	**40 / 130**	**30 / 43**	**20 / 100**	**5.0 / 1,800**

Notes:

(a) Water Board Environmental Screening Levels for residential sites where groundwater *is*/*is not* a drinking water resource (Water Board, 2013).

MTBE = methyl tertiary-butyl ether
TEHd = total extractable hydrocarbons – diesel range (equivalent to total extractable hydrocarbons – diesel range)
TVHg = total volatile hydrocarbons – gasoline range (equivalent to total volatile hydrocarbons – gasoline range)

All concentrations are expressed in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
Results listed in **bold-face type** are at or above the ESLs where groundwater *is not* a drinking water resource.



LEGEND

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

TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total xylenes
ND = Below the laboratory detection limit
MTBE = Methyl Tertiary Butyl Ether

All concentrations in micrograms per liter (µg/L)

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GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER MONITORING WELL ANALYTICAL RESULTS

6400 Christie Ave., Emeryville, CA

Figure 5

by: MJC | APRIL 2014

2007-65-83

Hydrocarbon Contaminants

Hydrocarbon concentrations in groundwater show an overall signficnat decrease compared to the previous semi-annual monitoring event in September 2013. However, during the March 2014 sampling event, several wells had reported hydrocarbon concentrations greatly in excess of the Water Board ESLs. The hydrocarbon dissolved 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 2013 introduction of a surfactant (see Section 5) into wells MW-8, MW-12, MW-13 and MW-14 with the goal of reducing the accumulated heavy product fraction in those wells is likely to affect dissolved concentrations.

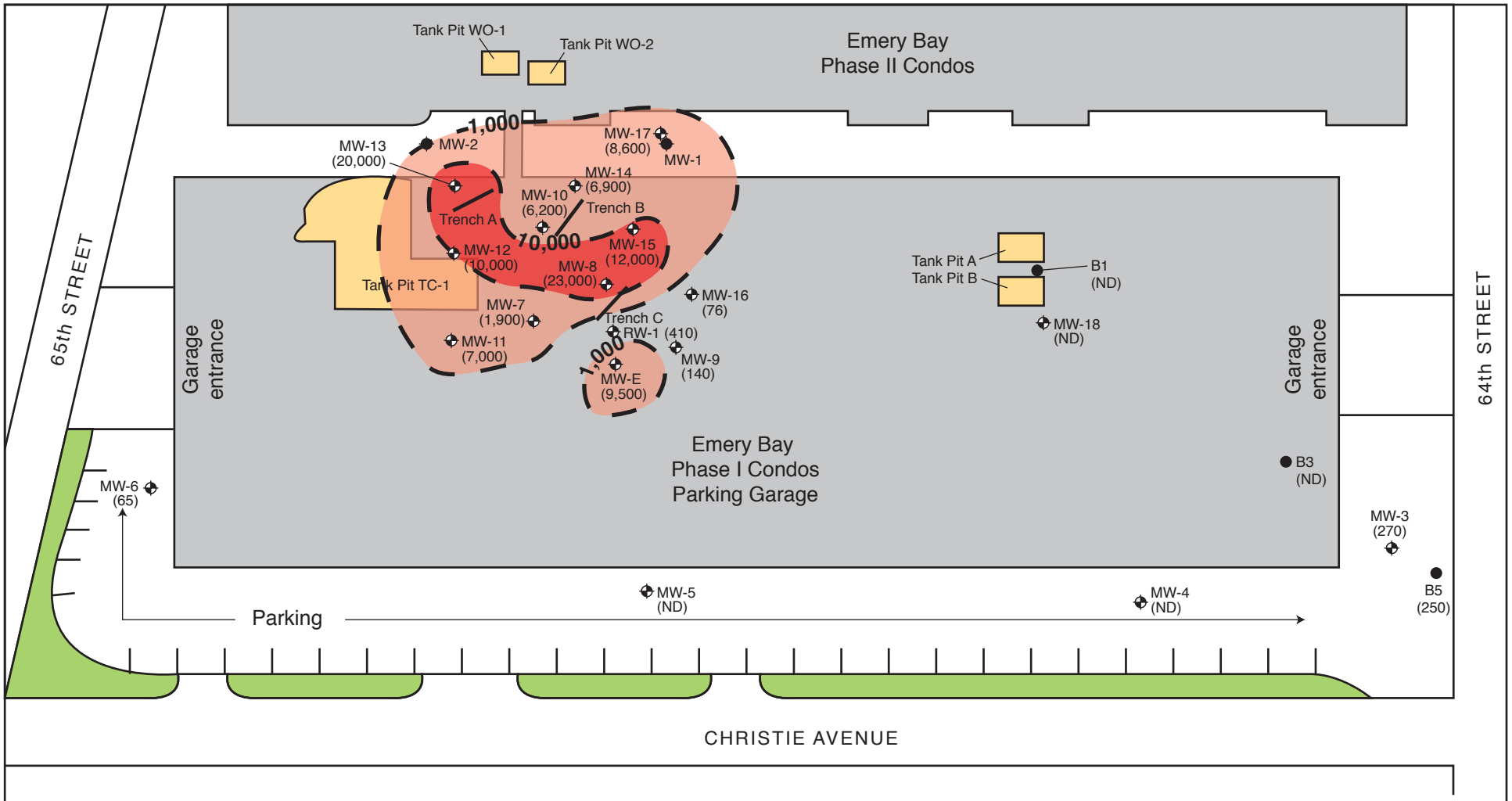
Increases in March 2014 TVHg concentrations compared to the March 2013 monitoring event were observed in wells MW-6, MW-11, MW-12, MW-17 and RW-1. This represents five wells exhibiting an increase in TVHg as compared to seven wells for the March 2013 sampling event. The remaining wells either remained below laboratory detection limits (in wells MW-4, MW-5 and MW-18) or exhibited a decrease in TVHg concentration.

Gasoline was detected in MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17 and MW-E above the TVHg ESL where groundwater is not a likely drinking water resource (500 micrograms per liter [µg/L]). Gasoline was also detected in MW-3, MW-6, MW-16 and RW-1 but at concentrations below the ESL. This represents two fewer wells above the TVHg ESL as compared to the March 2013 sampling event.

With the exception of well MW-4, TEHd was detected in all site wells above the TEHd ESL of 640 µg/L, but overall, concentrations of TEHd decreased in 16 of the 18 wells sampled as compared to 5 of 18 wells that showed decreases in the March 2013 sampling event.

The highest concentrations of TVHg (23,000 µg/L) was detected in well MW-8 with the highest TEHd concentration (19,000 µg/L) being observed in well MW-13. Both of these concentrations represent a decrease as compared to the March 2013 monitoring results. The concentration of hydrocarbons in well MW-8 has decreased significantly below the March 2013 concentrations of 39,000 µg/L TVHg and 38,000 µg/L TEHd, with March 2014 concentrations in MW-8 being 23,000 µg/L TVHg and 13,000 µg/L TEHd. Fluctuating concentrations of TVHg and TEHd in wells MW-8 and MW-13, may be attributed to LNAPL recovery and introduction of surfactant in those wells in 2013.

The average concentration of TEHd and TVHg has deceased for the current event as compared to March 2013 concentrations, which may be attributable to reduction of persistent LNAPL in wells MW-8, MW-12, MW-13 and MW-14. Figures 6 and 7 are isoconcentration maps of TVHg and TEHd concentrations in groundwater based on the March 2014 analytical results.



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- B1 ● Soil boring/grab groundwater sample, March 2014
- Trench location
- Historical tank pit area
- Landscaping

0 60

SCALE: 1/2" = 60 FEET

N

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TOTAL PETROLEUM HYDROCARBON PLUME AS GASOLINE

6400 Christie Ave., Emeryville, CA

Figure 6

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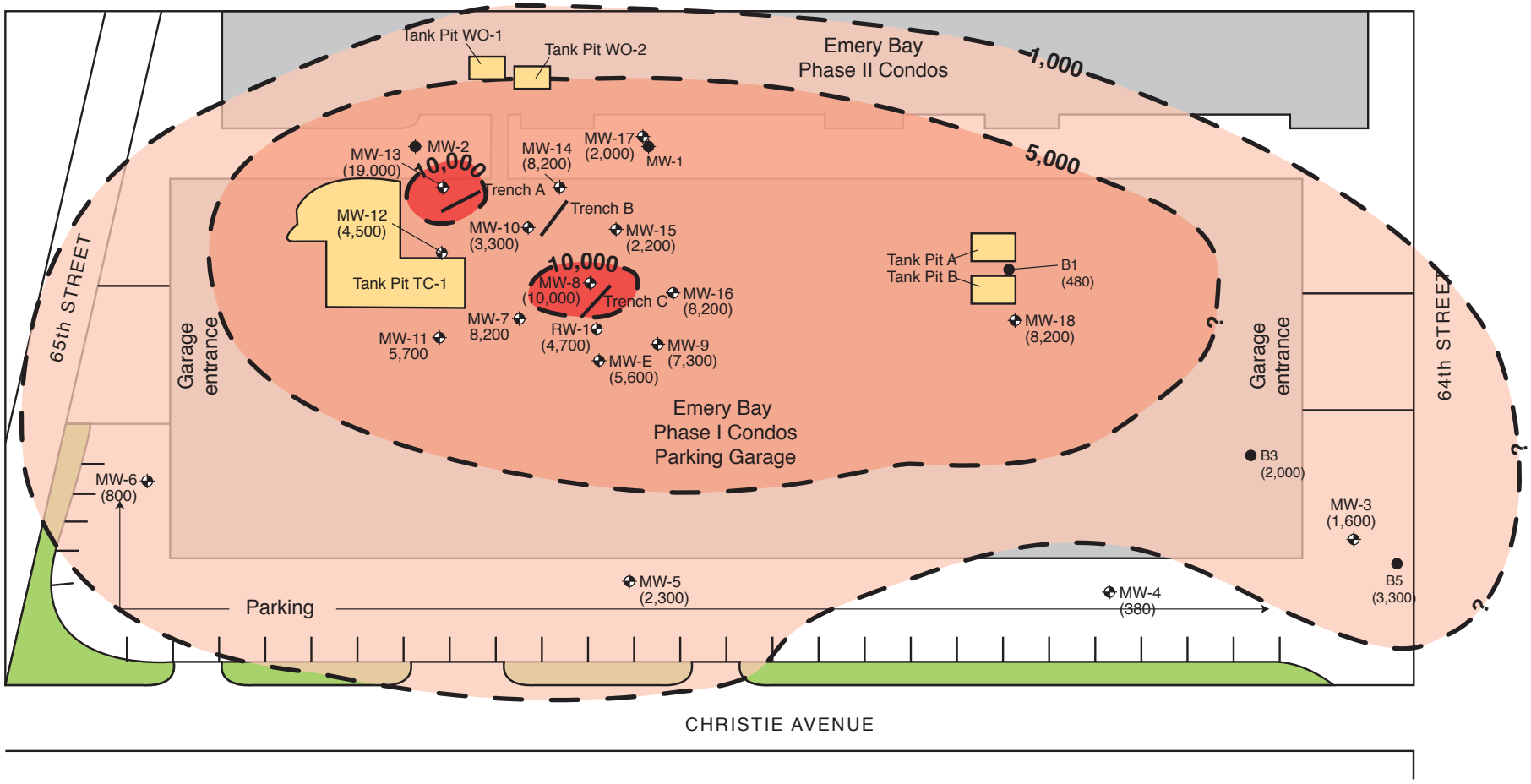
2007-65-84



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- B1 ● Soil boring/grab groundwater sample, March 2014
- Trench location
- Historical tank pit area
- Landscaping

0 60

SCALE: 1/2" = 60 FEET

N

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TOTAL PETROLEUM HYDROCARBON PLUME AS DIESEL

6400 Christie Ave., Emeryville, CA

Figure 7

by: MJC | APRIL 2014

2007-65-85

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

In monitoring wells MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E concentrations of benzene exceeded the ESL of 27 µg/L where groundwater is not a drinking water resource. Comparing March 2013 results to March 2014 results showed a decrease in benzene in 13 of 18 wells. A slight increase in Benzene was detected in wells MW-3 and MW-17. Benzene was detected in MW-3, MW-6, MW-9, MW-16 and RW-1, but at concentrations below the ESL. The biggest changes in benzene concentrations were seen in wells MW-8, MW-13 and MW-15 which showed approximately 30% decreases.

Toluene was detected at or above the ESL of 130 µg/L in monitoring well MW-14 as compared to 5 of 18 wells exceeding the Toluene ESL in March 2013. Toluene was detected in wells MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, MW-15, MW-16, MW-17, MW-E and RW-1 but at levels below the ESL.

Ethylbenzene was detected above the 43-µg/L ESL in monitoring wells MW-8, MW-12, MW-13, MW-14, MW-17 and MW-E. This represents exceedence of the Ethylbenzene ESL in 6 wells for March 2014 as compared to 8 wells in March 2013. For March 2014, Ethylbenzene was also detected in wells MW-7, MW-11, MW-15, and RW-1 but at levels below the ESL.

Total xylene concentrations in wells MW-8, MW-13, MW-14, MW-17 and MW-E were above the 100-µg/L ESL. This represents 5 of 18 wells exceeding the total xylene ESL for 2014 as compared to 7 of 18 wells in March 2013. Total xylenes were also detected in MW-7, MW-10, MW-11, MW-12, MW-15, MW-16 and RW-1 but below the ESL.

MTBE was not detected above the laboratory reporting limit in any of the 18 monitoring wells. Well MW-3 contained 8.6 µg/L for the March 2013 monitoring event.

Quality Control Sample Analytical Results

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

Figure 8
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Downgradient Wells MW-5 and MW-6
February 1991 - March 2014

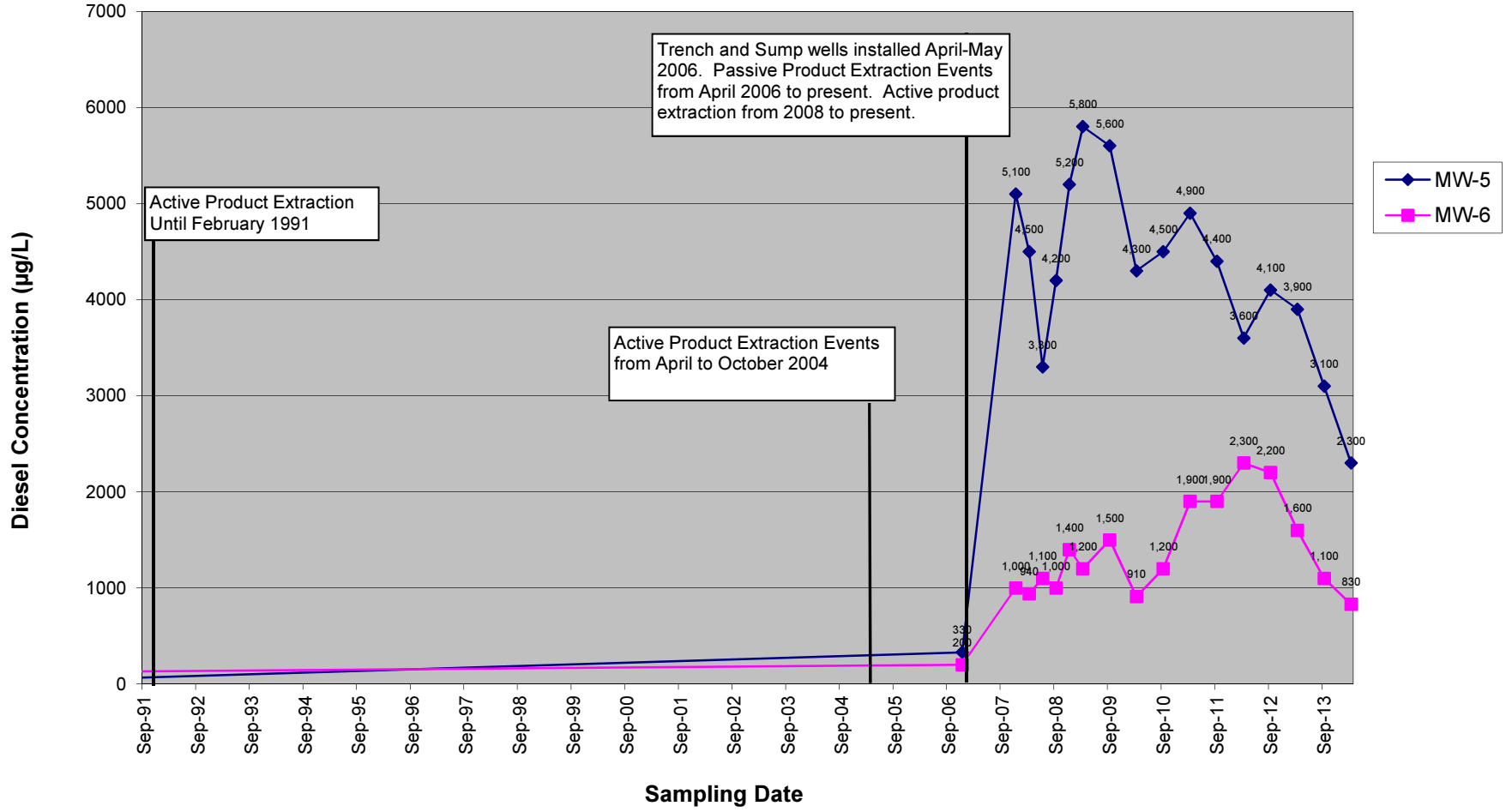


Figure 9
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Source Wells MW-11 and MW-12
December 2006 - March 2014

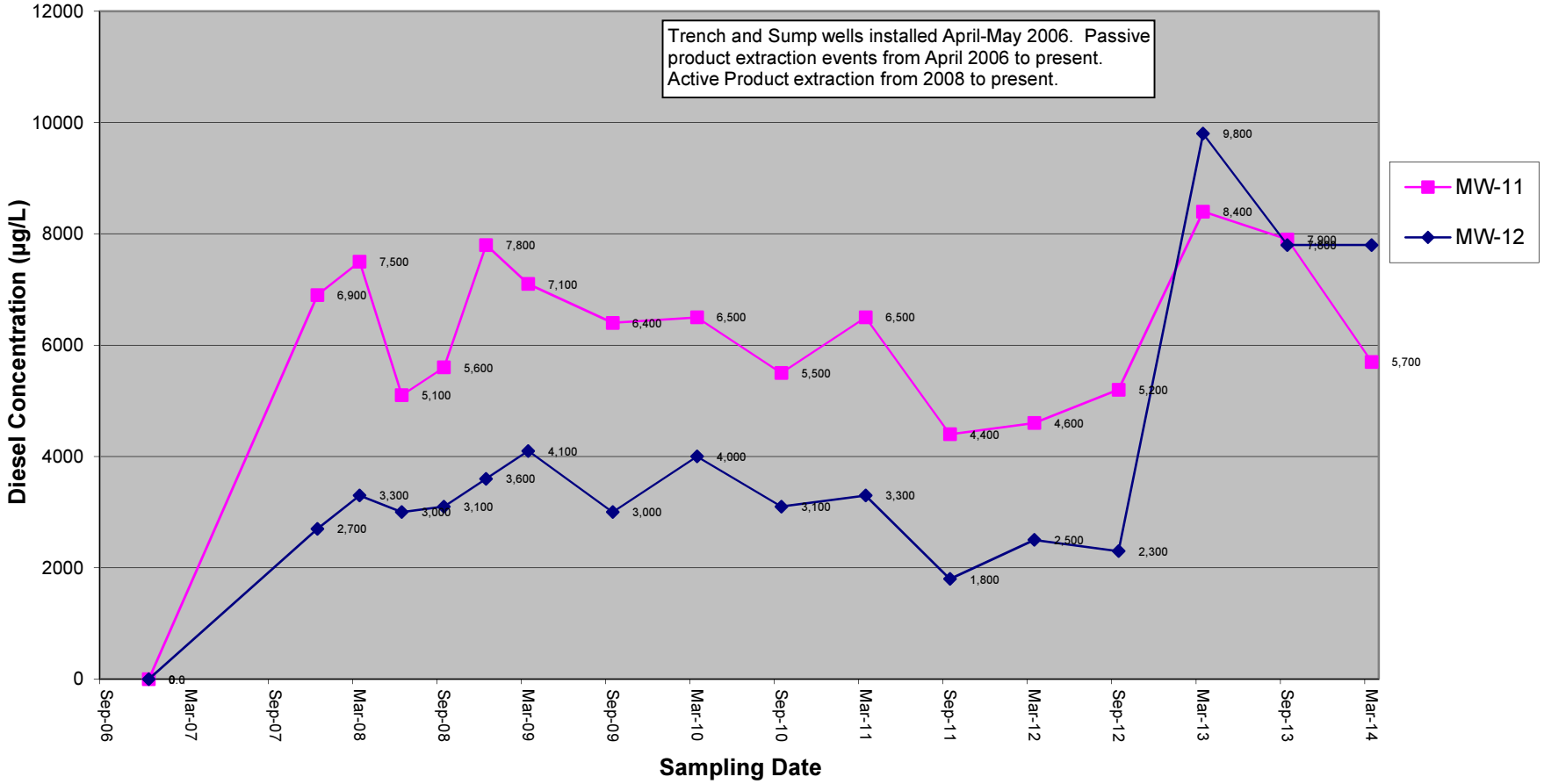
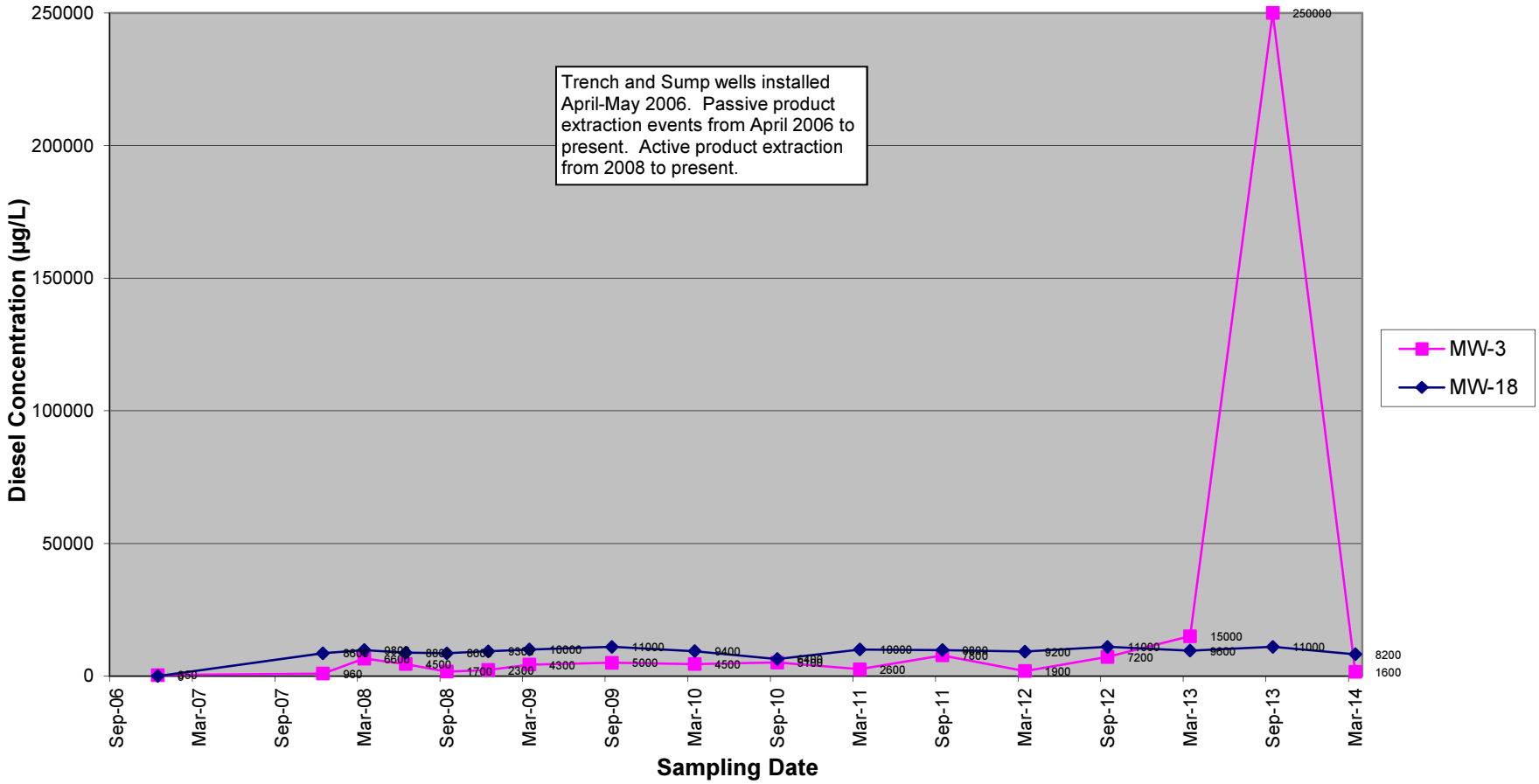


Figure 10
Historical Groundwater Analytical Results
Total Petroleum Hydrocarbons as Diesel (TPHd)
Crossgradient Wells MW-3 and MW-18
December 2006 - March 2014



5.0 FREE-PHASE HYDROCARBON PRODUCT REMEDIATION SYSTEM

This section describes the historical extraction of the free product from the Emery Bay Phase I Condo parking garage, the construction details of the current LNAPL remediation system located on the northeastern portion of the garage, and the most recent product removal activities conducted on March 25 and 26, 2014 (immediately prior to the sampling event on March 27). Appendix E summarizes historical product removal.

LNAPL REMEDIATION SYSTEM CONSTRUCTION

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

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

HISTORICAL FREE PRODUCT EXTRACTION

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

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

No historical product extraction reports were provided to Stellar Environmental by the previous owner or by PES. Therefore, there is little to no information on how active product extraction occurred during 2004 and 2006. Based on better defined recovery in 2008 through 2011, the volume of free product indicated to have been recovered during 2004 and 2006 appears unrealistically high, suggesting that free-phase project mixed with water was reported as free-phase product recovery.

EFFECTIVENESS OF 2013 SURFACTANT INJECTION

Prior to the March and September semi-annual product removal activities conducted in 2013, the injection of a non-hazardous surfactant into wells MW-8, MW-12, MW-13 and MW-14 was used to test the surfactant ability to dissolve the viscous hydrocarbon buildup in a number of key wells. This was also being done to determine whether the surfactant application would result in significant decreases in the dissolved concentrations in key wells and if better recovery could be achieved at key downgradient wells. Many of the centrally located wells on the site contain thick, sticky, degraded product that has made well purging and sampling increasingly difficult. Equipment lowered down

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

Histocial use of EnviroClean® has proved effective at this site. On March 13, 2013 and September 10, 2013 Stellar Environmental mobilized to the site in order to inject EnviroClean® supplied by Enviro Clean Services LLC, into wells MW-8, MW-12, MW-13 and MW-14. EnviroClean® is described by the manufacturer as a non-flammable, non-toxic, water-based, proprietary blend of non-toxic, non-ionic ethoxylated octylphenolic surfactants that has been specifically engineered as a cleanup/mitigation agent for a wide range of hydrocarbon products. EnviroClean® product information is included in Appendix F. A working solution of 4% EnviroClean® was mixed per manufacturer recommendations using clean water. Approximately 5 gallons of the solution was introduced to each well using a funnel. The well casing and screen in each well were then scrubbed using a stiff bristle brush attached to an extension. After the scrubbing, approximately 15 gallons of the working EnviroClean® solution was injected under pressure into each of the selected wells using a dual-diaphragm pump. The wells were then undisturbed until the product removal phase of the monitoring events on March 25 and 26, 2013 and on September 24 and 25, 2013.

MARCH 2014 PRODUCT REMOVAL EVENT

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

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

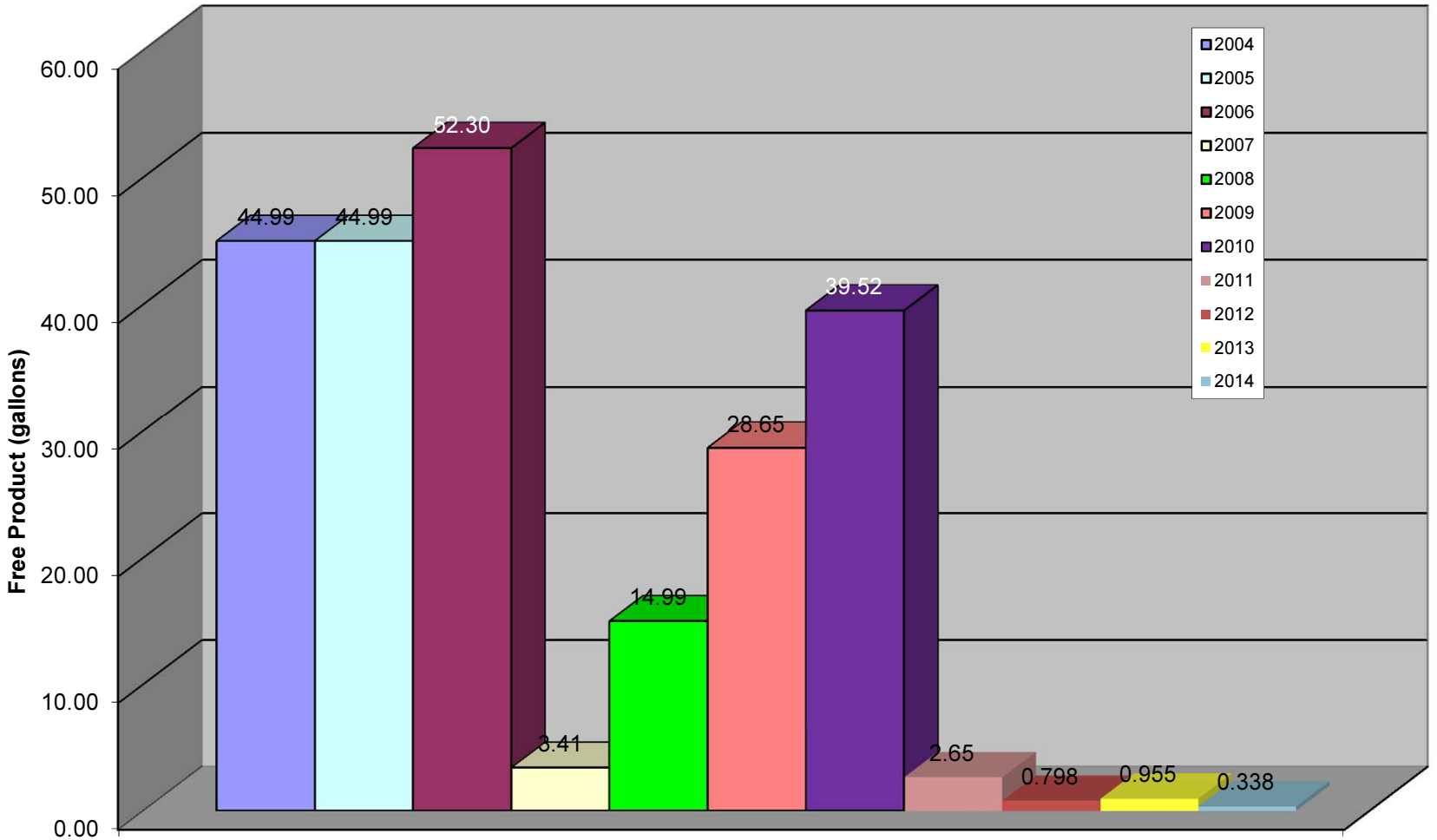


Table 3
Passive Skimmer Product Extraction in Trenches– March 25 and 26, 2014
6400 Christie Avenue, Emeryville, California

Trench ID	Number of Skimmers in Well	Total Product Removed (gallons)
TA-E	2	0.015
TA-M	2	0.0
TA-W	2	0.0
TB-E	0	NM
TB-M	0	NM
TB-W	0	NM
TC-E	1	0.0
TC-M	0	NM
TC-W	0	NM
Total Hydrocarbon Product Removed		**0.0**

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

Stellar Environmental conducted both passive and active product removal events during the 2 days prior (March 25 and 26) to the groundwater sampling event (March 27) to determine the recharge rate of free product in wells. A total of approximately 1,050 gallons of groundwater yielding approximately 0.338 gallons (Table 4) of free product were removed during the March 2014 active product removal event.

Table 4
Active Product Extraction – March 25 and 26, 2014
6400 Christie Avenue, Emeryville, California

Well	Total Gallons of Product Removed	Well	Total Gallons of Product Removed
MW-3	0.08	MW-17	0
MW-4	0	MW-18	0
MW-5	0	MW-E	0.01
MW-6	0	RW-1	0.09
MW-7	0	TA-E	0.03
MW-8	0	TA-M	0.03
MW-9	0	TA-W	0.015
MW-10	0.023	TB-E	0
MW-11	0	TB-M	0
MW-12	0	TB-W	0
MW-13	0	TC-E	0.015
MW-14	0	TC-M	0.015
MW-15	0	TC-W	0.015
MW-16	0.015		
Total Hydrocarbon Product Removed			**0.338**

Notes:

NP = not purged

Product removal estimates are based on the total amount of free product measured in the purge drum after pumping each well (0.635 gallons total)

The removal activities can be summarized as follows:

- On March 25-26, 2014 Stellar Environmental removed a total 230 gallons of groundwater from TA-W, TA-E and TA-M along with 0.075 gallons of product. The skimmer in well TA-E contained water and 0.015 gallons of oily product, while the skimmers in wells TA-M and TA-W were filled with water with little or no free product. Stellar Environmental removed a total of 150 gallons of water from trench wells TB-E, TB-M and TB-W along with a trace of free product. Stellar Environmental removed a total of 200 gallons of water from trench wells TC-E, TC-M and TC-W along with about 0.045 gallons of product. 250 gallons of water with 0.09 gallons of free product were pumped from recovery well RW-1.

- On March 25 and 26, 2014, a total of approximately 0.338 gallons of petroleum product was removed along with the 1,050 gallons of liquid that was pumped from all of the monitoring wells, trench wells and former extraction wells. The product volume was estimated based on free-product accumulation in the extraction drum after pumping each well. Higher product removal was realized from the individual product purging of the site wells and trench wells through pumping from the water surface prior to the sampling event than was recovered from the "skimmers" designed for the product removal. Product removal from monitoring and recovery wells was most pronounced at MW-3, MW-10, MW-16 and RW-1.
- All of the purge water and free product extracted during these events was contained onsite in the 1,100-gallon AST located in the northeastern gated area of the garage. Safety Kleen Corporation vacuum out and transported the hydrocarbon contaminated water on May 13, 2014 to its recycling facility in Newark, California.

DISCUSSION

As mentioned under the "Historical Free Product Extraction" subsection, 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 was purge water versus pure free product. The majority of petroleum product appears in fact to have been removed by active pumping and removal activities rather than from the trench well skimmers. Much of this may also have been a mixture of water and hydrocarbons.

Based on these data Stellar Environmental concludes that the trench recovery system on its own has never been particularly effective. In 2007, passive extraction of free product through trench well skimmers removed only 3.41 gallons. Stellar Environmental removed approximately 5.65 gallons of free product from these passive skimmers during the 2008 removal events. Since 2011, the skimmers have contained only water and a trace of oil when checked. Approximately 14.99 gallons of product were removed by active pumping on wells during 2008, 28.65 gallons in 2009, 39.52 gallons in 2010, 2.65 gallons in 2011, 0.798 gallons in 2012 and 0.955 in 2013 indicating that the

active pumping of site wells to be an effective means of product removal as compared to the passive skimmer system. Differences in volumes recovered can be attributed to fluctuations in groundwater levels and to an overall reduction of free product as active pumping continues year to year.

As demonstrated by the analytical data, active pumping on certain wells has generally reduced gasoline concentrations; however, wells not included in the pumping schedule showed a lesser or no decrease. Diesel concentrations seem to be less affected by active pumping, even in wells that were included in the pumping schedule, such as RW-1. The very high hydrocarbon concentrations detected in well MW-13 in former monitoring events until the March 2103 sampling was likely due to the sample containing LNAPL, which was likely at least partially to have been emulsified with the 2013 surfactant injections, reducing the possibility that the sample would contain LNAPL. Inconsistent trends in the hydrocarbon/BTEX concentrations in wells MW-13 and MW-8 showing a marked decrease in MW-13 and a marked increase in MW-8 after the 2013 surfactant injection, may show more consistent trend lines after subsequent sampling events. The across the board general decrease in hydrocarbon and BTEX concentrations in most site wells for the March 2014 sampling event, although encouraging, does not yet represent a trend.

The increase of diesel concentrations observed in well MW-3 for the 2013 monitoring events is indicated by the data to have been due to the de-watering activities, that until February 2014, had been on-going at the construction site across 64th Street, which resulted in the southward pull of the groundwater plume, modifying the historical groundwater flow direction and magnitude. Residual hydrocarbons left in the soil after the USTs were removed from the site in the 1980's, is likely to continue to be a source of contamination to groundwater at the site. Additional surfactant injections, in addition to more active remediation, including introduction of bio-remedial enhancing products into selected wells may be useful to reduce the concentrations to levels acceptable to the regulatory community and to achieve eventual regulatory closure.

The outward effect of the two surfactant injection events in 2013 into monitoring wells MW-8, MW-12, MW-13 and MW-14, based on observations made during product removal for the current monitoring event, was continued apparent reduction in the viscous hydrocarbon substance in those wells. A significant increase in water yield from those wells has not been observed. The measured recovery volume of product (in gallons) from the four wells for the March 2013 monitoring event, compared to the current monitoring event was 0.08/0.0 (MW-8), 0.0/0.0 (MW12), 0.08/0.0 (MW-13) and 0.0/0.0 (MW-14) representing a decrease in recovery due to emulsification of product. The total measured recovery volume of product (in gallons) from the 18 wells for the March 2013 monitoring event, compared to the current 2014 monitoring event decreased from 0.635 gallons to 0.338 gallons.

6.0 GRAB-GROUNDWATER SUBSURFACE INVESTIGATION

This section describes the rationale, methods and results of a limited subsurface investigation that involved grab groundwater collection in areas onsite suspected to have been affected by construction dewatering that occurred across 64th Street from the site during 2013.

INTRODUCTION AND BACKGROUND

Stellar Environmental Solutions conducted the groundwater investigation in the areas between wells MW-3 on the southern edge of the site and MW-18 in the garage, 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 apparent impact of the dewatering on the subject site can be described 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 well data described above, had been 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 on the southern property line 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, suggests a possible undiscovered source between these two wells that was impacting well MW-3.

In addition to possible undiscovered sources, the impact to the previous equilibrium of the plume also raises a concern of mobilizing the existing areas of hydrocarbon contamination near MW-18 near the former location of two 10,000 gallon diesel USTs (Tank Pits A and B) by mobilizing sources of hydrocarbons in an area previously indicated to be immobile.

The construction dewatering at 6340 Christie Street that occurred during 2013, ceased by February of 2014. The current monitoring event at the subject property took place on March 27th, 2014 indicated a significant reduction in TEHd concentration well MW-3, from 250,000 µg/L TEHd in September 2013 to 1,600 µg/L TEHd in March 2014. The additional characterization work described below,

was conducted to gain a better understanding of the hydrologic and hydrochemical model as affected by recent site conditions and to integrate that data into the current overall monitoring results in order to evaluate the best manner to achieve eventual site closure.

GRAB GROUNDWATER SAMPLING

The rationale for the groundwater sampling was based on the recent changes to site conditions, as summarized above. Specifically, the purpose of the sampling effort was to characterize the groundwater in the areas between MW-18 and MW-3 with the goal of determining the source of the diesel/long–chain hydrocarbons impacting MW-3.

In order to best characterize the area, Stellar Environmental attempted to collect five groundwater samples in the area described above. The sampling plan called for collecting grab groundwater samples from the first encountered water bearing zone estimated to be 15 to 20 feet bgs from five locations. Due to difficult drilling conditions caused by encountering buried debris, a total of three groundwater samples were collected instead of the planned five groundwater samples. Continuous soil cores brought to the surface from each of the five borings were inspected and logged for a qualitative evaluation of soil conditions. The location of the borings are shown on Figure 12.

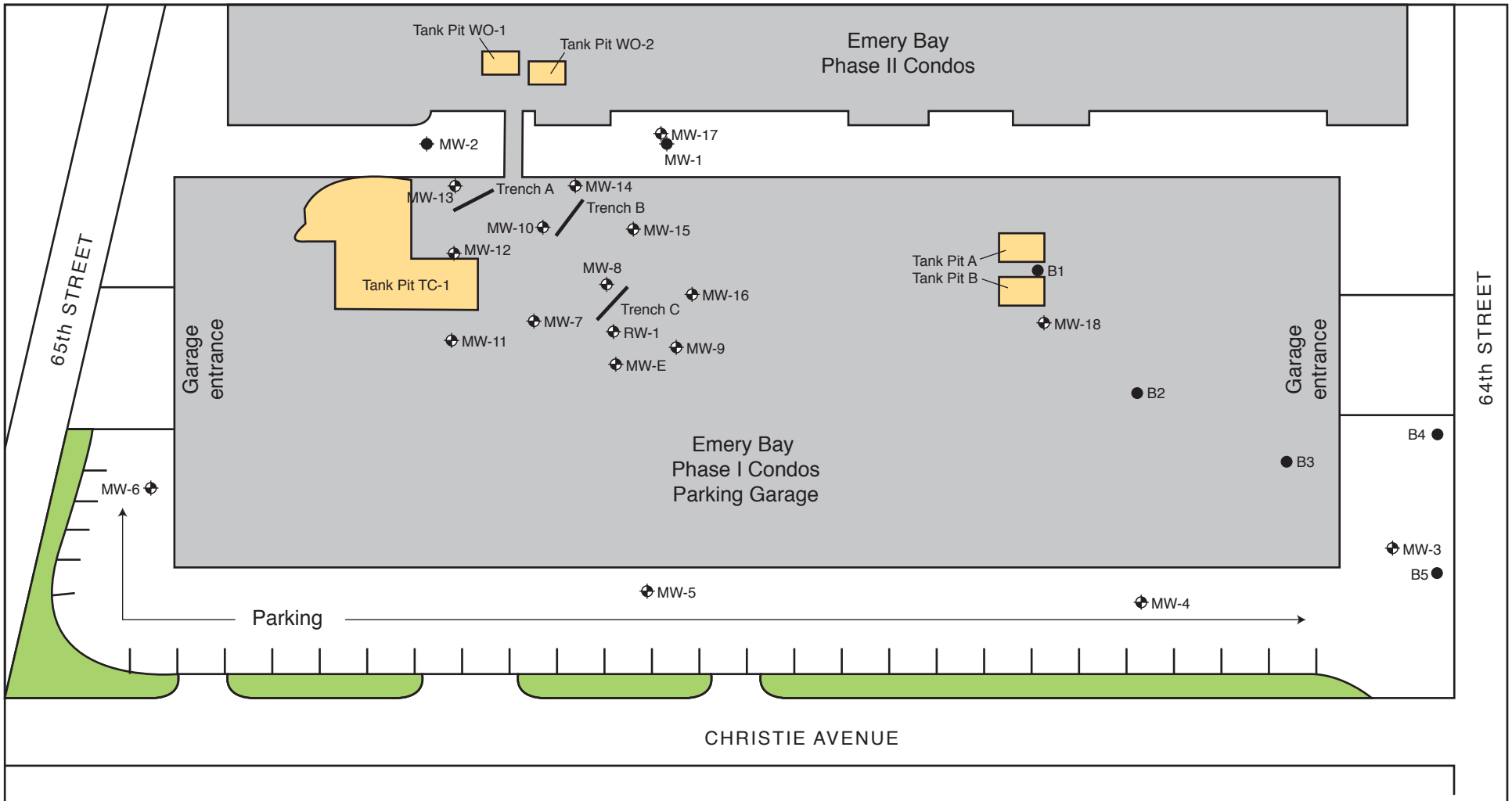
Stellar Environmental was onsite for the grab-groundwater sampling on March 11th, 2014. Prior to the sampling date, the area was marked by Stellar Environmental for underground utility clearance, and a soil boring permit was obtained from Alameda County Department of Public Works. Cascade Drilling of Richmond, California operated a Geoprobe Model 6600 direct push sampling rig under the supervision of Stellar Environmental for all borings.

Sampling Methods and Observations

Soil from each four-foot driven interval recovered, were collected in 1.5-inch diameter acetate sleeves. The soil and fill materials recovered were described in the field and inspected for signs of gross hydrocarbon contamination. Boring logs describing soil/fill composition are included in Appendix G.

Groundwater samples were collected from 1-inch diameter, pvc temporary wells installed in the borings where sufficient depth was achieved. Groundwater from the wells was sampled using a peristaltic pump and new polyurethane tubing designed for the purpose. Samples were contained in 40 ml VOA bottles preserved with HCL.

After the samples were collected, all borings were backfilled using neat cement grout to within 6-inches to the surface as required by The Alameda County Department of Public Works. Concrete



LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- B1 March 11, 2014 soil boring
- Historical tank pit area
- Landscaping

0 60

SCALE: 1/2" = 60 FEET

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SOIL BORING LOCATIONS

6400 Christie Ave., Emeryville, CA

Figure 12

by: MJC | MARCH 2014

2007-65-73

was used to restore the surface of each boring location. Photographs of selected locations and features are presented in Appendix H. The following observations were made at the borings:

Boring B1. The concrete slab in this area of the garage is approximately 6-inches thick and is underlain by 4-inches of asphalt. The fill material beneath the asphalt consists of clayey gravel and sandy clay with another 6-inch layer of hard asphalt at 3.5 to 4 feet bgs. Underlying the second asphalt layer is silty clay to clayey silt followed by a black, organic saturated clay containing wood fragments to a depth of about 19 feet bgs. A stiff, native silty clay was encountered between 19 and 20 feet bgs which was the total drilled depth of the boring. No obvious hydrocarbon contamination was observed. Groundwater was encountered at about 17 feet bgs in Boring B1 which rose to about 9 feet bgs in the well allowing collection of sample B1-SES-W.

Boring B2. The concrete slab in this area of the garage is approximately 5-inches thick and is underlain by 6-inches of base rock. The fill material beneath the baserock consists of sand, clay and brick. Refusal was met in this boring at a depth of approximately 6-feet bgs preventing deeper drilling. No groundwater was encountered in Boring B2.

Boring B3. The concrete slab in this area of the garage is approximately 5-inches thick and is underlain by about 9 feet of clayey gravel fill containing brick, glass and metal debris. Underlying the fill layer is silty clay extending to a depth of about 18 feet bgs below which a clayey sand was encountered. No obvious hydrocarbon contamination was observed. Groundwater was encountered at about 16.5 feet bgs in Boring B3 which rose to about 11 feet bgs in the well allowing collection of sample B3-SES-W.

Boring B4. The asphalt surface in this outdoor parking area is approximately 3-inches thick and is underlain by about 4-inches of baserock. The fill material beneath the baserock consists of sand, clay and brick. Refusal was met in this boring at a depth of approximately 5-feet bgs preventing deeper drilling. No groundwater was encountered in Boring B4.

Boring B5. The asphalt surface in this outdoor parking area is approximately 3-inches thick and is underlain by about 4-inches of baserock. The fill material beneath the asphalt consists of clayey gravel containing brick fragments which extends to about 14 feet bgs. From 14 feet bgs to 20 feet bgs, subsurface materials consisted of silty clay interbedded with saturated clayey sand layers. Moderate hydrocarbon contamination was observed in the capillary fringe zone (about 16 to 17 feet bgs) above the occurrence of groundwater. Groundwater was encountered at about 18 feet bgs in Boring B5 which rose to about 9.5 feet bgs in the well allowing collection of sample B5-SES-W.

ANALYTICAL METHODS AND RESULTS

Groundwater samples were preserved on ice and transported under chain-of-custody record to McCampbell Analytical in Pittsburg, California, a California Certified Laboratory. All of the groundwater samples were subsequently analyzed for the following:

- benzene, toluene, ethyl benzene, and xylenes (BTEX)
- methyl tertiary-butyl ether (MTBE)
- total volatile hydrocarbons as gasoline (TVHg)
- total extractable hydrocarbons as diesel (TEHd)

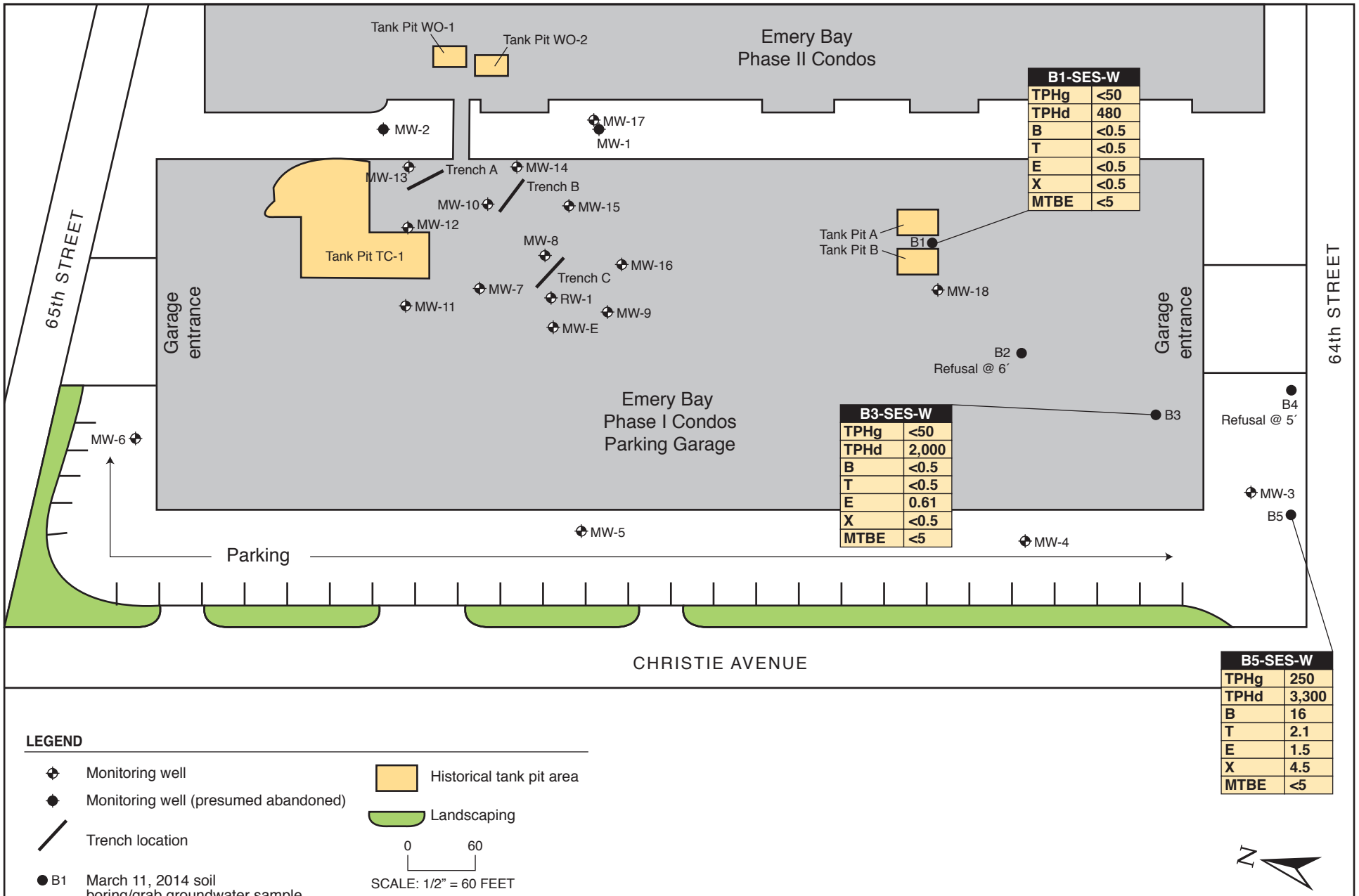
Analytical Results

Up to 250 µg/L TVHg and 3,300 µg/L TEHd was detected in sample B5-ES-W. Analytical results for the groundwater samples collected on March 11, 2014 are summarized in Table 5 below, are depicted on Figure 13, and have been incorporated into the isoconcentration maps for TVHg and TEHd (Figures 6 and 7). The certified laboratory analytical reports are contained in Appendix I.

Table 5
Grab Groundwater Sample Analytical Results, March 11, 2014
Bridgewater Apartments, Emeryville, California

Contaminant	B1-SES-W (µg/L)	B3-SES-W (µg/L)	B5-SES-W (µg/L)	Groundwater ESL (µg/L)
TVHg	< 50	< 50	250	500
TEHd	480	**2,000**	**3,300**	640
Benzene	< 0.5	< 0.5	16	27
Toluene	< 0.5	< 0.5	2.1	130
Ethylbenzene	< 0.5	0.61	1.5	43
Total Xylenes	< 0.5	< 0.5	4.5	100
MTBE	< 5	< 5	< 5	1,800

Notes:
µg/L = micrograms per liter
ESL = Water Board Environmental Screening Levels for residential land use where groundwater is not a potential drinking water source (Water Board, 2013)
MTBE = methyl tertiary-butyl ether
TEHd = total extractable hydrocarbons as diesel
TVHg = total volatile hydrocarbons as gasoline
Results shown in **bold-face type** exceed the ESLs



B1-SES-W	
TPHg	<50
TPHd	480
B	<0.5
T	<0.5
E	<0.5
X	<0.5
MTBE	<5

B3-SES-W	
TPHg	<50
TPHd	2,000
B	<0.5
T	<0.5
E	0.61
X	<0.5
MTBE	<5

B5-SES-W	
TPHg	250
TPHd	3,300
B	16
T	2.1
E	1.5
X	4.5
MTBE	<5

LEGEND

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- B1 March 11, 2014 soil boring/grab groundwater sample
- Historical tank pit area
- Landscaping

0 60

SCALE: 1/2" = 60 FEET

N

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GRAB GROUNDWATER ANALYTICAL RESULTS

6400 Christie Ave., Emeryville, CA

Figure 13

by: MJC | APRIL 2014

2007-65-81

Based on observations made during the March 11, 2014 drilling and on the laboratory analytical results of the groundwater samples collected, the following observations are made and conclusions drawn:

- Diesel range hydrocarbons are the primary contaminants in groundwater, exceeding the diesel ESL in two of three samples. This finding is consistent with known groundwater contamination on site. TEHd concentration in groundwater was highest in boring B5 (3,300 µg/L) in the area near well MW-3 at the extreme southern end of the site. TVHg was detected in one of the three grab sample locations (B5) at a concentration of 250 µg/L which is below the 500 µg/L ESL for TVHg.

- Based on soil and fill samples recovered during the drilling of the five borings, the composition of the upper 10 to 15 feet of subsurface materials consists of non-engineered fill that contains clay, gravel, brick, sand, glass and metal. This condition is consistent with the known history of the surrounding area of Emeryville west of the railroad right-of-way.

- Although no obvious source for the heavy oil accumulating in well MW-3 was found to be located between wells MW-3 and MW-18 during the advancement of the soil borings, this apparent lack of another hydrocarbon source near that area where an historical source was indicated supports the idea that the increase southward is the result of the dewatering at the southern construction site.. The recent spike in TEHd concentrations in MW-3, which have again decreased for the current monitoring event to near historic lows, strongly suggests the construction dewatering across 64th Street during 2013 is responsible, with the southward pull of the hydrocarbon plume offsite resulting in the observed fluctuations in TEHd concentrations in well MW-3.

7.0 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, an LNAPL groundwater pump-and-treat system was installed in 1989, but failed in 1991. Active pumping of free product began again in 2004, and a product extraction system consisting of passive product removal was installed in 2006. Groundwater monitoring events have been sporadically conducted since 1988; quarterly groundwater monitoring events were conducted for the first time in 2008. The quarterly sampling was reduced to a semiannual frequency in 2009.
- The site currently contains 17 monitoring wells, 1 recovery well, and 9 product extraction trench wells. This is the 21st sampling event conducted at the site since 1988.
- Site subsurface materials consist of non-engineered fill containing brick, glass and metal in the upper 10 feet which is underlain by silty clay interbedded with saturated clayey sand layers. Stiff clay extends from a depth of approximately 40 feet to approximately 102 feet.
- The series of injections of a non-hazardous surfactant into wells MW-8, MW-12, MW-13 and MW-14 appears to have reduced if not eliminated LNAPL in those wells and corresponds with a significant decrease in TVHg and TEHd concentrations overall. Benzene has also decreased overall (13 of 18 wells). Upcoming monitoring events may establish a trend and will enable decisions regarding adding additional surfactant in wells that contain heavy, degraded product.
- The groundwater flow direction measured during the March 2014 monitoring event was generally towards the southwest. The localized, approximately southerly direction to groundwater flow in the area of MW-3 noted in the two previous monitoring events, thought to be the result of construction dewatering that had been occurring during 2013 at the re-

development site across 64th Street, was not as pronounced for the current event, since that de-watering has been discontinued since February of 2014.

- Groundwater elevations recorded during the March 2014 sampling event ranged from 7.01 (MW-3) to 10.49 (MW-6) feet above mean sea level. Some groundwater mounding may be occurring in area of MW-4 and MW-6 due to contributions from landscape irrigation. The average groundwater gradient for the current monitoring event was 0.003 foot/foot.
- Current contaminants of concern include TVHg, TEHd, and BTEX. Current groundwater concentrations exceeded the ESLs for these contaminants in several wells. MTBE was not detected in an any well during the current event.
- The highest concentrations of TVHg and TEHd were observed in wells MW-8 (23,000 µg/L and 13,000 µg/L) and MW-13 (20,000 µg/L and 19,000 µg/L), which represents a decrease in TVHg and TEHd concentrations compared to the March 2013 sampling event. This may be attributable to emulsification of heavy product in those wells as a result of the surfactant injections they received in 2013. The concentrations of hydrocarbons in wells MW-8 and MW-13 have decreased significantly from the historic high concentrations of 73,000 µg/L TVHg and 140,000 µg/L TEHd observed in MW-8 and 2,700,000 µg/L TVHg and 7,200,000 µg/L TEHd in well MW-13. The decrease can also be attributed to the effective LNAPL recovery in 2008 through 2014.
- Overall, the concentration of TEHd and TVHg in site wells has decreased for the current 2014 monitoring event compared to the March 2013 monitoring event, with 16 of 18 wells showing lower TEHd, and 13 of 18 wells showing lower TVHg.
- Increases in March 2014 TVHg concentrations compared to the March 2013 monitoring event were observed in wells MW-6, MW-11, MW-12, MW-17 and RW-1. This represents five wells exhibiting an increase in TVHg as compared to seven wells for the March 2013 sampling event. The remaining wells either remained below laboratory detection limits (in wells MW-4, MW-5, and MW-18) or exhibited a decrease in TVHg concentrations.
- TVHg was detected in MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17 and MW-E above the TVHg ESL where groundwater is not a likely drinking water resource (500 micrograms per liter [µg/L]). TVHg was also detected in MW-3, MW-6, MW-16 and RW-1 but at concentrations below the ESL. This represents two fewer wells above the TVHg ESL as compared to the March 2013 sampling event.
- With the exception of well MW-4, TEHd was detected in all site wells above the TEHd ESL of 640 µg/L, but overall, concentrations of TEHd decreased in 16 of the 18 wells sampled as compared to 5 of 18 wells that showed decreases in the March 2014 sampling event.

- In monitoring wells MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E concentrations of benzene exceeded the ESL of 27 µg/L where groundwater is not a drinking water resource. Comparing March 2013 results to March 2014 results showed a decrease in benzene in 13 of 18 wells. A slight increase in Benzene was detected in wells MW-3 and MW-17. Benzene was detected in MW-3, MW-6, MW-9, MW-16 and RW-1, but at concentrations below the ESL. The biggest changes in benzene concentrations were seen in wells MW-8, MW-13 and MW-15 which showed approximately 30% decreases.
- Toluene was detected at or above the ESL of 130 µg/L in monitoring well MW-14 as compared to 5 of 18 wells exceeding the Toluene ESL in March 2103. Toluene was detected in wells MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, MW-15, MW-16, MW-17, MW-E and RW-1 but at levels below the ESL.
- Ethylbenzene was detected above the 43-µg/L ESL in monitoring wells MW-8, MW-12, MW-13, MW-14, MW-17 and MW-E. This represents exceedence of the Ethylbenzene ESL in 6 wells for March 2014 as compared to 8 wells in March 2013. For March 2014, Ethylbenzene was also detected in wells MW-7, MW-11, MW-15, and RW-1 but at levels below the ESL.
- Total xylene concentrations in wells MW-8, MW-13, MW-14, MW-17 and MW-E were above the 100 µg/L ESL. This represents 5 of 18 wells exceeding the total xylene ESL for 2014 as compared to 7 of 18 wells in March 2013. Total xylenes were also detected in MW-7, MW-10, MW-11, MW-12, MW-15, MW-16 and RW-1 but below the ESL.
- MTBE was not detected above the laboratory reporting limit in any of the 18 monitoring wells. Well MW-3 contained 8.6 µg/L for the March 2013 monitoring event.
- Stellar Environmental conducted passive skimmer product removal on the trench wells during the March 2014 removal event. The skimmers in all trench wells so equipped were filled with water and traces of product.
- Stellar Environmental also conducted active product removal on the trench wells, source area wells, recovery well, and select monitoring wells during the March 2014 event. A total of approximately 1,050 gallons of groundwater that includes approximately 0.338 gallons of free-floating petroleum product from all the wells was removed with the estimate based on free-product accumulation in the extraction drum after pumping each well.
- The trench recovery system, where free product is designed to collect in 1-liter skimmers, is ineffective in removing free product. Active pumping at various wells appears to have some effect in lowering gasoline concentrations, and appears to be affecting the concentrations of diesel.

- Surfactant injections into wells MW-8, MW-12, MW-13 and MW-14 in 2013 have reduced or eliminated LNAPL in those wells, and may have contributed to a decrease in concentrations of dissolved hydrocarbons and MBTEX in those wells and other site wells as compared to the March 2013 monitoring event.

- Based on the March 11, 2014 grab groundwater sampling conducted in areas between wells MW-3 and MW-18, diesel range hydrocarbons appear to be the primary contaminants in groundwater in that area, exceeding the diesel ESL in two of three samples. The TEHd concentration in groundwater was highest in boring B5 by the area near well MW-3 at the extreme southern end of the site at a concentration of 3,300 µg/L. TVHg was detected in one of the three grab sample locations (B5) at a concentration of 250 µg/L which is below the 500 µg/L ESL for TVHg where groundwater is not considered a drinking water resource.

- Although no obvious source for the heavy oil accumulating in well MW-3 was found to be located between wells MW-3 and MW-18 during the advancement of the soil borings, this apparent lack of another hydrocarbon source near that area may support the idea that the residual heavy LNAPL that has been observed in well MW-3, accumulated over a period years since 1988 when the well was installed. The recent spike in TEHd concentrations in MW-3, which have again decreased for the current monitoring event to near historic lows, may have been the result of the construction dewatering that occurred across 64th Street during 2013, with possible mobilization of hydrocarbons offsite resulting in the observed fluctuations in TEHd concentrations in well MW-3.

RECOMMENDATIONS

- Passive free product skimmers in trench wells A and C should be removed because they are no longer effective, yet are covered with oily residue that likely adds to the dissolved hydrocarbon concentrations beneath the site. Active product removal, which appears to be more effective that the passive system, should be continued on a semiannual basis immediately prior to the sampling event.

- Inject surfactant into selected interior monitoring wells and/or trench wells, including well MW-3 at the south end of the site where free-floating product is apparent, to dissolve the product and possibly allow better recovery of remnant hydrocarbons

- Introduce oxygen releasing bioremediation compound into selected interior monitoring wells and/or trench wells after the surfactant injection, to accelerate reduction of dissolved hydrocarbons in groundwater.

- Groundwater monitoring should be continued on a semiannual basis to document contaminant concentrations over time.

- Continue to evaluate emergent best available technologies to cost-effectively remediate the site to move it toward full regulatory site closure.
- Complete an indoor air monitoring event in the condominium sales/admin office based on results from the 2013 indoor air sampling event findings.
- Electronic uploads to ACEH's ftp system and the State Water Board's GeoTracker system should be continued as required.

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9.0 LIMITATIONS

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

The findings and conclusions presented in this report are based on a review of previous investigators' findings at the site, as well as site investigations conducted by SES in 2007, 2008, and 2009. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this limited remedial investigation are qualified to perform such investigations and have accurately reported the information available, but cannot attest to the validity of that information. No warranty, expressed or implied, is made as to the findings, conclusions, and recommendations included in the report.

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

APPENDIX A

Historical Groundwater Well Analytical Results

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

MW-1

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

MW-2

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	72	22		0	0	0	0	
2	May-89	40	18		0	0	0	0	
3	Feb-91	83	0		0	0	0	0	
Monitoring well abandoned - date unclear									

MW-3

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

MW-4

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	0	100		2.0	1.0	0	2.0	
2	May-89	60	18		1.0	0.0	0	0	
3	Feb-91	0	0		0	0	0	0	
4	Mar-04								
5	Dec-06	0	50	0	0	0	0	0	0
6	Dec-07	710	0		0	0	0	0	0
7	Mar-08	680	57		0	0	0	0	0
8	Jun-08	620	0		0	0	0	0	0
9	Sep-08	440	0		0	0	0	0	0
10	Dec-08	730	0		0	0	0	0	0
11	Mar-09	940	0		0	0	0	0	0
12	Sep-09	660	0		0	0	0	0	0
13	Mar-10	680	0	380	0	0	0	0	0
14	Sep-10	770	71		0	0	0	0	0
15	Mar-11	590	0		0	0	0	0	2.4
16	Sep-11	380	0		0	0	0	0	0
17	Mar-12	340	0		0	0	0	0	0
18	Sep-12	350	0		0	0	0	0	0
19	Mar-13	390	0	NA	0	0	0	0	0
20	Sep-13	250	0	NA	0	0	0	0	0
21	Mar-14	380	0	NA	0	0	0	0	0

MW-5

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	530	890		0.0	0.0	1.0	3.0	
2	May-89	90	5.0		1.0	0	0	0	
3	Feb-91	58	0		0.6	0	0	0	
5	Dec-06	330	0	0	0.60	0	0	0	0
6	Dec-07	5,100	1.3		1.3	0	0	1.23	0
7	Mar-08	4,500	0		0.53	0	0	0	0
8	Jun-08	3,300	0		0.64	0	0	0	0
9	Sep-08	4,200	0		0	0	0	0	0
10	Dec-08	5,200	0		0.61	0	0	0	0
11	Mar-09	5,800	0		0	0	0	0	0
12	Sep-09	5,600	0		0	0	0	0	0
13	Mar-10	4,300	0	5,400	4.9	0	0.0	0.0	0
14	Sep-10	4,500	0		0.58	0	0	0	2.0
15	Mar-11	4,900	0		1.3	0	0	0	5.9
16	Sep-11	4,400	0		0	0	0	0	0.0
17	Mar-12	3,600	0		0	0	0	0	0.0
18	Sep-12	4,100	0		0	0	0	0	0.0
19	Mar-13	3,900	0	NA	0	0	<0.5	0	0.0
20	Sep-13	3,100	0	NA	0.65	0	0	0	0.0
21	Mar-14	2,300	0	NA	0	0	0	0	0.0

MW-6									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	0	52		1.0	0	0	0	
2	May-89	140	31		1.0	0	0	0	
3	Feb-91	130	40		0.8	0	0	0	
5	Dec-06	200	43	0	1.1	0	0	0	0
6	Dec-07	1,000	0		0.98	0.81	0	0.5	0
7	Mar-08	940	0		0.87	1.0	0	0	0
8	Jun-08	1,100	56		0.92	0	0	0	2.9
9	Sep-08	1,000	0		0.91	0	0	0	0
10	Dec-08	1,400	0		1	0	0	0	0
11	Mar-09	1,200	0		0	0	0.0	0.0	0
12	Sep-09	1,500	0		0.79	0	0.0	0.0	0
13	Mar-10	910	0	1,500	1.9	0	0.0	0.0	0
14	Sep-10	1,200	72		1.0	0	0	0	0
15	Mar-11	1,900	0		1.3	0	0	0	3.9
16	Sep-11	1,900	0		1.8	0	0	0	0
17	Mar-12	2,300	0		0.82	0	0	0	0
18	Sep-12	2,200	0		0.85	0	0	0	0
19	Mar-13	1,600	0	NA	0.83	0	0	0	0
20	Sep-13	1,100	0	NA	1.70	0	0	0	0
21	Mar-14	830	65	NA	0.81	0	0	0	0

MW-7									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,600	490	1,900	240	100	14	56	0
2	Dec-06	420	0	470	0	0	0	0	0
3	Dec-07	6,300	3,100		640	28	48	231	0
4	Mar-08	7,000	360		140	5.8	11	58	0
5	Jun-08	5,400	1,700		480	15	28	139	0
6	Sep-08	9,400	1,200		330	12	21	88	0
7	Dec-08	8,700	2,200		640	100	43	185	0
8	Mar-09	8,700	1,700		510	33	47	220	0
9	Sep-09	6,800	540		310	9.5	27	117	0
10	Mar-10	8,700	330	6,800	68	2.2	10	31.6	0
11	Sep-10	10,000	1,300		580	54	35	163	0
12	Mar-11	8,100	630		160	5.3	14	65	0
13	Sep-11	8,000	2,900		900	46	51	284	0
14	Mar-12	7,900	740		220	150	14	140	0
15	Sep-12	10,000	1,700		660	35	32	137	0
16	Mar-13	8,600	3,000	NA	950	39	30	149	0
17	Sep-13	12,000	2,100	NA	540	29	17	89	0
18	Mar-14	8,200	1,900	NA	440	22	14	63	0

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

MW-9									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,300	95	1,500	4.7	0.68	0	0	0
2	Dec-06	Jan-00	92	0	2.8	0	0	0	0
3	Dec-07	8,400	84		4.7	1.1	0	1.9	0
4	Mar-08	8,600	100		4.1	1.1	0	0	2.0
5	Jun-08	5,900	98		4.9	0	0	0	2.3
6	Sep-08	9,300	130		4.6	0	0	0	0
7	Dec-08	7,800	95		4	0.54	0	0	0
8	Mar-09	9,400	130		4.6	0	0	0	0
9	Sep-09	8,200	100		4	0	0.0	0.0	0
10	Mar-10	6,500	140	4,000	5.2	0	0.0	0.0	0
11	Sep-10	6,400	170		4.8	0.77	0.0	0.0	0
12	Mar-11	11,000	150		5.9	0.61	0.0	0.5	0
13	Sep-11	9,400	62		4.2	0	0	0	0
14	Mar-12	9,400	140		6.2	0.61	0	0.51	0
15	Sep-12	10,000	130		7.2	0	0.53	0.92	0
16	Mar-13	8,500	170	NA	14.0	0.73	0.7	0.63	0
17	Sep-13	11,000	130	NA	12.0	0	0.92	0	4.9
18	Mar-14	7,300	140	NA	9.8	2	0	0	0

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

MW-11

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

MW-12

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

MW-13

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	12,000	87,000	2,100	18,000	470	2,400	3,500	0
2	Dec-07		68,000		19,000	650	1,700	2,440	0
3	Mar-08	1,100,000	98,000		19,000	820	2,300	3,190	0
4	Jun-08	71,000	44,000		12,000	510	1,600	1,950	0
5	Sep-08	440,000	52,000		0	500	1,600	1,500	0
6	Dec-08	1,100,000	2,700,000		23,000	0	40,000	45,000	0
7	Mar-09	2,000,000	330,000		25,000	1,300	6,400	8,500	0
8	Sep-09	38,000	1,400,000		19,000	2,500	19,000	21,300	0
9	Mar-10	15,000	43,000	670	12,000	310	1,600	1,140	0
10	Sep-10	3,100,000	1,700,000		21,000	2,300	30,000	17,200	7,000
11	Mar-11	13,000	86,000		44,000	400	3,200	912	7,000
12	Sep-11	15,000	49,000		16,000	380	1900	850	0
13	Mar-12	1,100,000	260,000		23,000	1500	5700	4100	0
14	Sep-12	7,200,000	60,000		22,000	580	2,100	1,700	0
15	Mar-13	23,000	27,000	NA	5,600	260	1,300	1,080	0
16	Sep-13	39,000	19,000	NA	3,400	180	760	515	0
17	Mar-14	19,000	20,000	NA	3,700	120	710	361	0

MW-14

Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	0.0	8,300	0	3,700	240	230	260	0
2	Dec-07	2,600	6,800		3,100	150	220	168	0
3	Mar-08	4,400	18,000		4,400	330	340	245	0
4	Jun-08	2,600	7,700		2,600	180	200	141	0
5	Sep-08	2,500	4,100		1,300	50	80	61	0
6	Dec-08	2,800	2,300		830	27	45	30.7	0
7	Mar-09	3,200	13,000		4,300	870	260	283	0
8	Sep-09	2,100	530		630	14	28	17	0
9	Mar-10	3,900	6,700	3,100	2,400	400	140	185	0
10	Sep-10	2,500	2,000		1,700	44	98	89	0
11	Mar-11	2,800	16,000		6,600	1600	450	600	0
12	Sep-11	5,900	20,000		6,600	690	550	740	0
13	Mar-12	4,400	13,000		3,000	1400	340	870	0
14	Sep-12	9,900	31,000		4,800	2400	740	2450	0
15	Mar-13	21,000	11,000	NA	2,300	340	280	371	0
16	Sep-13	24,000	7,200	NA	1,900	200	160	197	0
17	Mar-14	8,200	6,900	NA	2,100	220	170	155	0

MW-15

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

MW-16									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	0	190	0	11.0	1.4	0	0	0
2	Dec-07	8,500	71		13	2.6	0	1.46	0
3	Mar-08	12,000	60		11	0.73	0	0	0
4	Jun-08	10,000	120		13	2.2	0	0	2
5	Sep-08	8,200	64		9.9	1.9	0	0	0
6	Dec-08	8,800	60		11	2.8	0	0.53	0
7	Mar-09	14,000	78		12	2.3	0	0	0
8	Sep-09	10,000	0		9.3	1.6	0	0	2.2
9	Mar-10	12,000	70	4,700	12	2.1	0.56	1.35	0
10	Sep-10	9,800	77		12	1.9	0	0.55	2
11	Mar-11	9,900	64		13	1.6	0	2.3	16
12	Sep-11	10,000	74		17	2.3	0	1.33	0
13	Mar-12	8,400	66		12	1.8	0	1.07	0
14	Sep-12	7,700	84		17	1.5	0.57	0.69	0
15	Mar-13	8,100	80	NA	15	1.4	0	0.75	0
16	Sep-13	9,800	66	NA	13	1.7	0	1.38	0
17	Mar-14	5,900	76	NA	11	1.2	0	0.94	0

MW-17									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	0	14,000	0	3,400	1,100	480	0	0
2	Dec-07	2,900	5,000		1,100	260	110	206	0
3	Mar-08	3,100	6,800		1,200	110	91	94	21
4	Jun-08	2,900	7,200		1,100	45	75	66	0
5	Sep-08	3,300	5,500		900	63	69	69	0
6	Dec-08	3,200	7,100		1,100	530	190	390	0
7	Mar-09	3,000	5,400		770	150	87	161	0
8	Sep-09	3,000	2,500		120	3.1	11	1.6	0
9	Mar-10	3,400	5,000	1,900	910	66	73	93	0
10	Sep-10	2,800	3,500		1,400	62	46	76	0
11	Mar-11	3,900	6,100		1,100	44	55	70	0
12	Sep-11	2,400	4,600		850	49	51	64	0
13	Mar-12	2,200	5,800		1,500	57	58	67	0
14	Sep-12	1,400	4,800		1,300	45	100	41	0
15	Mar-13	2,900	7,200	NA	1,200	89	220	110	0
16	Sep-13	2,100	8,000	NA	1,400	150	220	122	0
17	Mar-14	2,600	8,600	NA	1,800	150	320	118	0

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

MW-E									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	100	5,400		3,200	690	97	330	
4	Mar-04	470	810	0	340	6.1	2.2	7.7	0
5	Dec-06	280	1,900	0	910	0	10	0	0
6	Dec-07	6,900	7,000		3,300	50	51	80	0
7	Mar-08	6,300	2,700		780	17	20	20.9	12
8	Jun-08	5,200	7,400		2,900	43	85	50	0
9	Sep-08	7,800	11,000		3,800	170	130	257	0
10	Dec-08	9,400	9,100		3,400	110	180	182	0
11	Mar-09	5,600	850		270	7.5	13	17.5	0
12	Sep-09	6,200	510		1,200	22	37	37.2	0
13	Mar-10	3,800	2,400	5,100	1,000	20	37	26.9	4.9
14	Sep-10	6,600	1,800		2,200	45	64	78	0
15	Mar-11	5,900	4,400		2,600	46	64	90	0
16	Sep-11	7,600	3,600		4,500	150	340	402	0
17	Mar-12	5,800	6,500		2,600	50	52	84	0
18	Sep-12	8,300	7,800		5,500	190	430	431	0
19	Mar-13	7,700	21,000	NA	5,900	210	850	970	0
20	Sep-13	9,400	15,000	NA	3,800	120	470	351	0
21	Mar-14	5,600	9,500	NA	3,200	110	240	178	0

RW-1									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88								
2	May-89								
3	Feb-91								
4	Mar-04								
5	Dec-06	0	640	0	100	1.3	2	1.6	0
6	Dec-07	2,100	770		110	0	3.8	1.96	0
7	Mar-08	11,000	890		100	4.2	4.4	2.0	0
8	Jun-08	1,500	1,200		290	4.8	10	4.8	0
9	Sep-08	1,900	1,400		280	9.8	10	6.7	0
10	Dec-08	54,000	1,100,000		500	0	3,200	530	0
11	Mar-09	2,800	950		180	3.6	13	3	0
12	Sep-09	770	360		120	3.1	11	2	0
13	Mar-10	810	200	0	0	0	0	0	0
14	Sep-10	980	860		170	4.0	5.6	2.8	8.0
15	Mar-11	810	310		15	4.4	2.5	3.9	8.8
16	Sep-11	440	230		28	2.7	1.7	1.5	0.0
17	Mar-12	1,900	502		70	2.0	2.2	2.1	0.0
18	Sep-12	890	790		150	9.6	5.5	12.0	0.0
19	Mar-13	2,800	280	NA	2.7	1.7	2.5	1.9	0.0
20	Sep-13	1,500	420	NA	10.2	6.0	0.0	5.7	0.0
21	Mar-14	4,700	410	NA	1.3	1.0	2.4	3.4	2.8

APPENDIX B

Groundwater Monitoring
Field Data Sheets

WELL GAUGING DATA

Project # 140327-PC1 Date 3/27/14 Client Stellar

Site 65th & Bay St., 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	0828	2	S/O	9.61 *	* thick SPH, difficult to accurately measure		9.64	—		
MW-4	0640	2					7.72	24.88		
MW-5	0644	2					9.68	24.86		
MW-6	0650	2					6.33	23.30		
MW-7	0710	3/4					10.82	19.80		
MW-8	0801	3/4	S/O	10.19			10.22	—		
MW-9	0716	3/4					10.01	19.73		
MW-10	0807	3/4	S/O	9.64			9.92	—		
MW-11	0726	3/4					10.33	19.70		
MW-12	0734	3/4					9.55	19.06		
MW-13	0814	3/4					9.58	19.51		
MW-14	0819	3/4					9.48	19.60		
MW-15	0823	3/4					10.10	18.82		
MW-16	0741	3/4					9.81	19.20		
MW-17	0656	3/4					10.00	19.52		
MW-18	0747	3/4					9.19	19.62		
MW-B	0754	2					10.15	45.58		
RW-1	0830	10	S/O	9.12 *	Thick black SPH		9.13	—		

Difficult to accurately measure

WELLHEAD INSPECTION CHECKLIST

Client Stellar Date 3/27/14

Site Address 65th & Bay St., Emeryville

Job Number 140327-PC1 Technician PC

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

NOTES: MW-17 2/2 bolts missing [No lock. slip cap. on MW-7 thru MW-18]

MW-6, MW-5, MW-4, MW-3 -> No lock

MW-7 1/2 bolts missing

MW-16 1/2 " "

MW-9 1/2 " "

MW-8 2/2 " "

WELLHEAD INSPECTION CHECKLIST

Client SES Date 3/27/14

Site Address 65th & Bay St., Emeryville

Job Number 140327-PC1 Technician PC

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

NOTES:

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Bay Center Apts. Emeryville				PROJECT NUMBER 140327-PC1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. °C	INITIALS
Myron L	621208	3/27/14	4.0/7.0/10pH 3900	4.00/7.00/10.00 3901	Y Y	12.9 12.8	PC
↓	↓	3/28/14	↓	4.01/7.00/10.00 3900	Y Y	12.5 12.5	↓

WELL MONITORING DATA SHEET

Project #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/28/14
Well I.D.: MW- 3	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): –	Depth to Water (DTW): 9.64
Depth to Free Product: 9.61	Thickness of Free Product (feet): 0.03
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
0920	Pump for 6 minutes Prior to sample					LDAPL
0926	stop Pumping					

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

Sampling Date: 3/28/14 Sampling Time: 0930 Depth to Water: –

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.88	Depth to Water (DTW): 7.72
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]: 11.15	

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: ____

2.7 (Gals.) X	3	= 8.1 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
0909	15.4	6.46	1056	90	2.7	
0917	15.3	7.07	1006	172	5.4	
0925	15.0	7.27	991.1	99	8.1	

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/27/14 Sampling Time: 0930 Depth to Water: 11.00

Sample I.D.: MW-4 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.86	Depth to Water (DTW): 9.68
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]: 12.72	

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: ____

2.4 (Gals.) X 3 = 7.2 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
0952	16.4	7.87	2101	536	2.4	
0959	well	dewatered				
1400	16.6	8.41	2167	236		

Did well dewater? (Yes) No Gallons actually evacuated: 4.2

Sampling Date: 3/27/14 Sampling Time: 1400 Depth to Water: 10.11

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-6	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.30	Depth to Water (DTW): 6.33
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]: 9.72	

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: _____

2.7 (Gals.) X	3	=	8.1 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
1020	14.1	11.32 ✓✓	1339	22	2.7	odor
1028	14.2	11.37	1361	11	5.4	↓
1036	14.1	11.40	1352	8	8.1	↓

Did well dewater? Yes (No) Gallons actually evacuated: 8.1

Sampling Date: 3/27/14 Sampling Time: 1044 Depth to Water: 7.11

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW- 7	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.80	Depth to Water (DTW): 10.82
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]: 12.62	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1120	14.8	8.37	11.07	211	0.2	
1125	15.2	8.42	12.49	309	0.4	
1130	15.0	8.46	12.41	251	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1144 Depth to Water: 12.60

Sample I.D.: MW- 7 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: DW	Date: 3/27/14
Well I.D.: MW- 8	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD):	Depth to Water (DTW): 10.22
Depth to Free Product: 10.19	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
* 1332		Began purging well		200 ml/min		LOAD
* 1338		Purge Stopped				

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

Sampling Date: 3/27/14 Sampling Time: 1340 Depth to Water: 10.50

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-9	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.73	Depth to Water (DTW): 10.01
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]: 11.95	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1208	15.3	9.68	2445	121	0.2	
1212	15.4	9.64	2516	96	0.4	
1217	15.5	9.69	2476	80	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1222 Depth to Water: 11.80

Sample I.D.: MW-9 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: DA	Date: 3/27/14
Well I.D.: MW-10	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): —	Depth to Water (DTW): 9.92
Depth to Free Product: 9.64	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
*	1307 Began	pursing	well	150 ml/min		LNAPL
*	1313 stopped	purse				

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

Sampling Date: 3/27/14 Sampling Time: 1315 Depth to Water: 10.15

Sample I.D.: MW-10 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW- 11	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.70	Depth to Water (DTW): 10.33
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]: 12.20	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1240	14.9	8.01	2281	96	0.2	odor
1244	15.0	7.91	2266	101	0.4	↓
1248	15.0	7.93	2248	82	0.6	↓

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

Sampling Date: 3/27/14 Sampling Time: 1254 Depth to Water: 12.02

Sample I.D.: MW- 11 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: RC	Date: 3/27/14
Well I.D.: MW-12	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.06	Depth to Water (DTW): 9.55
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]: 11.45	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1304	14.7	7.97	989.9	58	0.2	
1309	14.6	7.77	987.3	100	0.4	
1314	14.7	7.76	991.7	118	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1318 Depth to Water: 11.01

Sample I.D.: MW-12 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: JN	Date: 3/27/14
Well I.D.: MW- 13	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.54	Depth to Water (DTW): 9.58
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]: 11.57	

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

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

Other: New tubing

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1355	15.0	7.75	1947	73	0.2	
1359	14.8	7.33	1972	68	0.4	
1404	14.9	7.29	1979	62	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1405 Depth to Water: 9.80

Sample I.D.: MW- 13 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3 / 28 / 14
Well I.D.: MW- 14	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.60	Depth to Water (DTW): 9.48
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]: 11.50	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0834	14.9	8.09	1105	200	0.2	
0838	14.9	7.86	1090	112	0.4	
0842	14.9	7.89	1018	90	0.6	

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

Sampling Date: 3 / 28 / 14 Sampling Time: 0846 Depth to Water: 11.12

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/28/14
Well I.D.: MW-15	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 18.82	Depth to Water (DTW): 10.18
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]: 11.91	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0859	15.0	7.48	1005	25	0.2	
0903	15.0	7.36	1008	31	0.4	
0907	15.0	7.33	1009	41	0.6	

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

Sampling Date: 3/28/14 Sampling Time: 0912 Depth to Water: 11.61

Sample I.D.: MW-15 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-16	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.20	Depth to Water (DTW): 9.81
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]: 11.69	

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

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

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

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1328	15.1	10.34	3237	211	0.2	
1333	15.2	10.37	3336	200	0.4	
1338	15.2	10.31	3438	161	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1345 Depth to Water: 10.04

Sample I.D.: MW-16 Laboratory: Curtis & Tompkins

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/27/14
Well I.D.: MW-17	Well Diameter: 2 3 4 6 8 (3/4")
Total Well Depth (TD): 19.52	Depth to Water (DTW): 10.00
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]: 11.90	

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

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

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

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
1056	15.2	8.32	806.3	20	0.2	
1100	15.3	7.92	799.1	11	0.4	
1104	15.3	7.89	793.7	10	0.6	

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

Sampling Date: 3/27/14 Sampling Time: 1108 Depth to Water: 10.02

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/28/14
Well I.D.: MW- 18	Well Diameter: 2 3 4 6 8 (3/4)
Total Well Depth (TD): 19.62	Depth to Water (DTW): 9.19
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]: 11.28	

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)

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

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
0812	15.0	7.21	6947	816	0.2	black
0816	15.0	7.23	7359	600	0.4	↓
0820	15.2	7.25	7489	511	0.6	↓

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

Sampling Date: 3/28/14 Sampling Time: 0824 Depth to Water: 9.91

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/28/14
Well I.D.: MW- 6	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 45.58	Depth to Water (DTW): 10.15
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 17.24	

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)

5.7 (Gals.) X 3 = 17.1 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
0750	16.3	8.68	2736	29	5.7	
0758	Well dewatered @ 6.2 gal					
1008	16.2	7.96	2819	120	—	

Did well dewater? (Yes) No Gallons actually evacuated: 6.2

Sampling Date: 3/28/14 Sampling Time: 1005 Depth to Water: 11.00

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

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 #: 140327-PC1	Client: Stellar Environmental Solutions
Sampler: PC	Date: 3/28/14
Well I.D.: RW-1	Well Diameter: 2 3 4 6 8 (10)
Total Well Depth (TD): -	Depth to Water (DTW): 9.13
Depth to Free Product: 9.12	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
0942	Run Pump for 6 min prior to sample					LNAPL
0948						

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: 3/28/14 Sampling Time: 0952 Depth to Water:

Sample I.D.: RW-1 Laboratory: Curtis & Tompkins

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

APPENDIX C

March 2014 Groundwater Monitoring Event

Analytical Laboratory Report and Chain-of-Custody Record


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 255046
ANALYTICAL REPORT

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

Sample ID	Lab ID
MW-4	255046-001
MW-5	255046-002
MW-6	255046-003
MW-17	255046-004
MW-7	255046-005
MW-9	255046-006
MW-11	255046-007
MW-12	255046-008
MW-16	255046-009
MW-8	255046-010
MW-10	255046-011
MW-13	255046-012

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

Signature: Tracy Babjar Date: 04/03/2014

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

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**255046**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**03/27/14**
Samples Received:	**03/27/14**

This data package contains sample and QC results for twelve water samples, requested for the above referenced project on 03/27/14. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
MW-17 (lab # 255046-004), MW-7 (lab # 255046-005), and MW-13 (lab # 255046-012) had pH greater than 2. No other analytical problems were encountered.

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

255046

Chain of Custody Record

Lab job no. _____
Date _____
Page 1 of 1

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) [signature]

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TEH-D (8015M)	TPH-G (8015M)	BTEX & MTBE	Remarks
1	MW-4		3/27/14	0930	GW	4x VOA w/HCl / 2x 500 mL AGNP		HCl / NP			X	X	X	
2	MW-5			1400							X	X	X	
3	MW-6			1044							X	X	X	
4	MW-17			1108							X	X	X	
5	MW-7			1144							X	X	X	
6	MW-9			1222							X	X	X	
7	MW-11			1256							X	X	X	
8	MW-12			1318		1					X	X	X	
9	MW-16			1345							X	X	X	
10	MW-8			1340							X	X	X	
11	MW-10			1313							X	X	X	
12	MW-13			1405							X	X	X	

Relinquished by:	Date	Received by:	Date
Signature [signature]	3/27/14	Signature [signature]	3/27/14
Printed Daniel Allen	Time	Printed Tracy Bobier	Time
Company Blaine Tech	1430	Company CETT	1430

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

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

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

2000-00-01

★ Stellar Environmental Solutions

Cold Chain

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 255046 Date Received 3/27/14 Number of coolers 2
Client SES Project BAY CENTER APARTMENT (2007-05)
Date Opened 3/27/14 By (print) IR (sign) Ilina Raikova
Date Logged in b By (print) m (sign) M

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) _____

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

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

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

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-4	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-001		

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

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	77-128	EPA 8015B
Bromofluorobenzene (PID)	112	75-132	EPA 8021B

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-002		

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)	100	77-128	EPA 8015B
Bromofluorobenzene (PID)	113	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-003		

Analyte	Result	RL	Analysis
Gasoline C7-C12	65 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	0.81	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	99	77-128	EPA 8015B
Bromofluorobenzene (PID)	112	75-132	EPA 8021B

Field ID:	MW-17	Diln Fac:	33.33
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-004		

Analyte	Result	RL	Analysis
Gasoline C7-C12	8,600	1,700	EPA 8015B
MTBE	ND	67	EPA 8021B
Benzene	1,800	17	EPA 8021B
Toluene	150	17	EPA 8021B
Ethylbenzene	320	17	EPA 8021B
m,p-Xylenes	92	17	EPA 8021B
o-Xylene	26	17	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	102	77-128	EPA 8015B
Bromofluorobenzene (PID)	118	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-7	Diln Fac:	14.29
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-005		

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,900	710	EPA 8015B
MTBE	ND	29	EPA 8021B
Benzene	440	7.1	EPA 8021B
Toluene	22	7.1	EPA 8021B
Ethylbenzene	14	7.1	EPA 8021B
m,p-Xylenes	53	7.1	EPA 8021B
o-Xylene	10	7.1	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	95	77-128	EPA 8015B
Bromofluorobenzene (PID)	111	75-132	EPA 8021B

Field ID:	MW-9	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-006		

Analyte	Result	RL	Analysis
Gasoline C7-C12	140 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	9.8	0.50	EPA 8021B
Toluene	2.0 C	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	103	77-128	EPA 8015B
Bromofluorobenzene (PID)	118	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-007		

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,000 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	60	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	3.8 C	0.50	EPA 8021B
m,p-Xylenes	9.9	0.50	EPA 8021B
o-Xylene	4.3	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	100	77-128	EPA 8015B
Bromofluorobenzene (PID)	114	75-132	EPA 8021B

Field ID:	MW-12	Diln Fac:	50.00
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-008		

Analyte	Result	RL	Analysis
Gasoline C7-C12	10,000 Y	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	2,500	25	EPA 8021B
Toluene	89	25	EPA 8021B
Ethylbenzene	68	25	EPA 8021B
m,p-Xylenes	55	25	EPA 8021B
o-Xylene	ND	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	96	77-128	EPA 8015B
Bromofluorobenzene (PID)	111	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-16	Diln Fac:	1.000
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-009		

Analyte	Result	RL	Analysis
Gasoline C7-C12	76 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	11	0.50	EPA 8021B
Toluene	1.2	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	0.94 C	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	104	77-128	EPA 8015B
Bromofluorobenzene (PID)	117	75-132	EPA 8021B

Field ID:	MW-8	Diln Fac:	100.0
Type:	SAMPLE	Analyzed:	03/28/14
Lab ID:	255046-010		

Analyte	Result	RL	Analysis
Gasoline C7-C12	23,000 Y	5,000	EPA 8015B
MTBE	ND	200	EPA 8021B
Benzene	6,800	50	EPA 8021B
Toluene	96	50	EPA 8021B
Ethylbenzene	620	50	EPA 8021B
m,p-Xylenes	200	50	EPA 8021B
o-Xylene	ND	50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	93	77-128	EPA 8015B
Bromofluorobenzene (PID)	107	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Batch#:	209509		

Field ID:	MW-10	Diln Fac:	20.00
Type:	SAMPLE	Analyzed:	03/29/14
Lab ID:	255046-011		

Analyte	Result	RL	Analysis
Gasoline C7-C12	6,200 Y	1,000	EPA 8015B
MTBE	ND	40	EPA 8021B
Benzene	940	10	EPA 8021B
Toluene	43 C	10	EPA 8021B
Ethylbenzene	ND	10	EPA 8021B
m,p-Xylenes	39	10	EPA 8021B
o-Xylene	14 C	10	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	106	77-128	EPA 8015B
Bromofluorobenzene (PID)	120	75-132	EPA 8021B

Field ID:	MW-13	Diln Fac:	100.0
Type:	SAMPLE	Analyzed:	03/29/14
Lab ID:	255046-012		

Analyte	Result	RL	Analysis
Gasoline C7-C12	20,000	5,000	EPA 8015B
MTBE	ND	200	EPA 8021B
Benzene	3,700	50	EPA 8021B
Toluene	120	50	EPA 8021B
Ethylbenzene	710	50	EPA 8021B
m,p-Xylenes	310	50	EPA 8021B
o-Xylene	51	50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	95	77-128	EPA 8015B
Bromofluorobenzene (PID)	109	75-132	EPA 8021B

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC733920	Analyzed:	03/28/14

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

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	92	77-128	EPA 8015B
Bromofluorobenzene (PID)	103	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	209509
Units:	ug/L	Analyzed:	03/28/14
Diln Fac:	1.000		

Type: BS Lab ID: QC733917

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.556	96	74-132
Benzene	10.00	9.410	94	80-120
Toluene	10.00	9.035	90	80-120
Ethylbenzene	10.00	9.607	96	80-120
m,p-Xylenes	10.00	9.226	92	80-120
o-Xylene	10.00	9.360	94	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	104	75-132

Type: BSD Lab ID: QC733918

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	7.942	79	74-132	18	36
Benzene	10.00	8.738	87	80-120	7	20
Toluene	10.00	8.213	82	80-120	10	20
Ethylbenzene	10.00	8.382	84	80-120	14	20
m,p-Xylenes	10.00	8.748	87	80-120	5	20
o-Xylene	10.00	8.442	84	80-120	10	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	75-132

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	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:	QC733919	Batch#:	209509
Matrix:	Water	Analyzed:	03/28/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	985.2	99	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	77-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-4	Batch#:	209509
MSS Lab ID:	255046-001	Sampled:	03/27/14
Matrix:	Water	Received:	03/27/14
Units:	ug/L	Analyzed:	03/29/14
Diln Fac:	1.000		

Type: MS Lab ID: QC733949

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	39.81	2,000	1,925	94	74-120

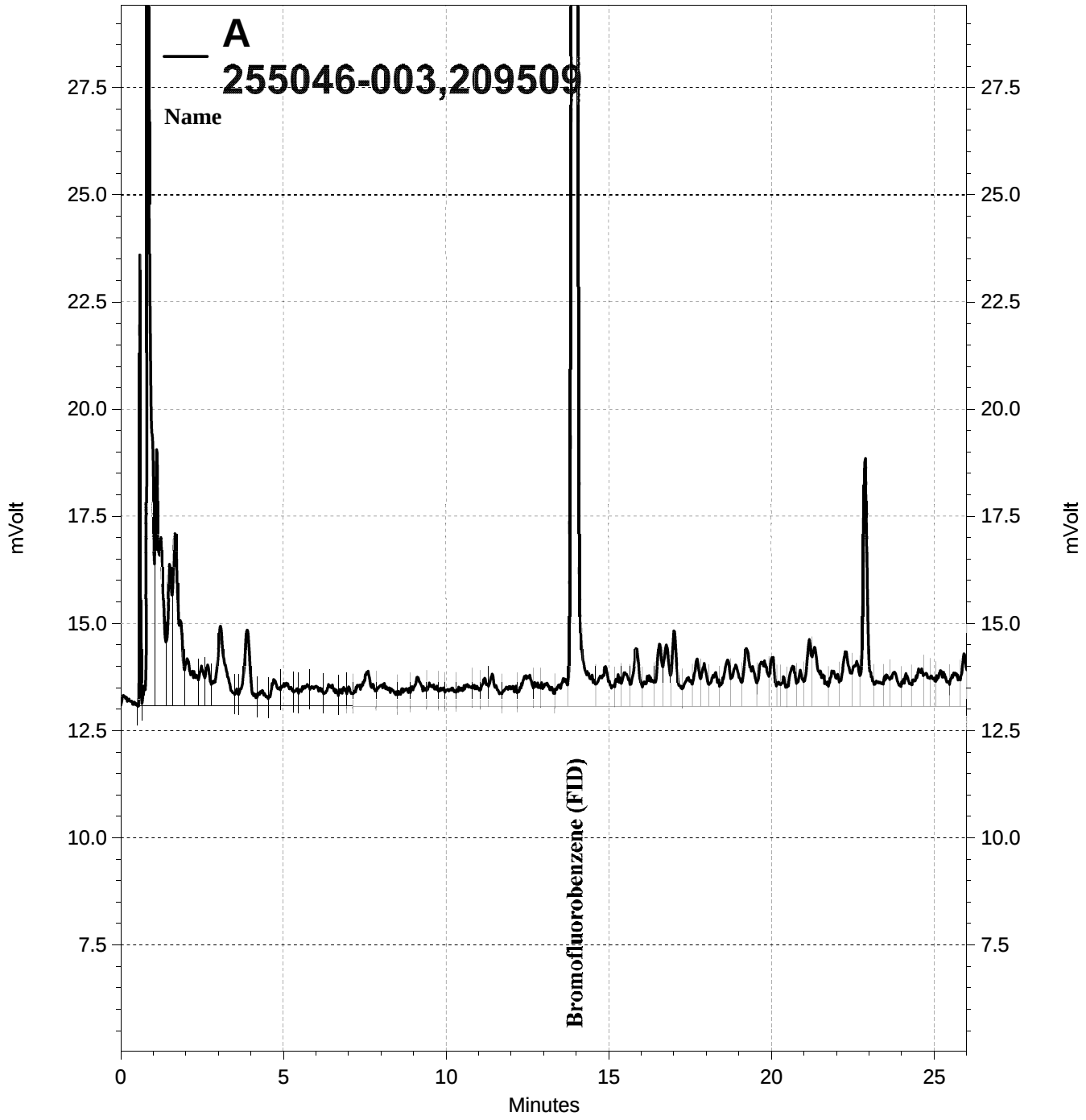
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	77-128

Type: MSD Lab ID: QC733950

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,905	93	74-120	1	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	77-128

RPD= Relative Percent Difference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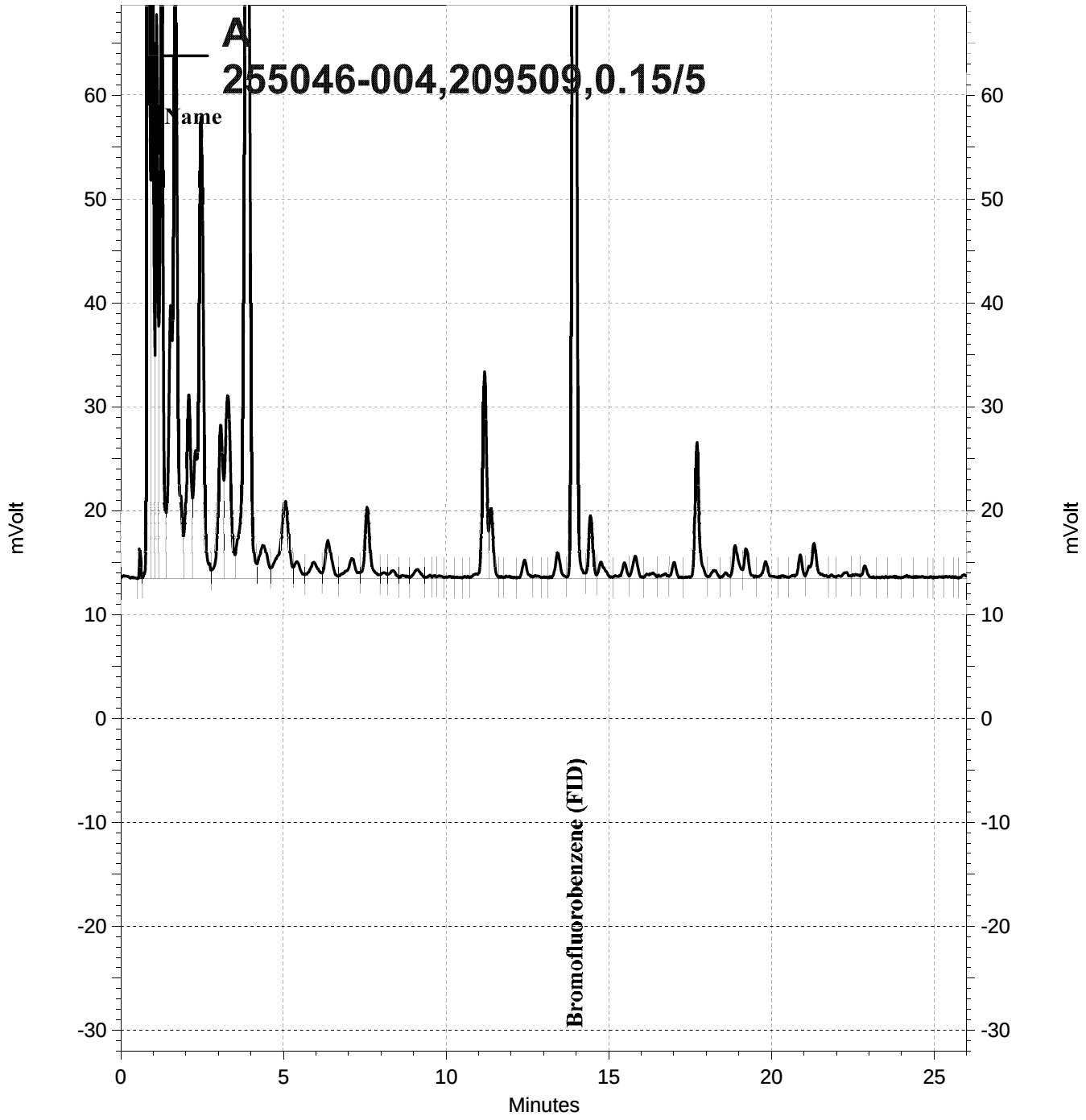

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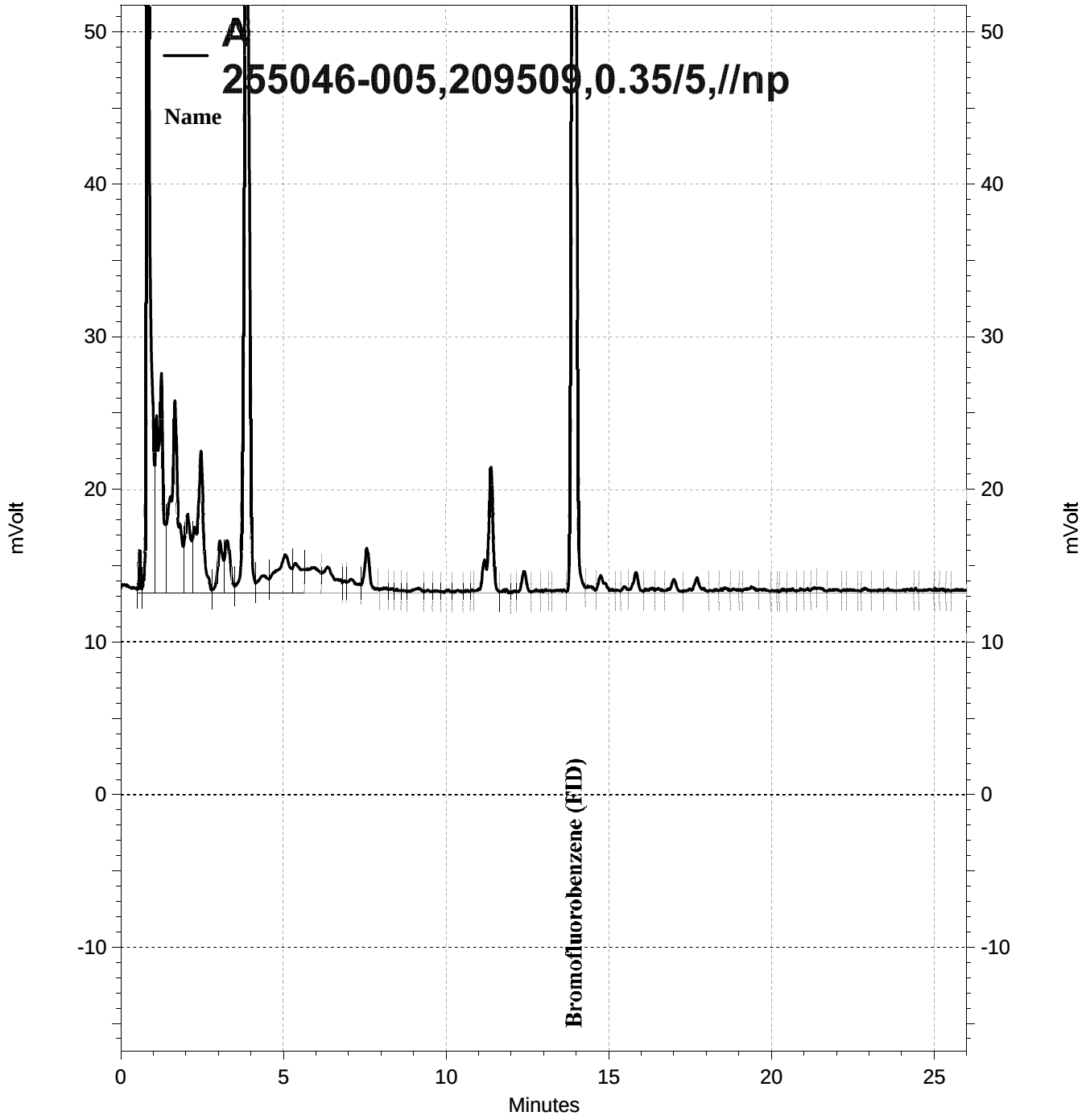

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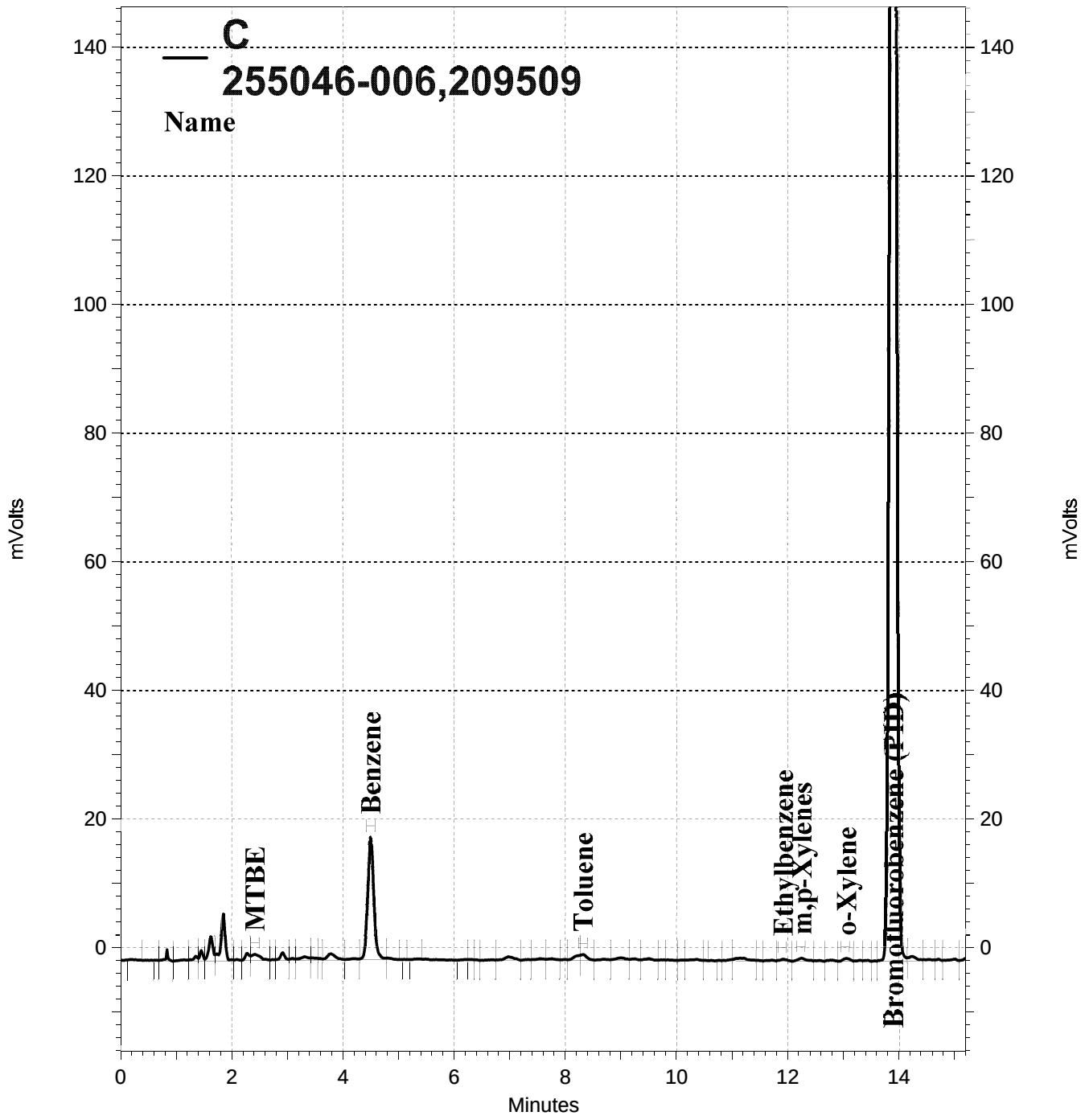

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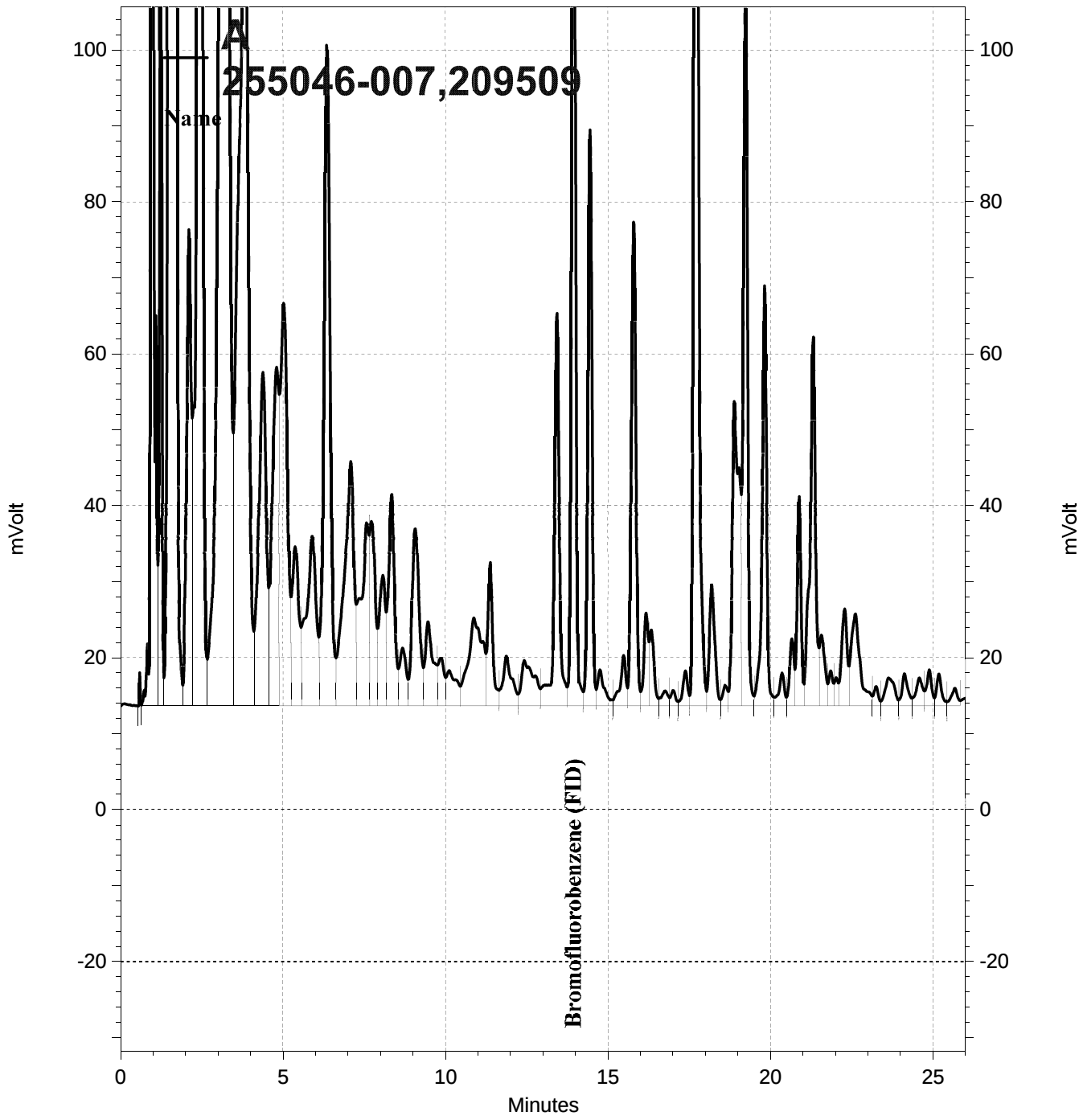

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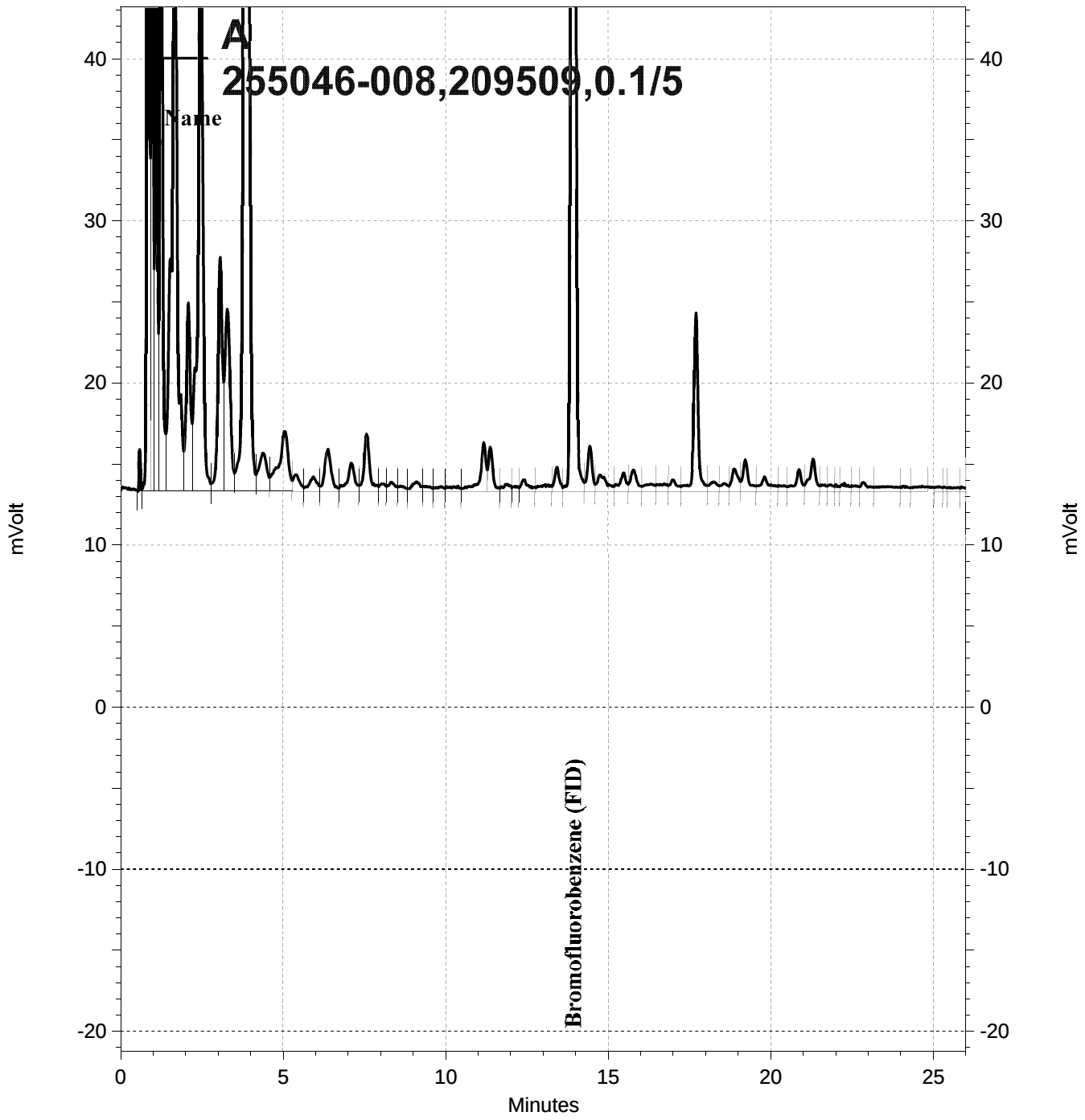

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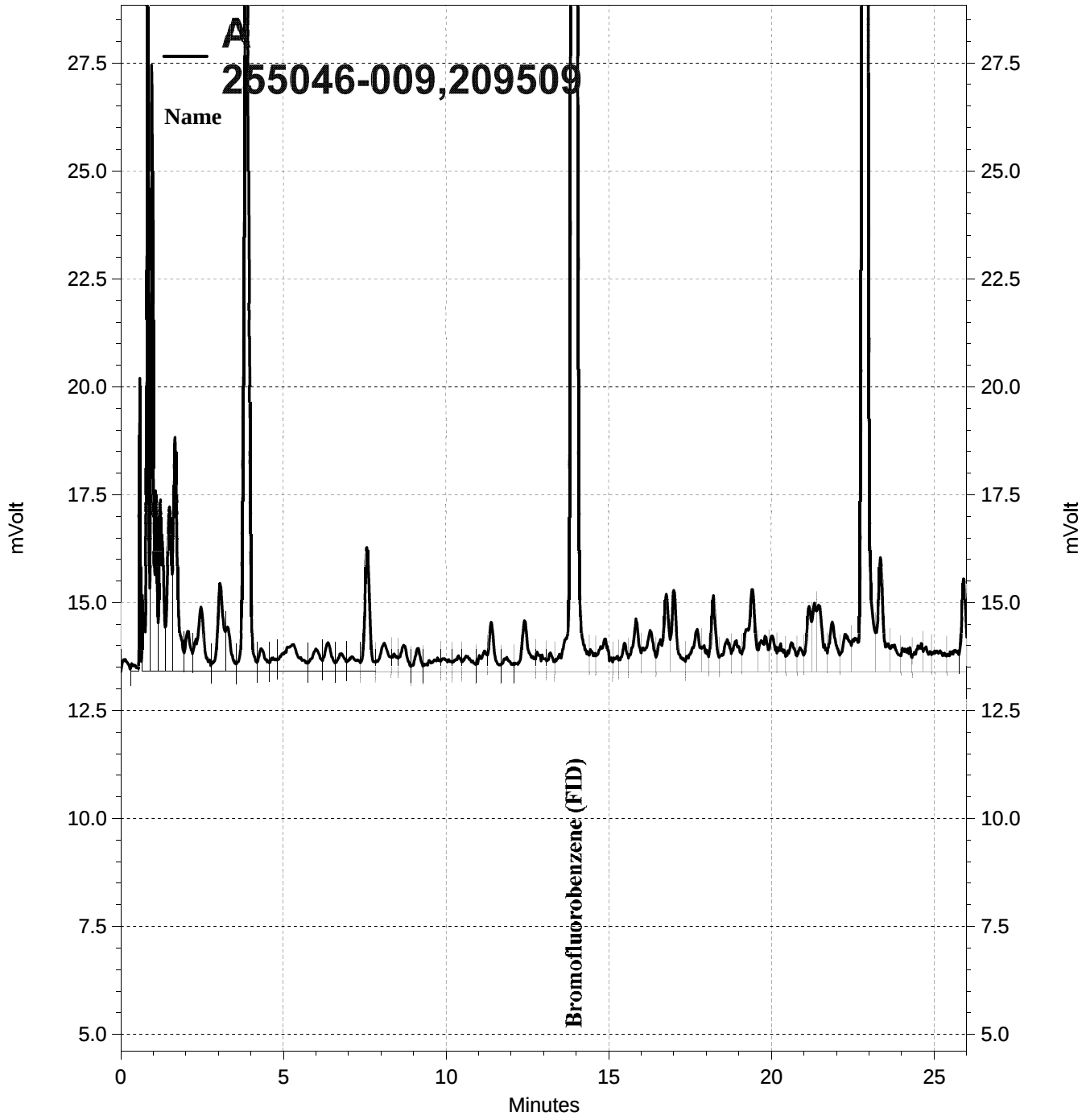

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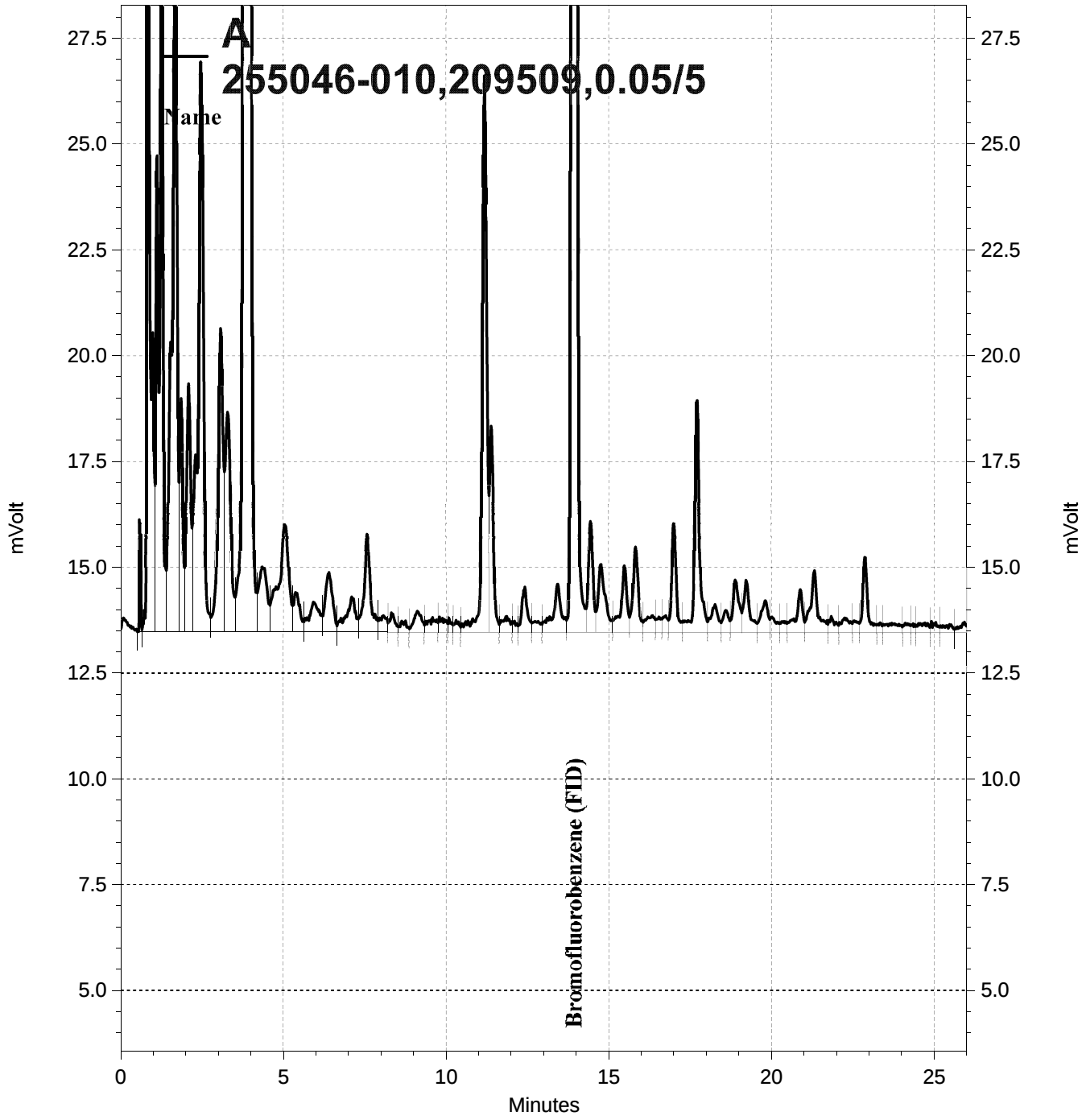
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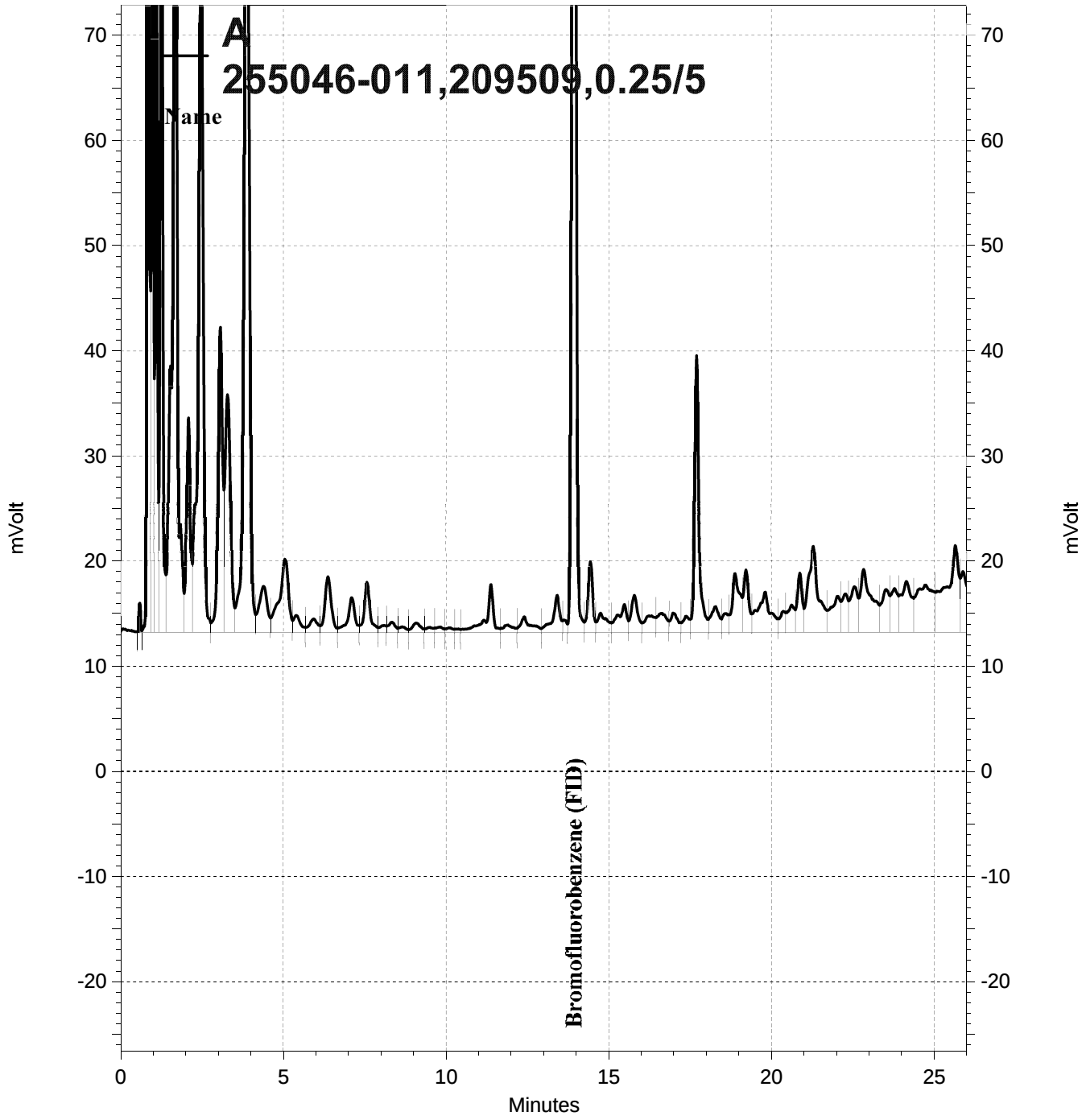
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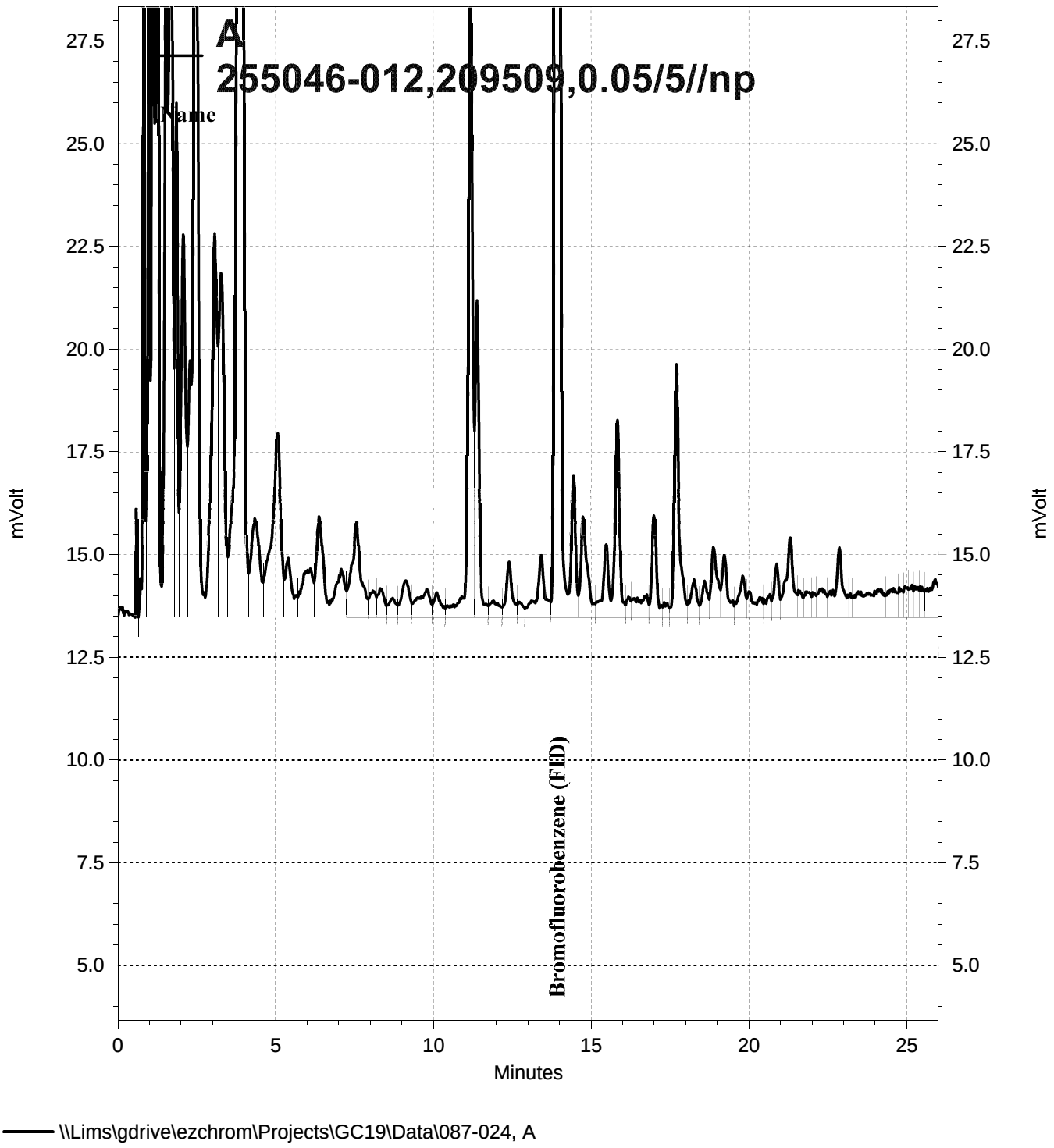

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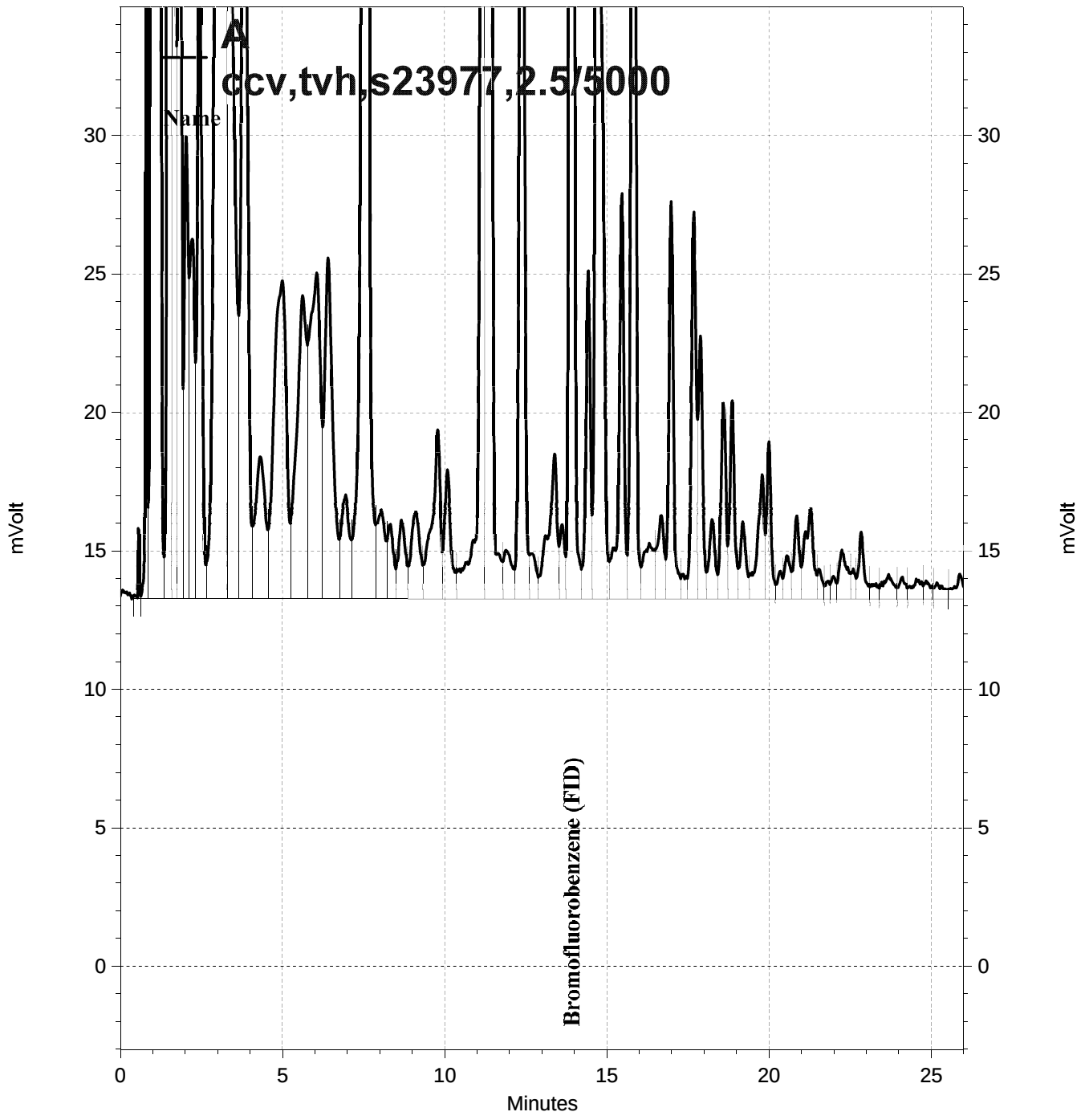

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Diln Fac:	1.000	Prepared:	03/31/14
Batch#:	209574	Analyzed:	04/02/14

Field ID: MW-4 Lab ID: 255046-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	380	49

Surrogate	%REC	Limits
o-Terphenyl	111	66-129

Field ID: MW-5 Lab ID: 255046-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	2,300	50

Surrogate	%REC	Limits
o-Terphenyl	102	66-129

Field ID: MW-6 Lab ID: 255046-003
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	830	49

Surrogate	%REC	Limits
o-Terphenyl	97	66-129

Field ID: MW-17 Lab ID: 255046-004
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	2,600	49

Surrogate	%REC	Limits
o-Terphenyl	107	66-129

Field ID: MW-7 Lab ID: 255046-005
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	8,200	51

Surrogate	%REC	Limits
o-Terphenyl	70	66-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Diln Fac:	1.000	Prepared:	03/31/14
Batch#:	209574	Analyzed:	04/02/14

Field ID: MW-9 Lab ID: 255046-006
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	7,300	49

Surrogate	%REC	Limits
o-Terphenyl	82	66-129

Field ID: MW-11 Lab ID: 255046-007
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	5,700	49

Surrogate	%REC	Limits
o-Terphenyl	97	66-129

Field ID: MW-12 Lab ID: 255046-008
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	4,500	49

Surrogate	%REC	Limits
o-Terphenyl	106	66-129

Field ID: MW-16 Lab ID: 255046-009
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	5,900	49

Surrogate	%REC	Limits
o-Terphenyl	71	66-129

Field ID: MW-8 Lab ID: 255046-010
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	13,000	49

Surrogate	%REC	Limits
o-Terphenyl	111	66-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/27/14
Units:	ug/L	Received:	03/27/14
Diln Fac:	1.000	Prepared:	03/31/14
Batch#:	209574	Analyzed:	04/02/14

Field ID: MW-10 Lab ID: 255046-011
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	3,300	50

Surrogate	%REC	Limits
o-Terphenyl	109	66-129

Field ID: MW-13 Lab ID: 255046-012
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	19,000	49

Surrogate	%REC	Limits
o-Terphenyl	101	66-129

Type: BLANK Lab ID: QC734181

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	83	66-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	255046	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	209574
Units:	ug/L	Prepared:	03/31/14
Diln Fac:	1.000	Analyzed:	04/02/14

Type: BS
Lab ID: QC734182
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,543	62	61-120

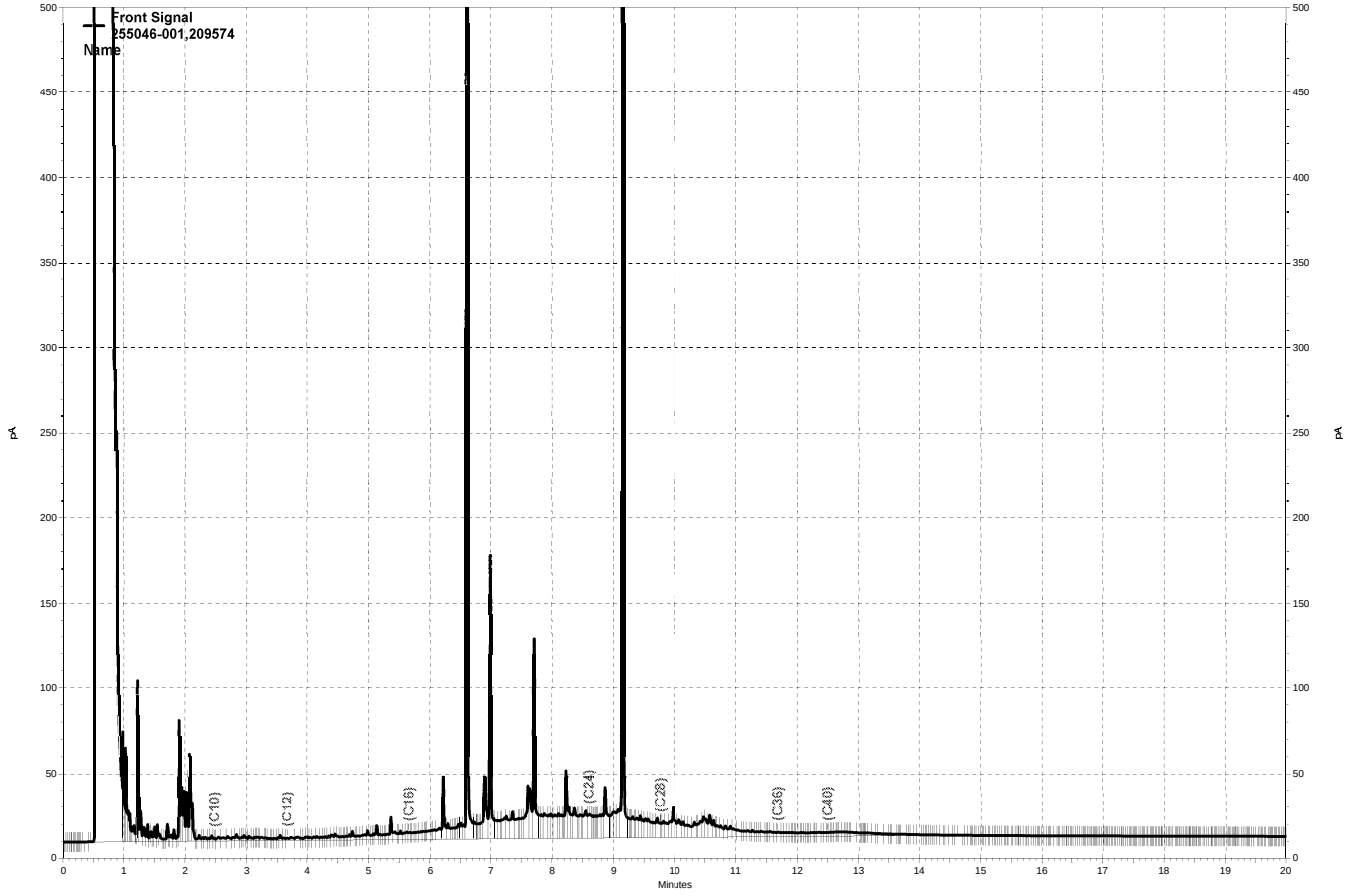
Surrogate	%REC	Limits
o-Terphenyl	116	66-129

Type: BSD
Lab ID: QC734183
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,597	64	61-120	3	45

Surrogate	%REC	Limits
o-Terphenyl	121	66-129

RPD= Relative Percent Difference



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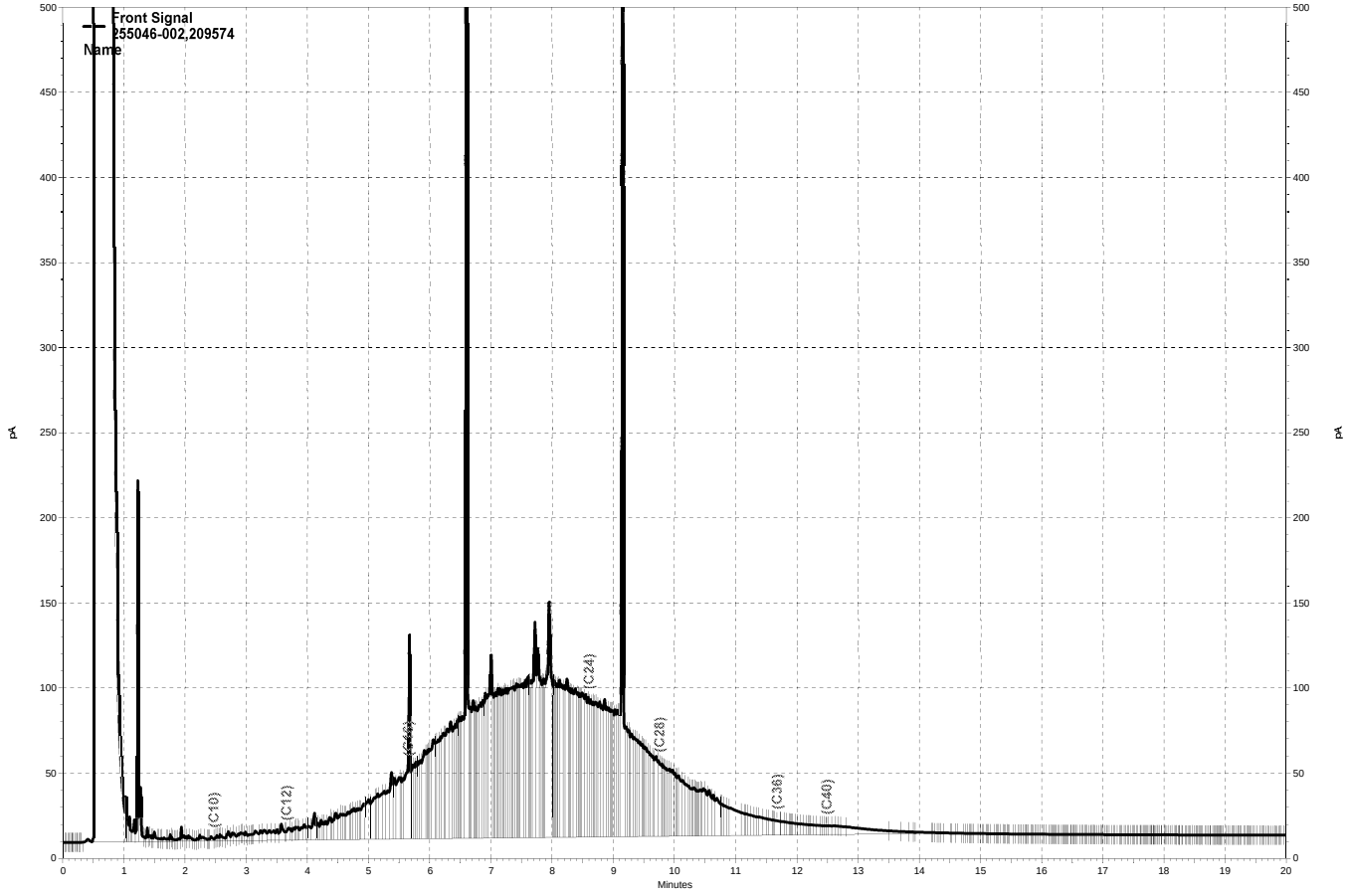

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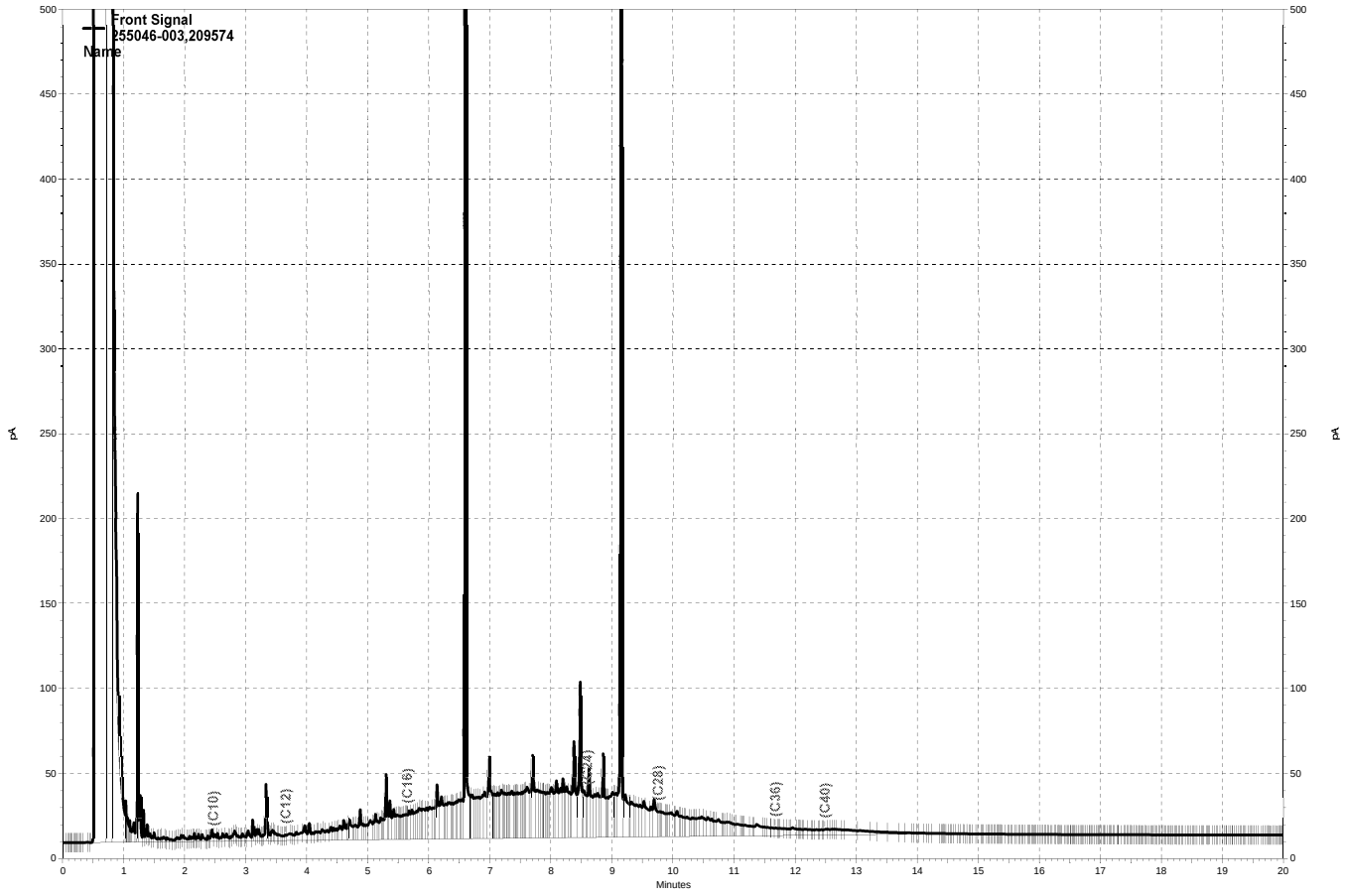

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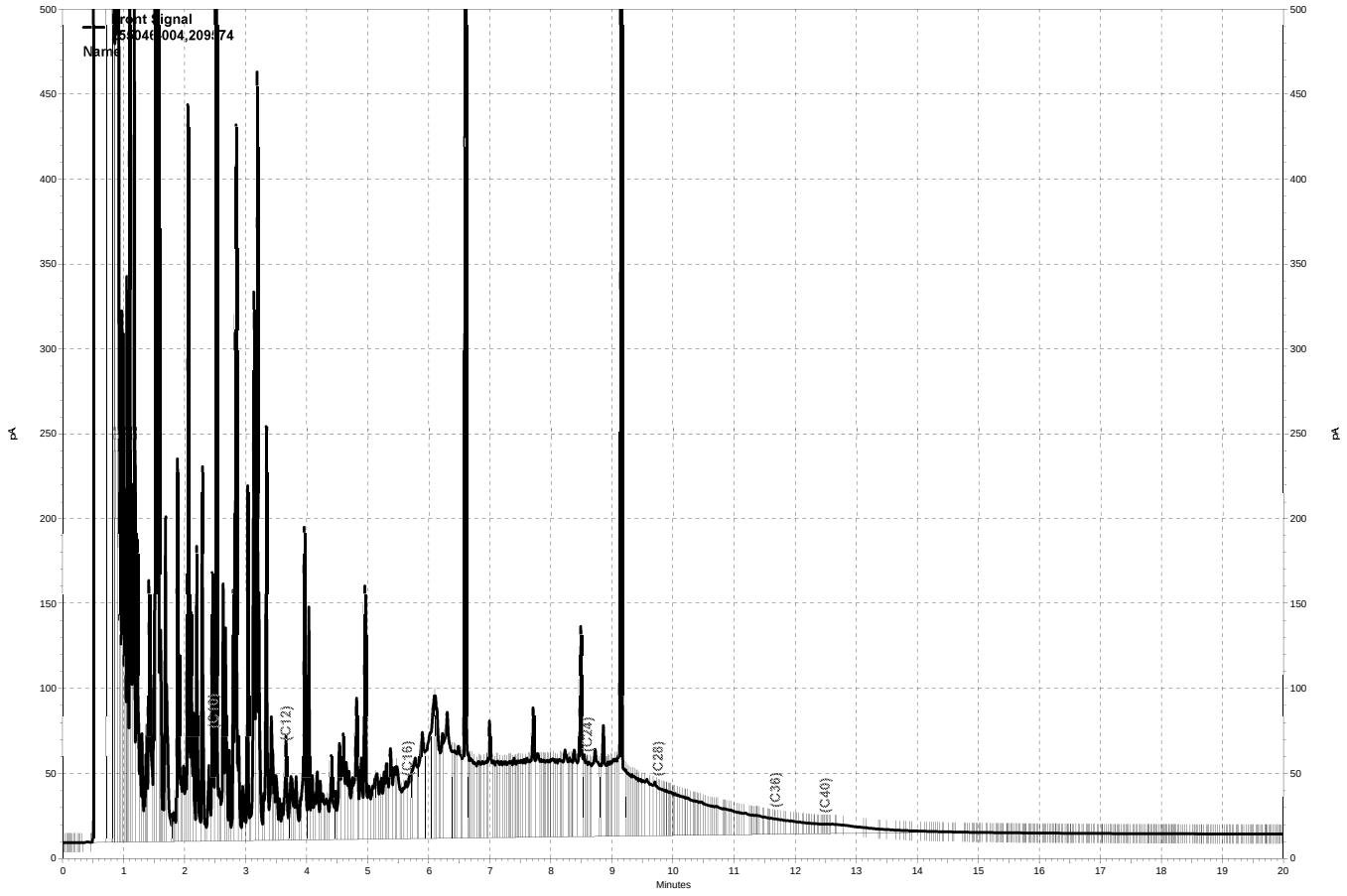

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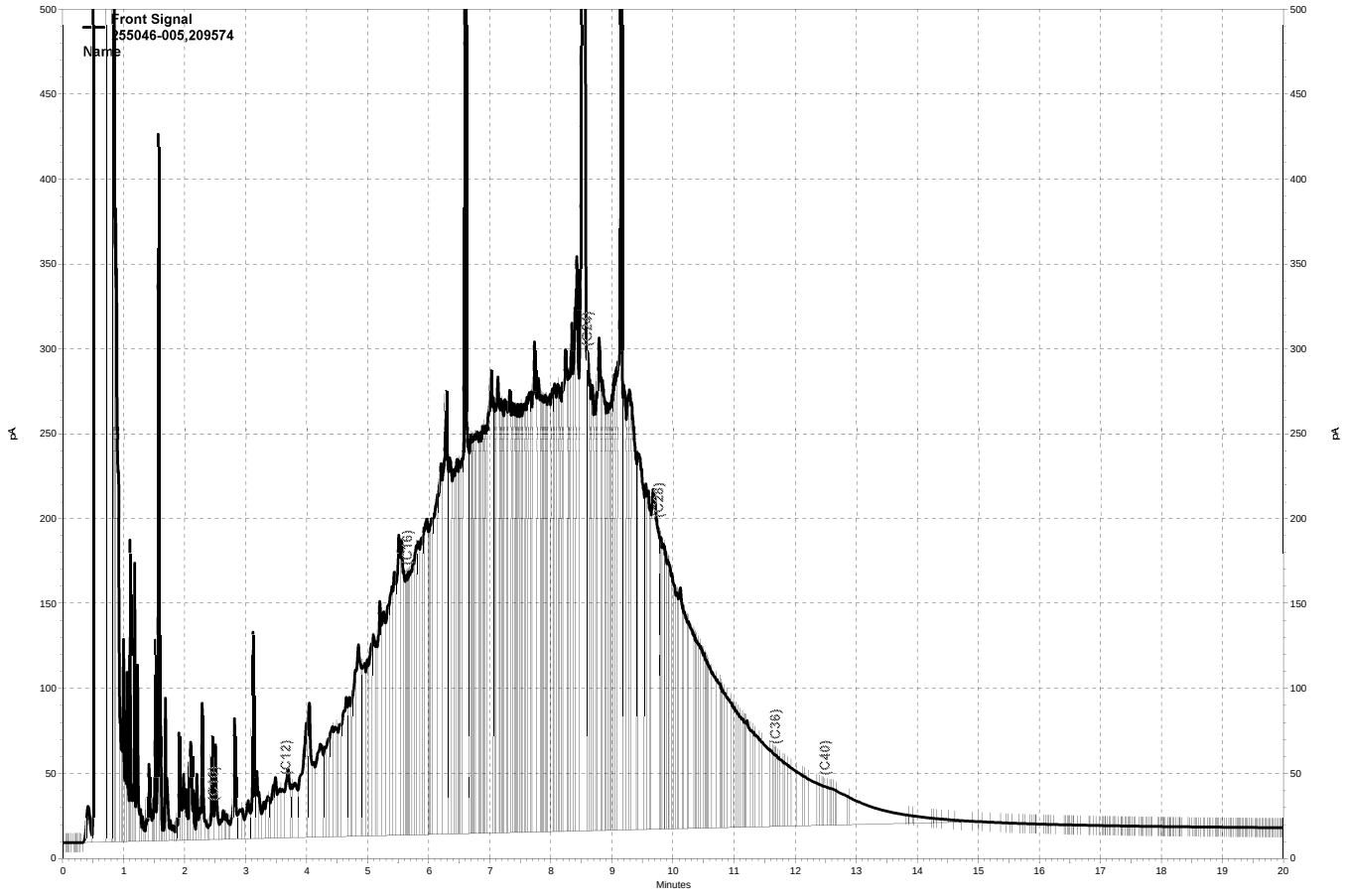

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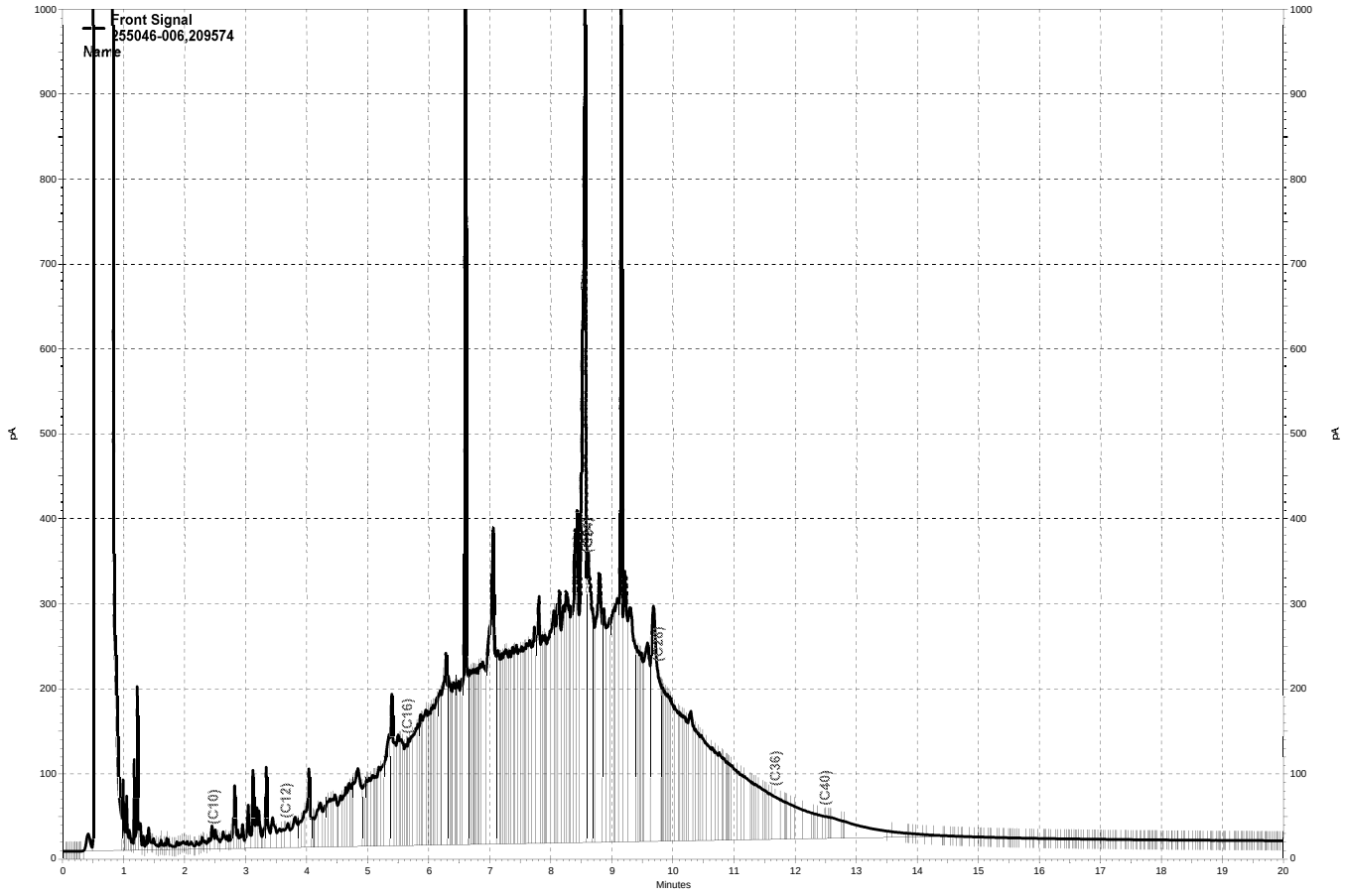

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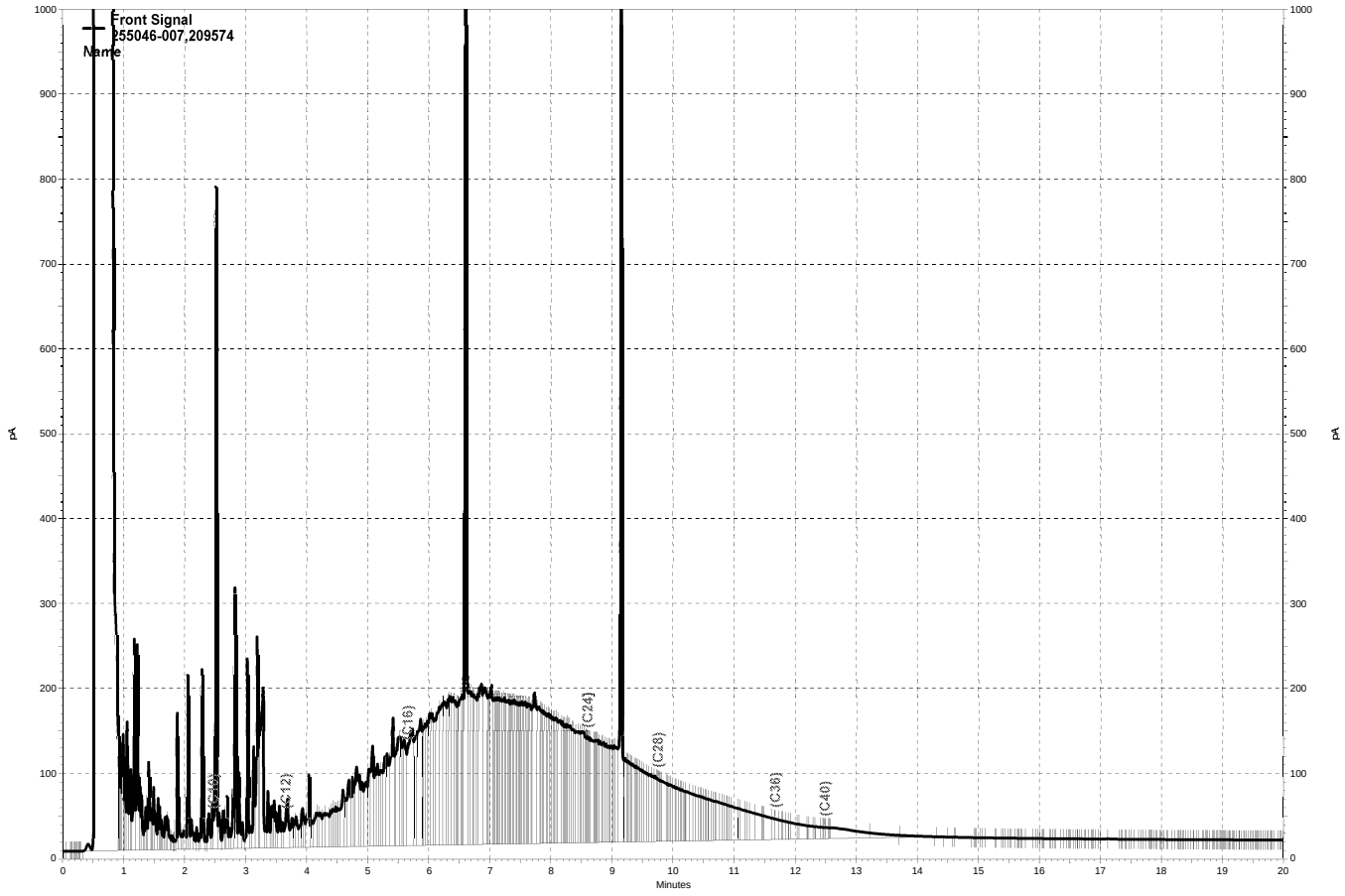

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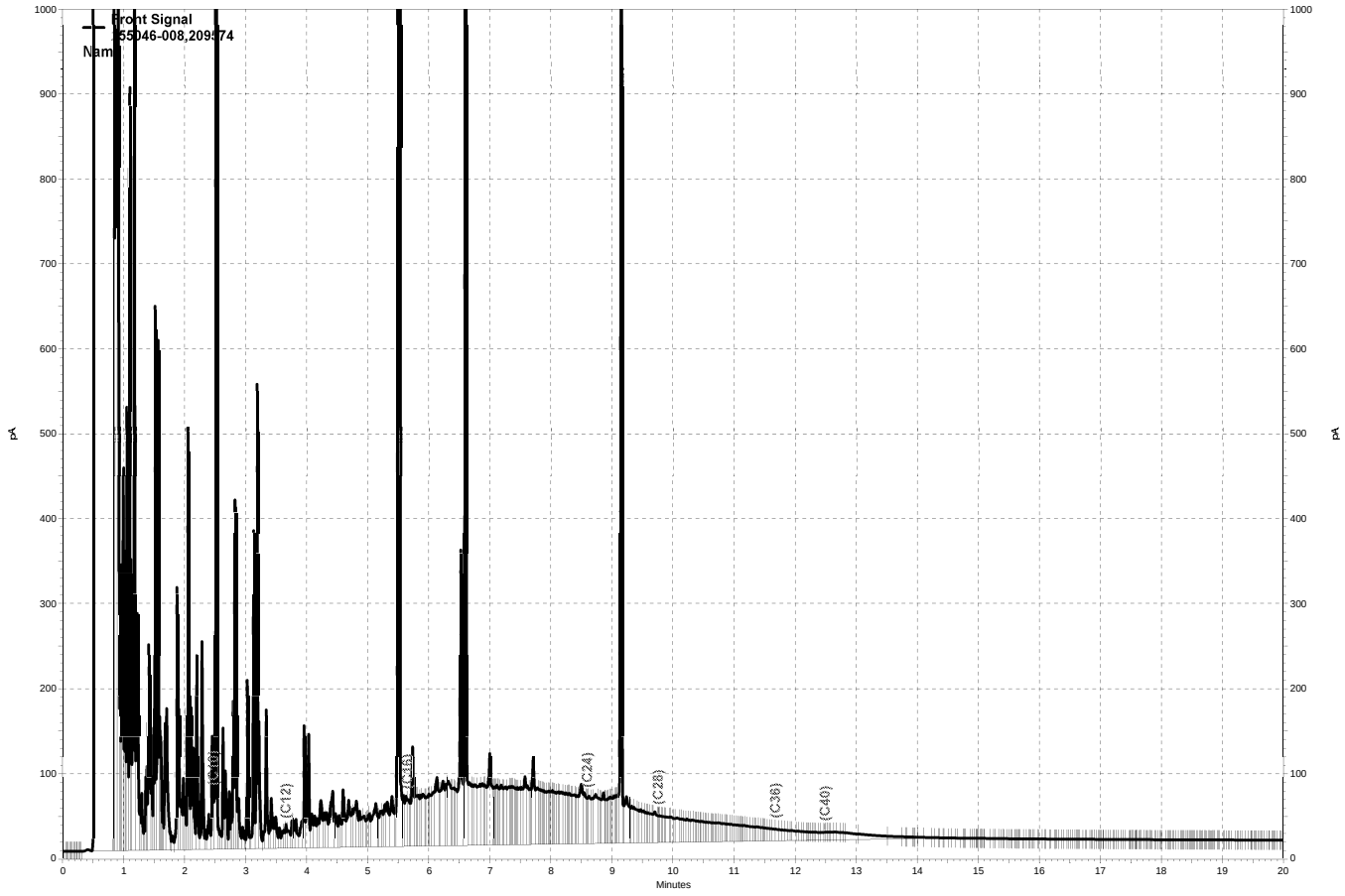

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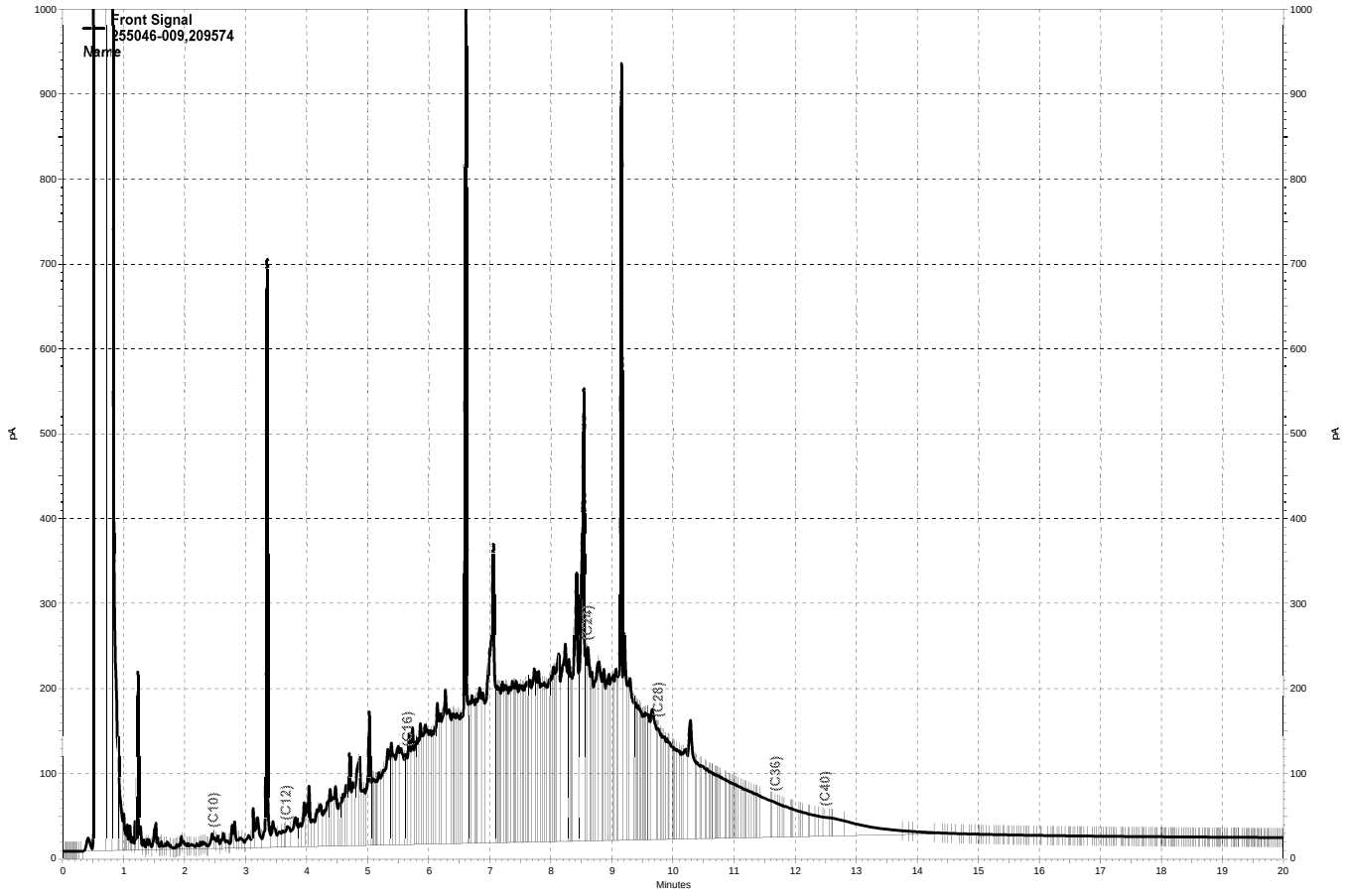

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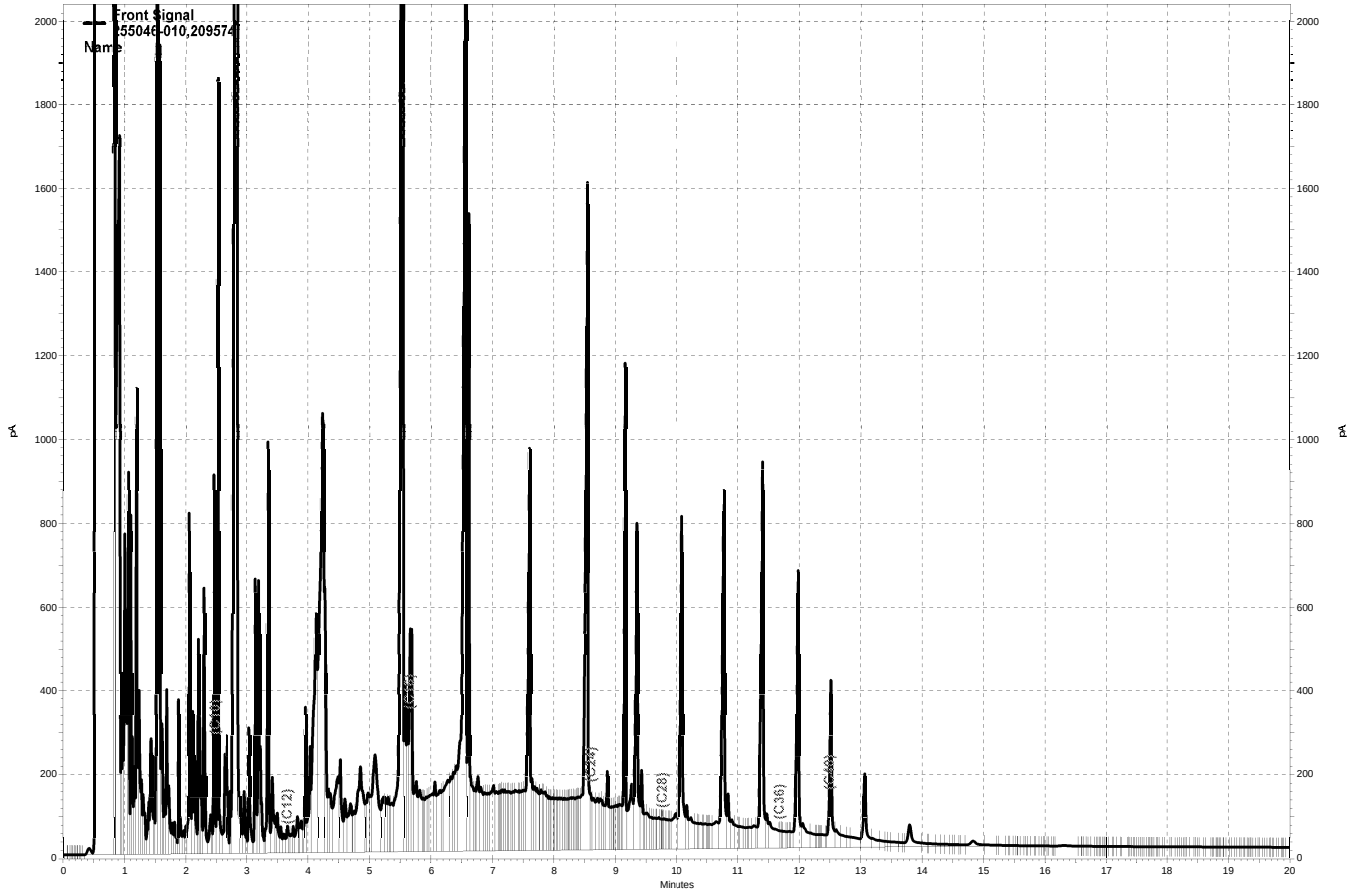

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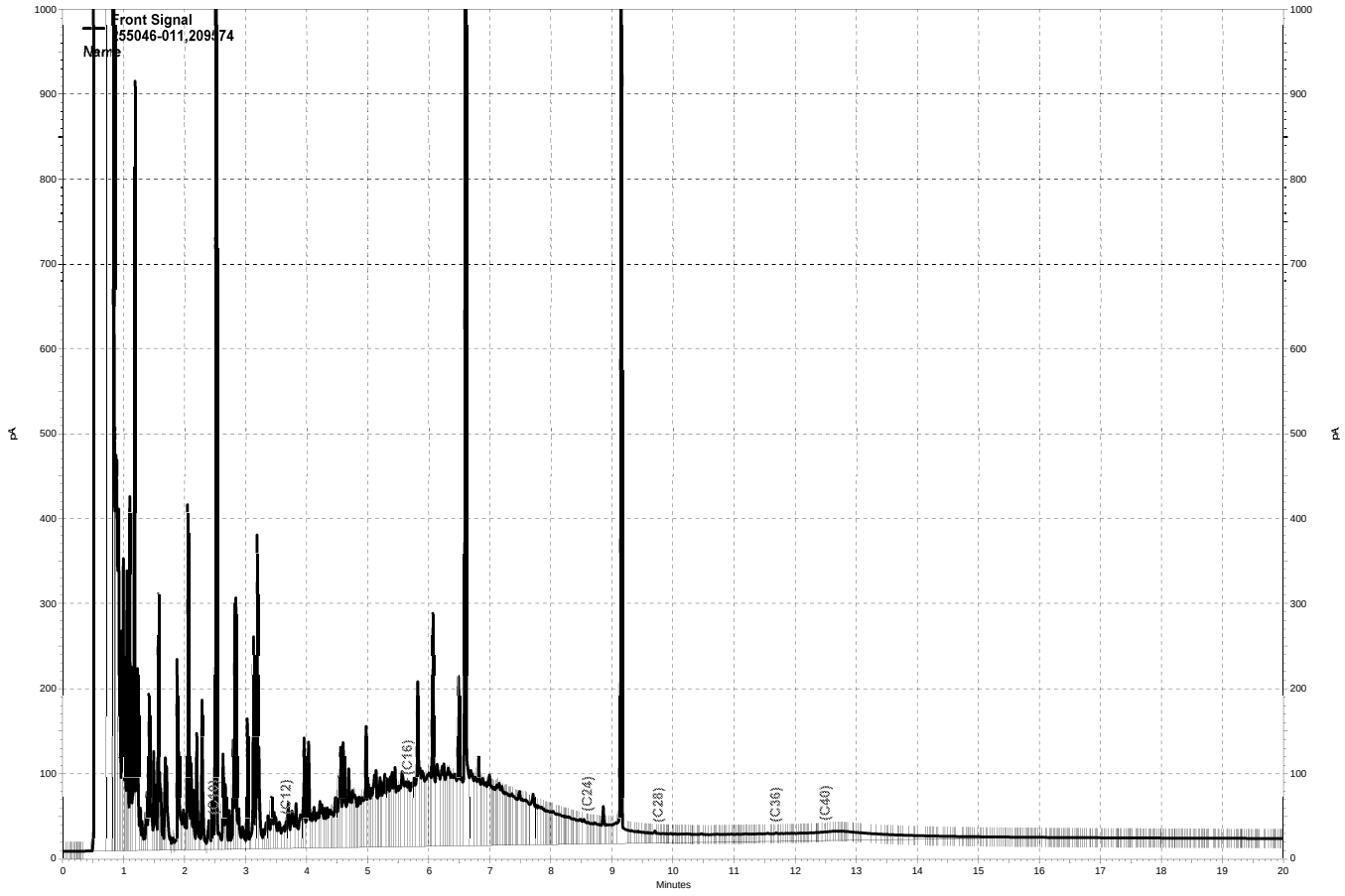

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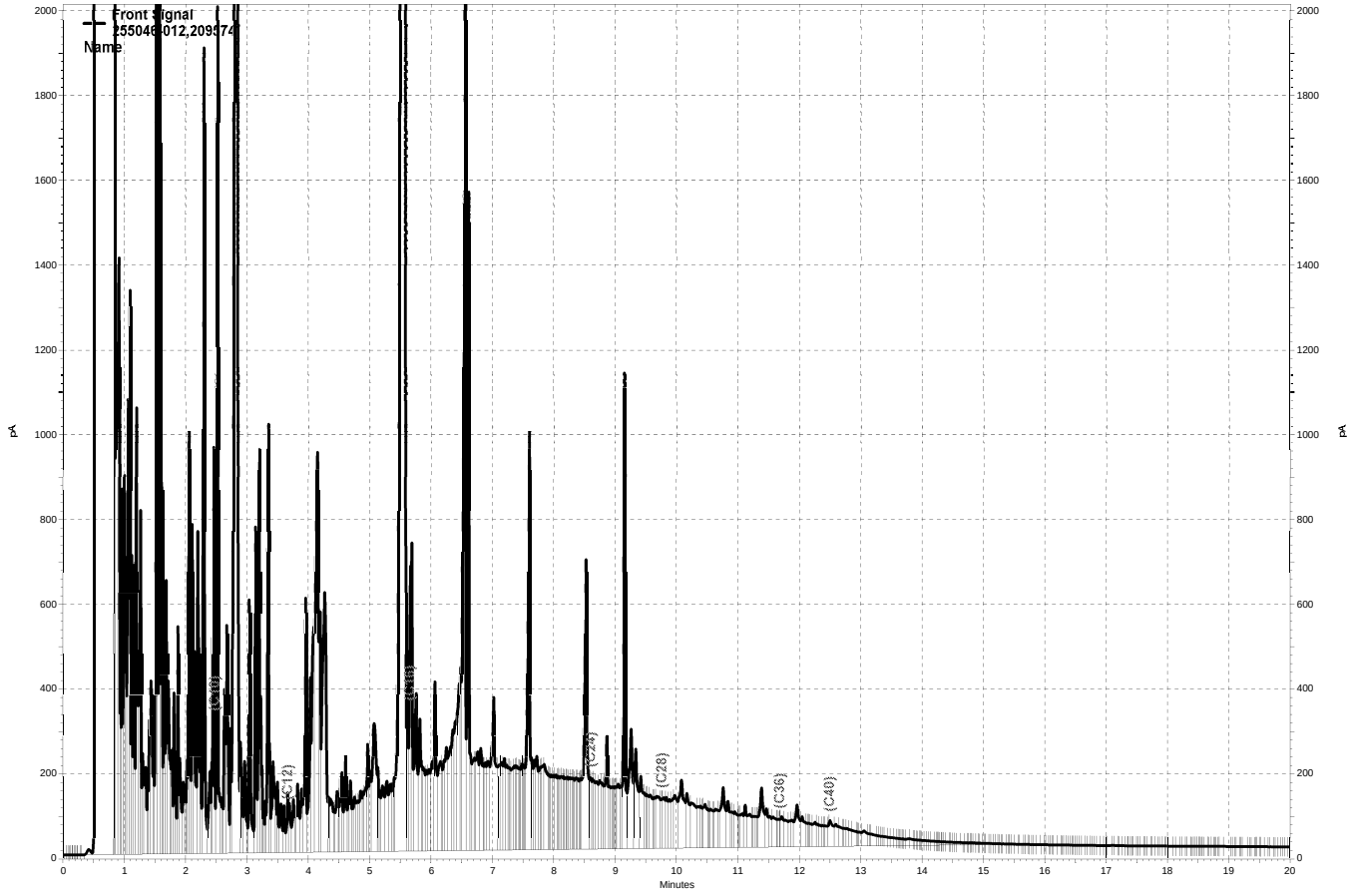

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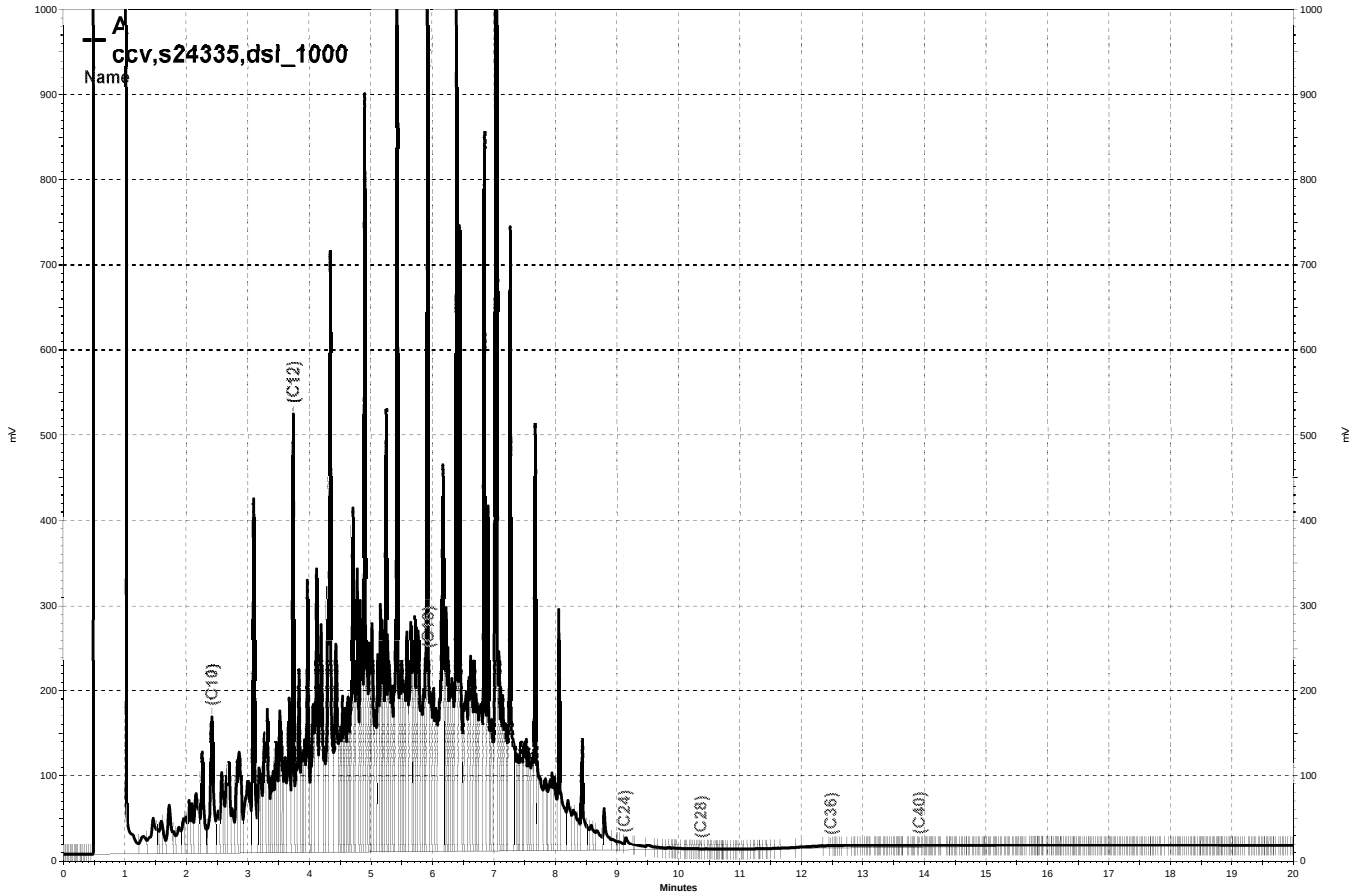

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 255065
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-E	255065-001
RW-1	255065-002
MW-3	255065-003
MW-18	255065-004
MW-14	255065-005
MW-15	255065-006

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

Signature: Tracy Babjar Date: 04/03/2014

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

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**255065**
Client:	**Stellar Environmental Solutions**
Project:	**2007-65**
Location:	**Bay Center Apts**
Request Date:	**03/28/14**
Samples Received:	**03/28/14**

This data package contains sample and QC results for six water samples, requested for the above referenced project on 03/28/14. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
Low recoveries were observed for gasoline C7-C12 in the MS/MSD of MW-E (lab # 255065-001); the LCS was within limits, and the associated RPD was within limits. No other analytical problems were encountered.

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

255065

Chain of Custody Record

Lab job no. _____
Date 3/28/14
Page 1 of 1

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) Pete Comish

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TEH-D (8015M)	Analysis Required: TPH-G (8015M)	Analysis Required: BTEX & MTBE	Remarks
1	MW-E		3/28/14	1005	GW	40ml VOA / 500ml AG	Y	HCl/NP	N	6	X	X	X	
2	RW-1			0952			Y			6	X	X	X	
3	MW-3			0930			Y			6	X	X	X	
4	MW-18			0824			Y			6	X	X	X	
5	MW-14			0846			Y			6	X	X	X	
6	MW-15			0912			Y			6	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature [signature]	3/28/14	Signature [signature]	3/28/14	Signature		Signature	
Printed Pete Comish	Time 1051	Printed Pat Gonzalez	Time 1051	Printed	Time	Printed	Time
Company BTS		Company C&T		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

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 295065 Date Received 3/28/14 Number of coolers 1
Client SES Project BAY CENTER APARTMENT

Date Opened 3/28/14 By (print) JR (sign) Ima Ranka
Date Logged in ↓ By (print) ↓ (sign) ↓

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

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

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

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

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

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

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

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ (YES) NO (N/A) JR 3/28/14
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) NO N/A
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 11/11

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/14
Units:	ug/L	Received:	03/28/14

Field ID: MW-E
Type: SAMPLE
Lab ID: 255065-001

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	9,500	3,600	71.43	209628	04/02/14	EPA 8015B
MTBE	ND	140	71.43	209628	04/02/14	EPA 8021B
Benzene	3,200	36	71.43	209628	04/02/14	EPA 8021B
Toluene	110 C	0.50	1.000	209572	04/01/14	EPA 8021B
Ethylbenzene	240	0.50	1.000	209572	04/01/14	EPA 8021B
m,p-Xylenes	140	0.50	1.000	209572	04/01/14	EPA 8021B
o-Xylene	38	36	71.43	209628	04/02/14	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	103	77-128	71.43	209628	04/02/14	EPA 8015B
Bromofluorobenzene (PID)	109	75-132	71.43	209628	04/02/14	EPA 8021B

Field ID: RW-1
Type: SAMPLE
Lab ID: 255065-002
Diln Fac: 1.000
Analyzed: 04/02/14

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	410	50	209628	EPA 8015B
MTBE	2.8 C	2.0	209628	EPA 8021B
Benzene	1.3	0.50	209657	EPA 8021B
Toluene	1.0 C	0.50	209628	EPA 8021B
Ethylbenzene	2.4 C	0.50	209628	EPA 8021B
m,p-Xylenes	1.3 C	0.50	209628	EPA 8021B
o-Xylene	2.1 C	0.50	209628	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Bromofluorobenzene (FID)	100	77-128	209628	EPA 8015B
Bromofluorobenzene (PID)	100	75-132	209628	EPA 8021B

Field ID: MW-3
Type: SAMPLE
Lab ID: 255065-003
Diln Fac: 1.000
Batch#: 209572
Analyzed: 04/01/14

Analyte	Result	RL	Analysis
Gasoline C7-C12	270 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	1.4 C	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)	110	77-128	EPA 8015B
Bromofluorobenzene (PID)	114	75-132	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/14
Units:	ug/L	Received:	03/28/14

Field ID:	MW-18	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	209572
Lab ID:	255065-004	Analyzed:	04/01/14

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	0.52 C	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	77-128	EPA 8015B
Bromofluorobenzene (PID)	99	75-132	EPA 8021B

Field ID:	MW-14	Lab ID:	255065-005
Type:	SAMPLE		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	6,900	2,800	55.56	209628	04/02/14	EPA 8015B
MTBE	ND	110	55.56	209628	04/02/14	EPA 8021B
Benzene	2,100	28	55.56	209628	04/02/14	EPA 8021B
Toluene	220 C	0.50	1.000	209572	04/01/14	EPA 8021B
Ethylbenzene	170	0.50	1.000	209572	04/01/14	EPA 8021B
m,p-Xylenes	120 C	0.50	1.000	209572	04/01/14	EPA 8021B
o-Xylene	35	0.50	1.000	209572	04/01/14	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	103	77-128	55.56	209628	04/02/14	EPA 8015B
Bromofluorobenzene (PID)	108	75-132	55.56	209628	04/02/14	EPA 8021B

Field ID:	MW-15	Lab ID:	255065-006
Type:	SAMPLE		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	12,000	2,500	50.00	209628	04/02/14	EPA 8015B
MTBE	ND	2.0	1.000	209572	04/01/14	EPA 8021B
Benzene	3,900	25	50.00	209628	04/02/14	EPA 8021B
Toluene	75 C	0.50	1.000	209572	04/01/14	EPA 8021B
Ethylbenzene	30	0.50	1.000	209572	04/01/14	EPA 8021B
m,p-Xylenes	54	0.50	1.000	209572	04/01/14	EPA 8021B
o-Xylene	ND	25	50.00	209628	04/02/14	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	102	77-128	50.00	209628	04/02/14	EPA 8015B
Bromofluorobenzene (PID)	106	75-132	50.00	209628	04/02/14	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65		
Matrix:	Water	Sampled:	03/28/14
Units:	ug/L	Received:	03/28/14

Type: BLANK
Lab ID: QC734175
Diln Fac: 1.000

Batch#: 209572
Analyzed: 03/31/14

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)	87	77-128	EPA 8015B
Bromofluorobenzene (PID)	107	75-132	EPA 8021B

Type: BLANK
Lab ID: QC734378
Diln Fac: 1.000

Batch#: 209628
Analyzed: 04/01/14

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)	97	77-128	EPA 8015B
Bromofluorobenzene (PID)	102	75-132	EPA 8021B

Type: BLANK
Lab ID: QC734503
Diln Fac: 1.000

Batch#: 209657
Analyzed: 04/02/14

Analyte	Result	RL	Analysis
Benzene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	97	77-128	EPA 8015B
Bromofluorobenzene (PID)	102	75-132	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	209572
Units:	ug/L	Analyzed:	03/31/14
Diln Fac:	1.000		

Type: BS Lab ID: QC734172

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.539	85	74-132
Benzene	10.00	9.280	93	80-120
Toluene	10.00	9.160	92	80-120
Ethylbenzene	10.00	9.314	93	80-120
m,p-Xylenes	10.00	9.386	94	80-120
o-Xylene	10.00	9.721	97	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	119	75-132

Type: BSD Lab ID: QC734173

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	9.040	90	74-132	6	36
Benzene	10.00	9.398	94	80-120	1	20
Toluene	10.00	9.470	95	80-120	3	20
Ethylbenzene	10.00	9.189	92	80-120	1	20
m,p-Xylenes	10.00	9.287	93	80-120	1	20
o-Xylene	10.00	9.418	94	80-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	106	75-132

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	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:	QC734174	Batch#:	209572
Matrix:	Water	Analyzed:	03/31/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	996.3	100	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	77-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-E	Batch#:	209572
MSS Lab ID:	255065-001	Sampled:	03/28/14
Matrix:	Water	Received:	03/28/14
Units:	ug/L	Analyzed:	04/01/14
Diln Fac:	1.000		

Type: MS Lab ID: QC734176

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	7,900	2,000	9,087	59 *	74-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	77-128

Type: MSD Lab ID: QC734177

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	9,299	70 *	74-120	2	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	108	77-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	209628
Units:	ug/L	Analyzed:	04/01/14
Diln Fac:	1.000		

Type: BS Lab ID: QC734375

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.211	92	74-132
Benzene	10.00	9.857	99	80-120
Toluene	10.00	9.413	94	80-120
Ethylbenzene	10.00	9.528	95	80-120
o-Xylene	10.00	9.898	99	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	105	75-132

Type: BSD Lab ID: QC734376

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	8.943	89	74-132	3	36
Benzene	10.00	9.958	100	80-120	1	20
Toluene	10.00	9.781	98	80-120	4	20
Ethylbenzene	10.00	9.845	98	80-120	3	20
o-Xylene	10.00	10.14	101	80-120	2	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	75-132

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	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:	QC734377	Batch#:	209628
Matrix:	Water	Analyzed:	04/01/14
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	982.0	98	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	90	77-128

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	209628
MSS Lab ID:	255082-001	Sampled:	03/28/14
Matrix:	Water	Received:	03/28/14
Units:	ug/L	Analyzed:	04/01/14
Diln Fac:	1.000		

Type: MS Lab ID: QC734379

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	24.77	2,000	1,984	98	74-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	77-128

Type: MSD Lab ID: QC734380

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,934	95	74-120	3	27

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	77-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	209657
Units:	ug/L	Analyzed:	04/02/14
Diln Fac:	1.000		

Type: BS Lab ID: QC734500

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	10.88	109	80-120
m,p-Xylenes	10.00	11.01	110	80-120

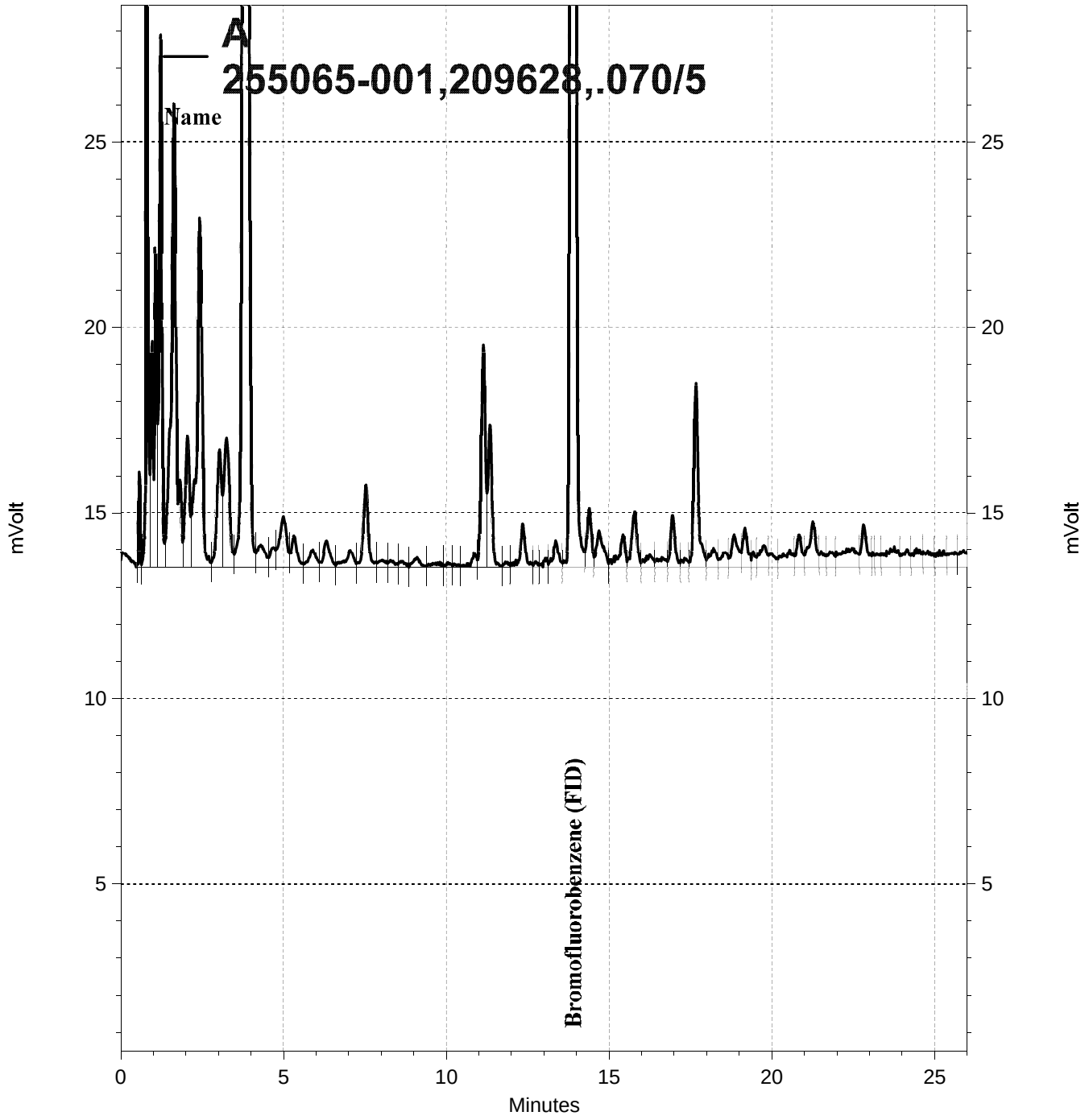
Surrogate	%REC	Limits
Bromofluorobenzene (PID)	107	75-132

Type: BSD Lab ID: QC734501

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	20.00	22.15	111	80-120	2	20
m,p-Xylenes	20.00	21.31	107	80-120	3	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	109	75-132

RPD= Relative Percent Difference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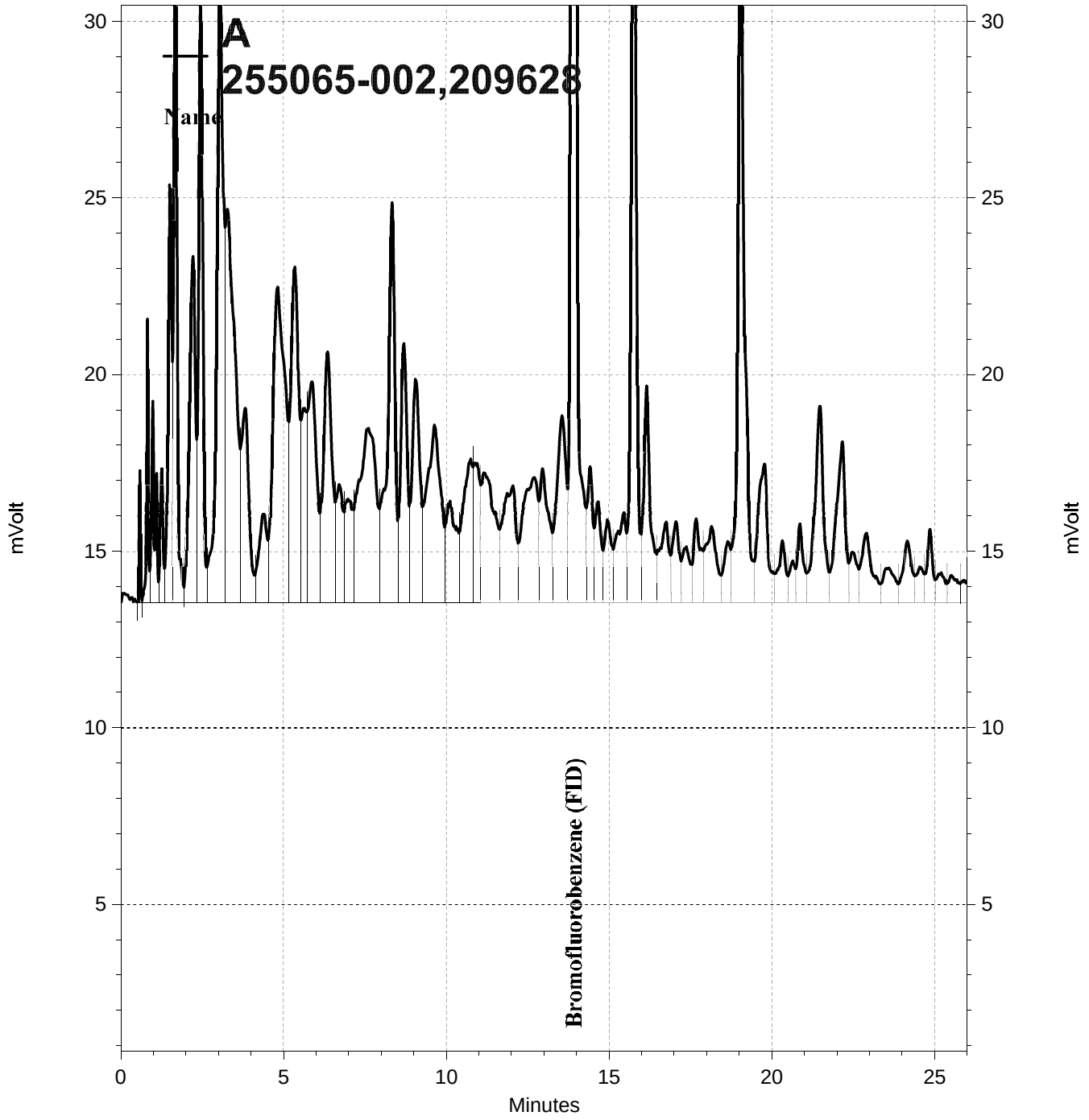
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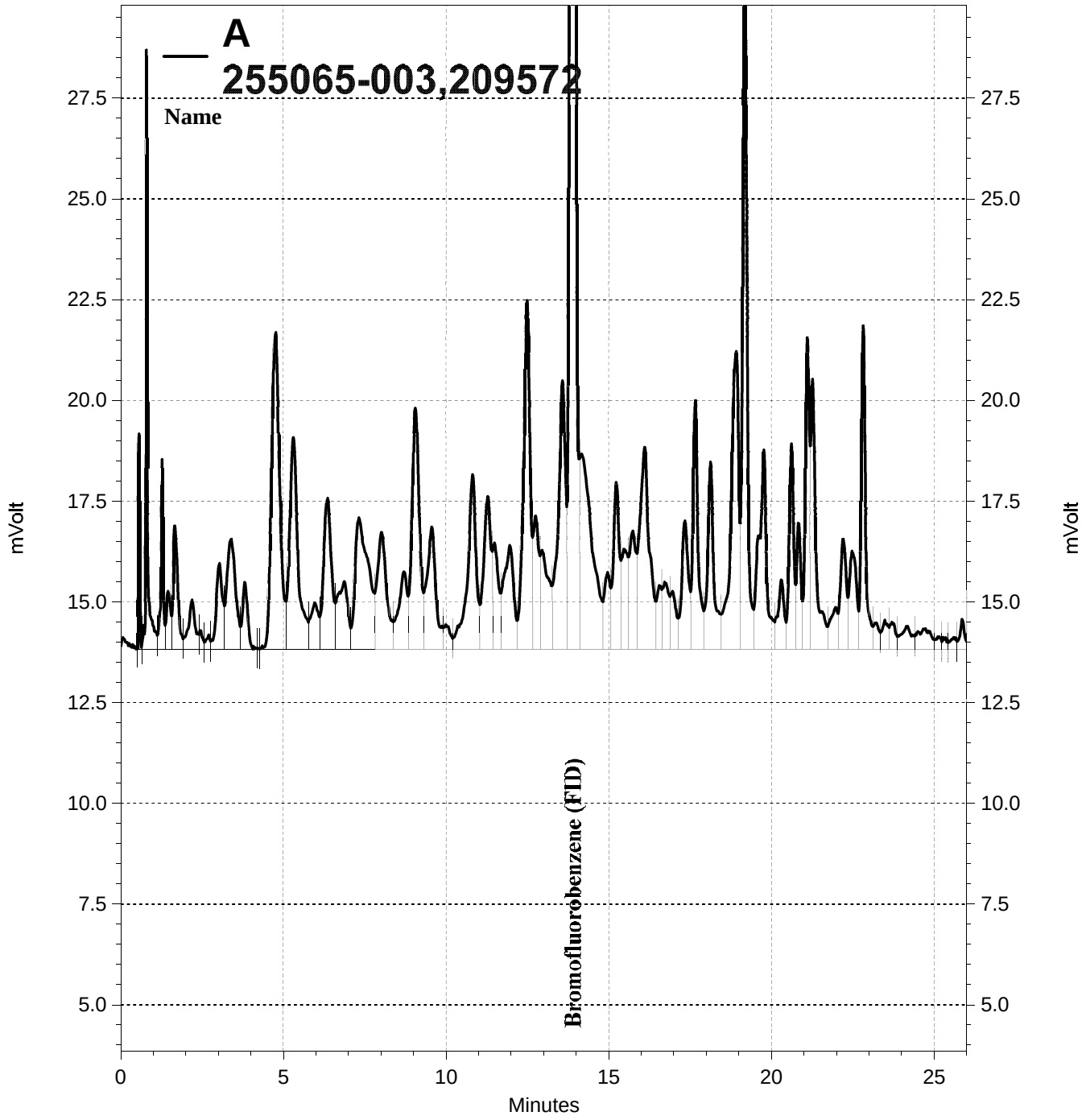
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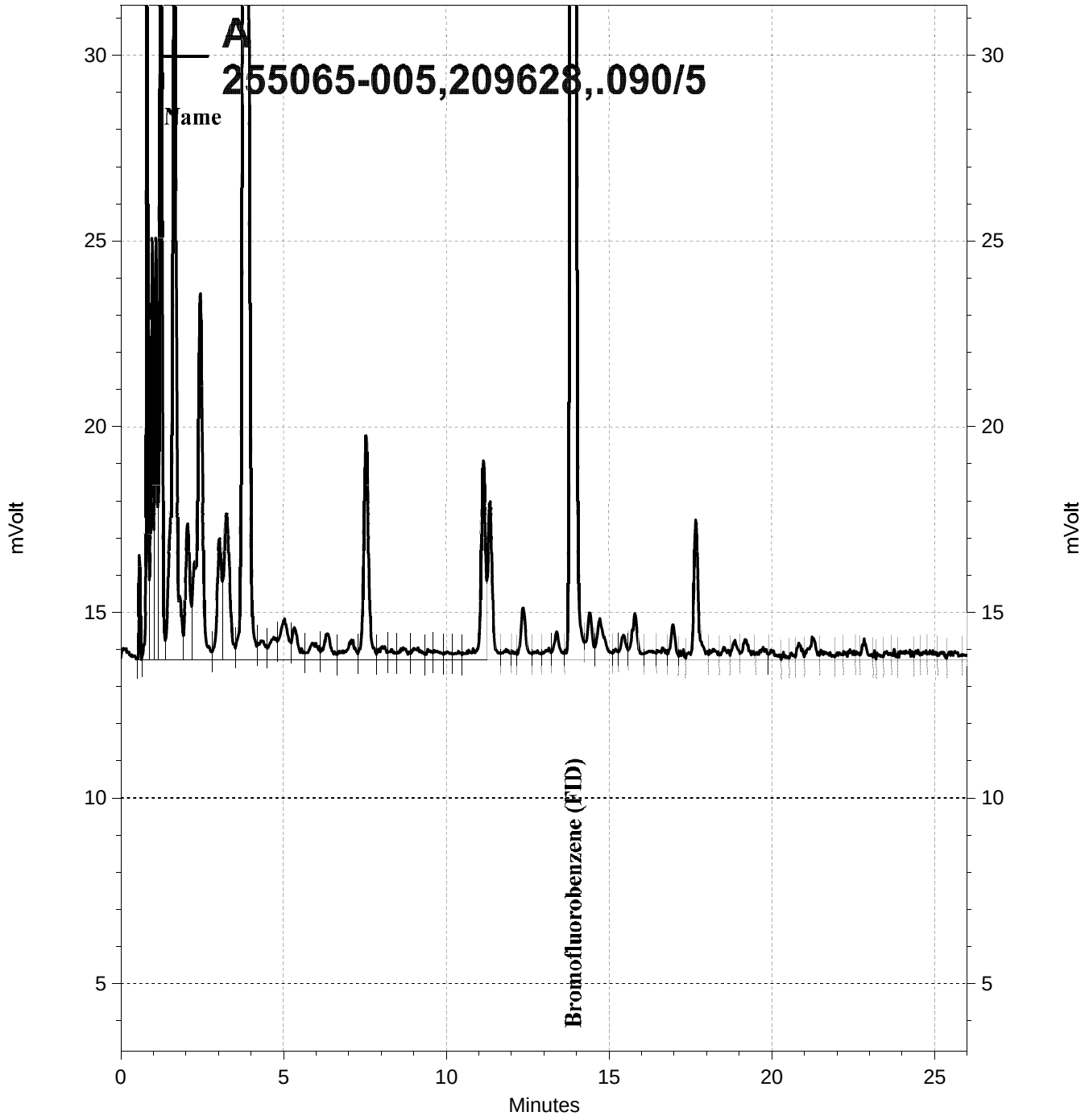

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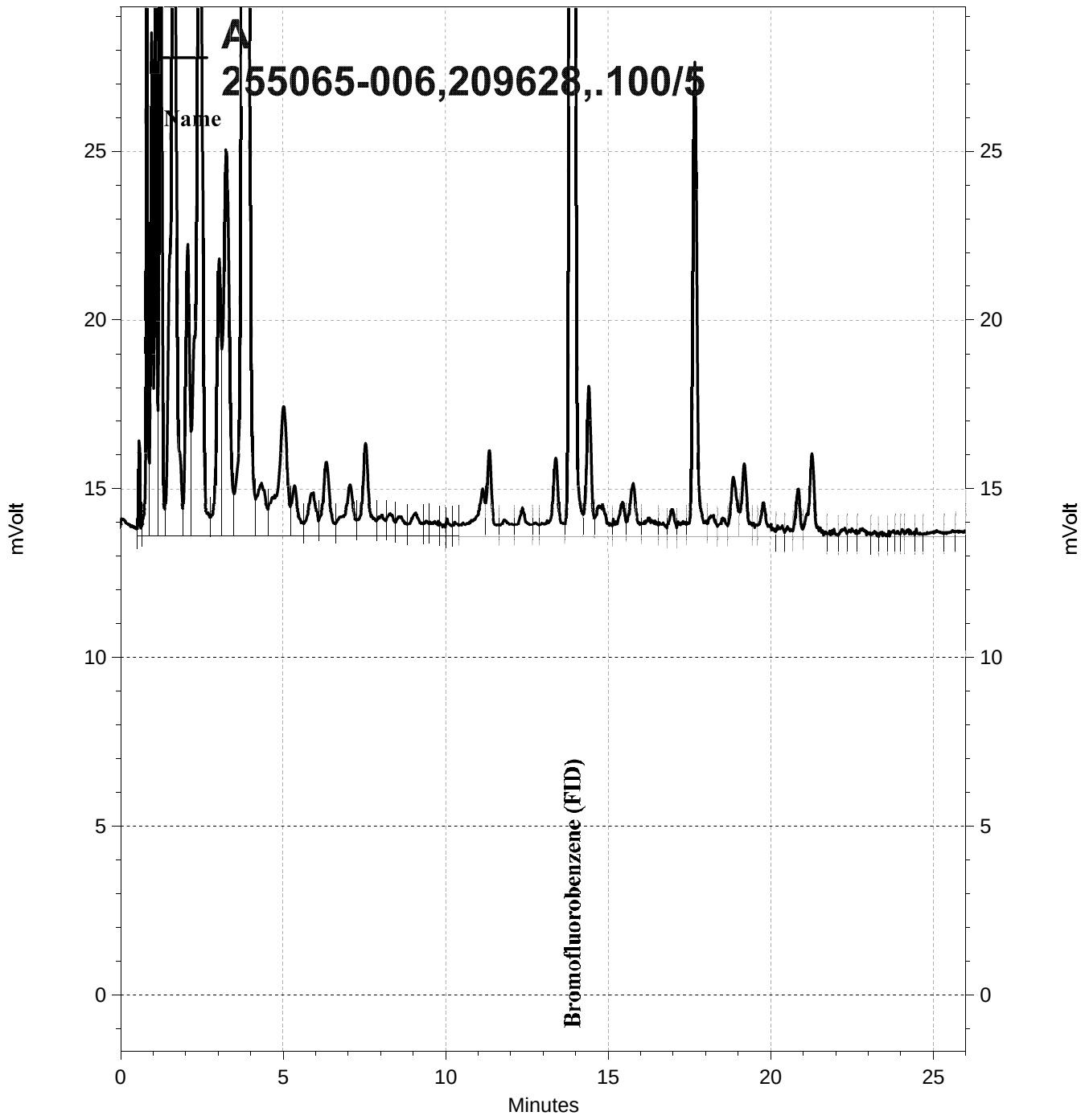
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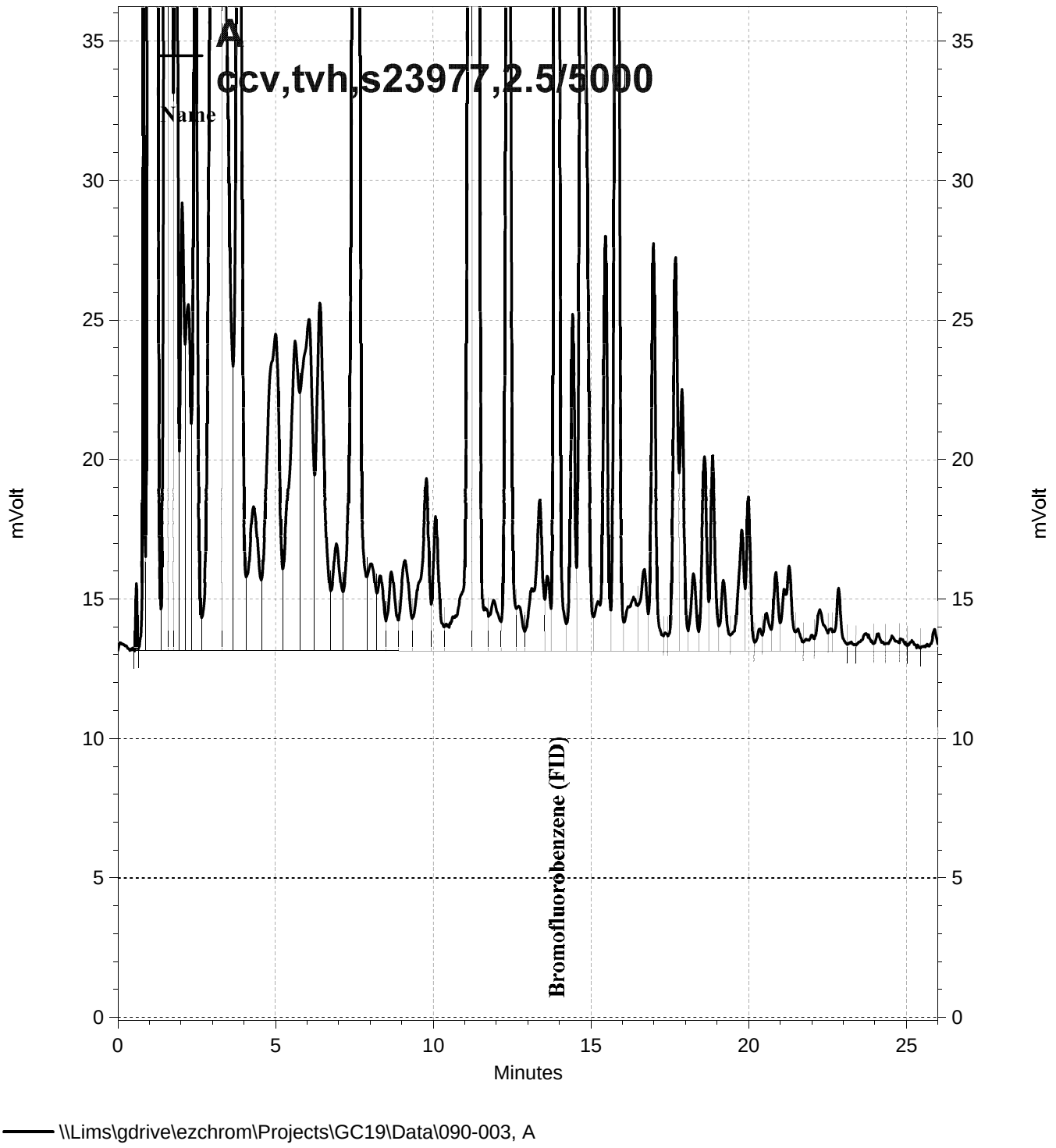

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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/14
Units:	ug/L	Received:	03/28/14
Diln Fac:	1.000	Prepared:	03/31/14
Batch#:	209574	Analyzed:	04/02/14

Field ID: MW-E
Type: SAMPLE
Lab ID: 255065-001

Analyte	Result	RL
Diesel C10-C24	5,600	49

Surrogate	%REC	Limits
o-Terphenyl	91	66-129

Field ID: RW-1
Type: SAMPLE
Lab ID: 255065-002

Analyte	Result	RL
Diesel C10-C24	4,700	49

Surrogate	%REC	Limits
o-Terphenyl	115	66-129

Field ID: MW-3
Type: SAMPLE
Lab ID: 255065-003

Analyte	Result	RL
Diesel C10-C24	1,600	49

Surrogate	%REC	Limits
o-Terphenyl	108	66-129

Field ID: MW-18
Type: SAMPLE
Lab ID: 255065-004

Analyte	Result	RL
Diesel C10-C24	8,200	51

Surrogate	%REC	Limits
o-Terphenyl	94	66-129

Field ID: MW-14
Type: SAMPLE
Lab ID: 255065-005

Analyte	Result	RL
Diesel C10-C24	8,200	49

Surrogate	%REC	Limits
o-Terphenyl	112	66-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/28/14
Units:	ug/L	Received:	03/28/14
Diln Fac:	1.000	Prepared:	03/31/14
Batch#:	209574	Analyzed:	04/02/14

Field ID: MW-15 Lab ID: 255065-006
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	2,200	49

Surrogate	%REC	Limits
o-Terphenyl	107	66-129

Type: BLANK Lab ID: QC734181

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	83	66-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	255065	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	209574
Units:	ug/L	Prepared:	03/31/14
Diln Fac:	1.000	Analyzed:	04/02/14

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC734182

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,543	62	61-120

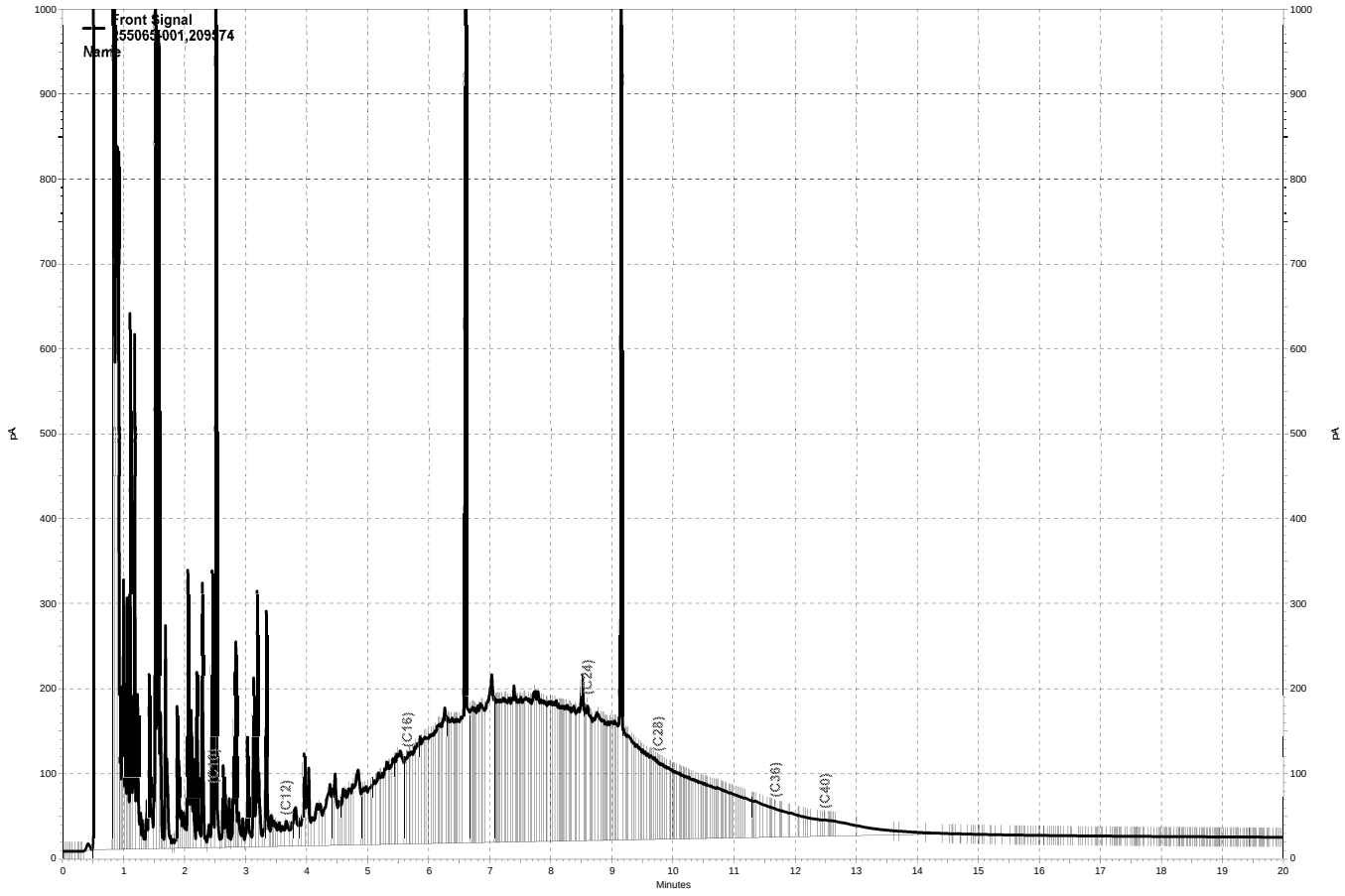
Surrogate	%REC	Limits
o-Terphenyl	116	66-129

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC734183

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,597	64	61-120	3	45

Surrogate	%REC	Limits
o-Terphenyl	121	66-129

RPD= Relative Percent Difference



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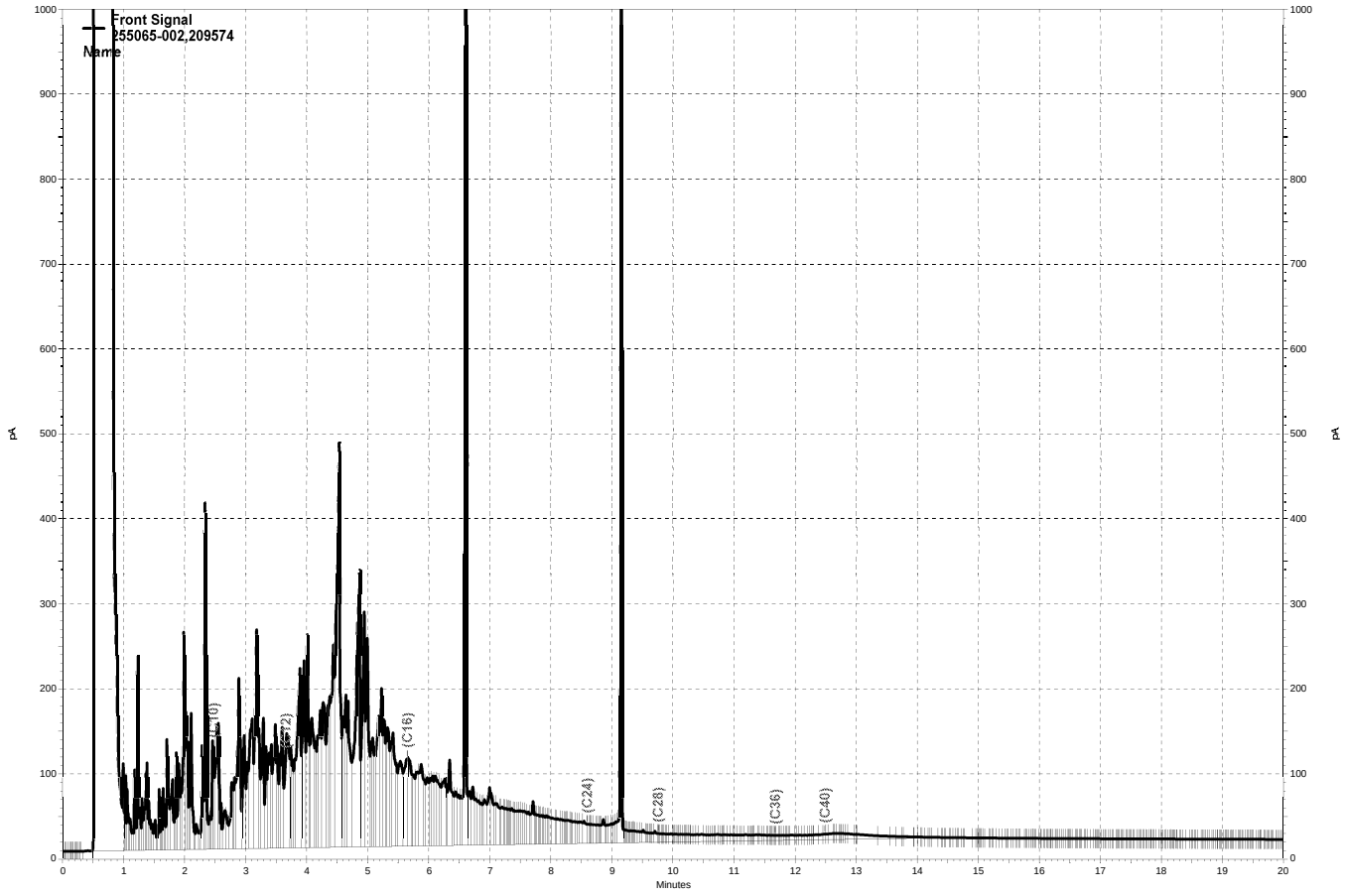

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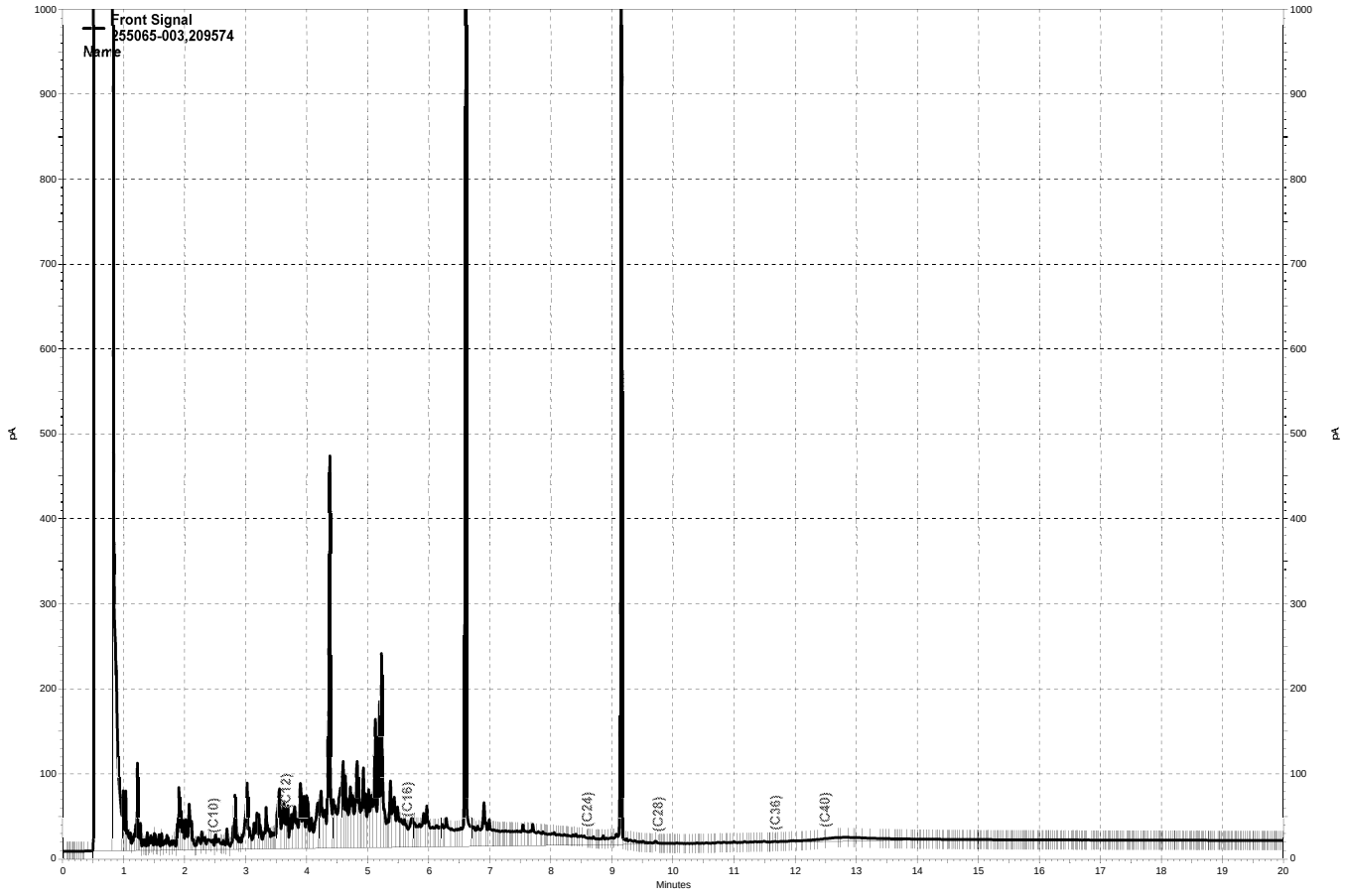

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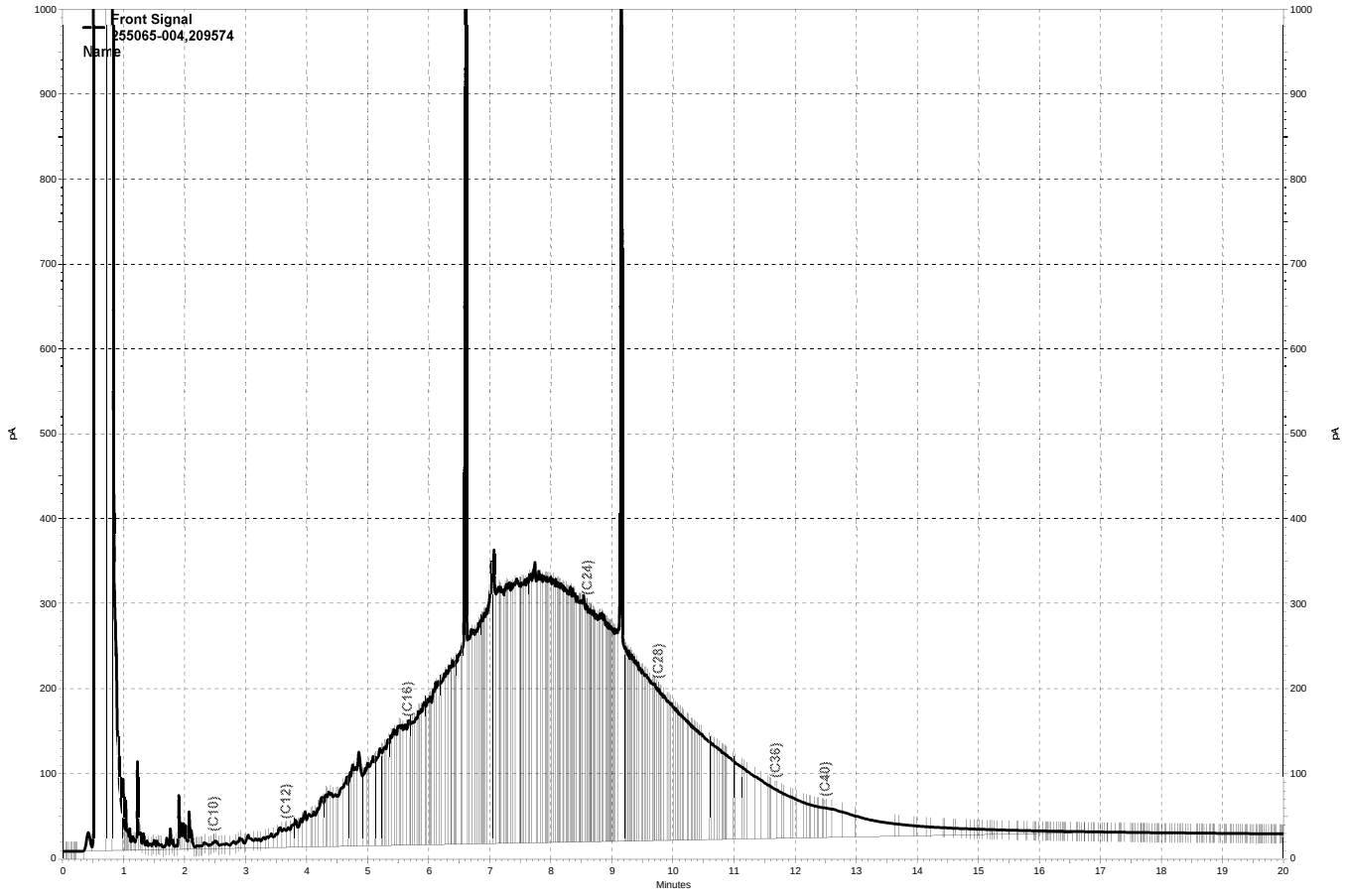

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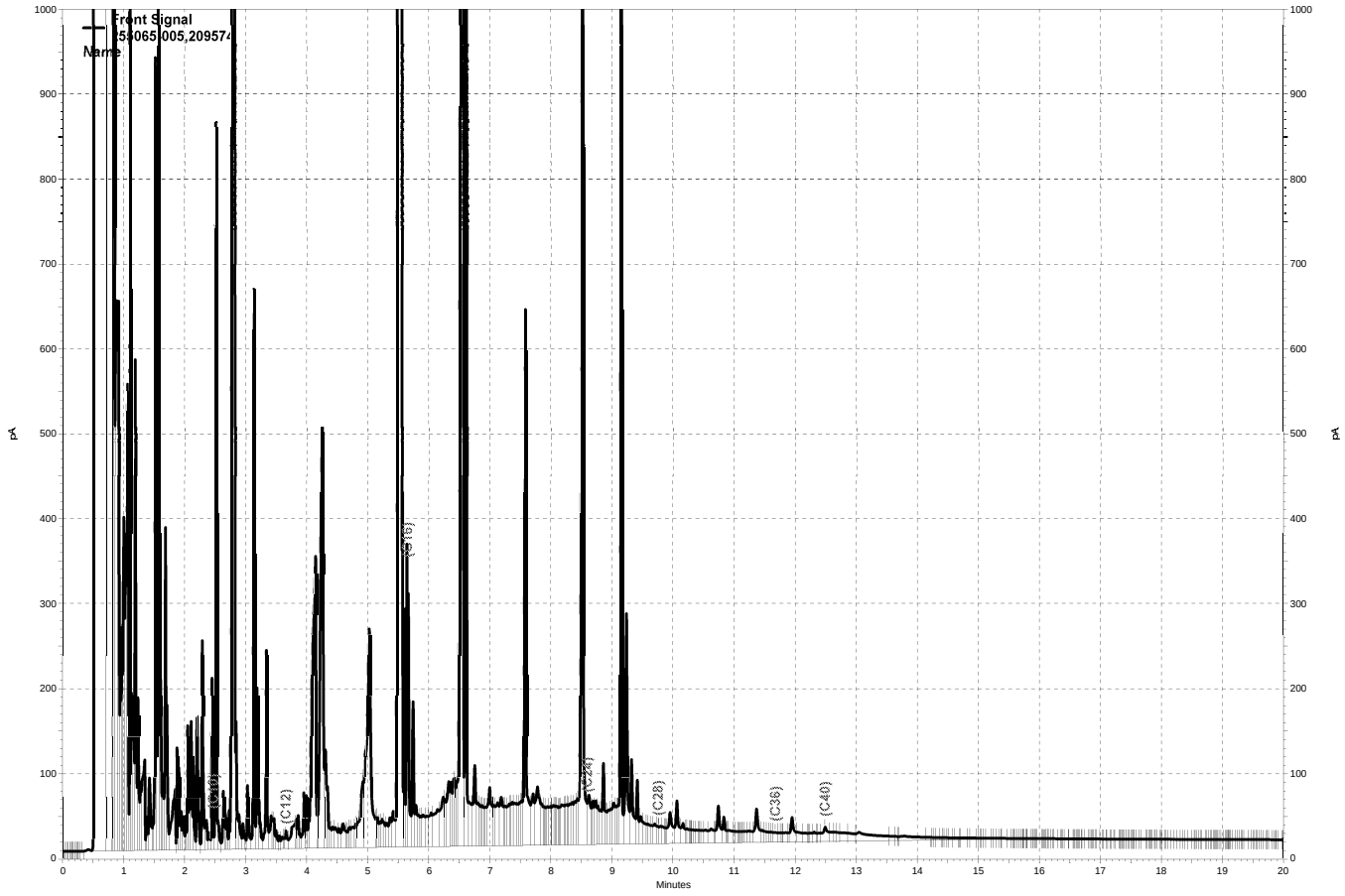

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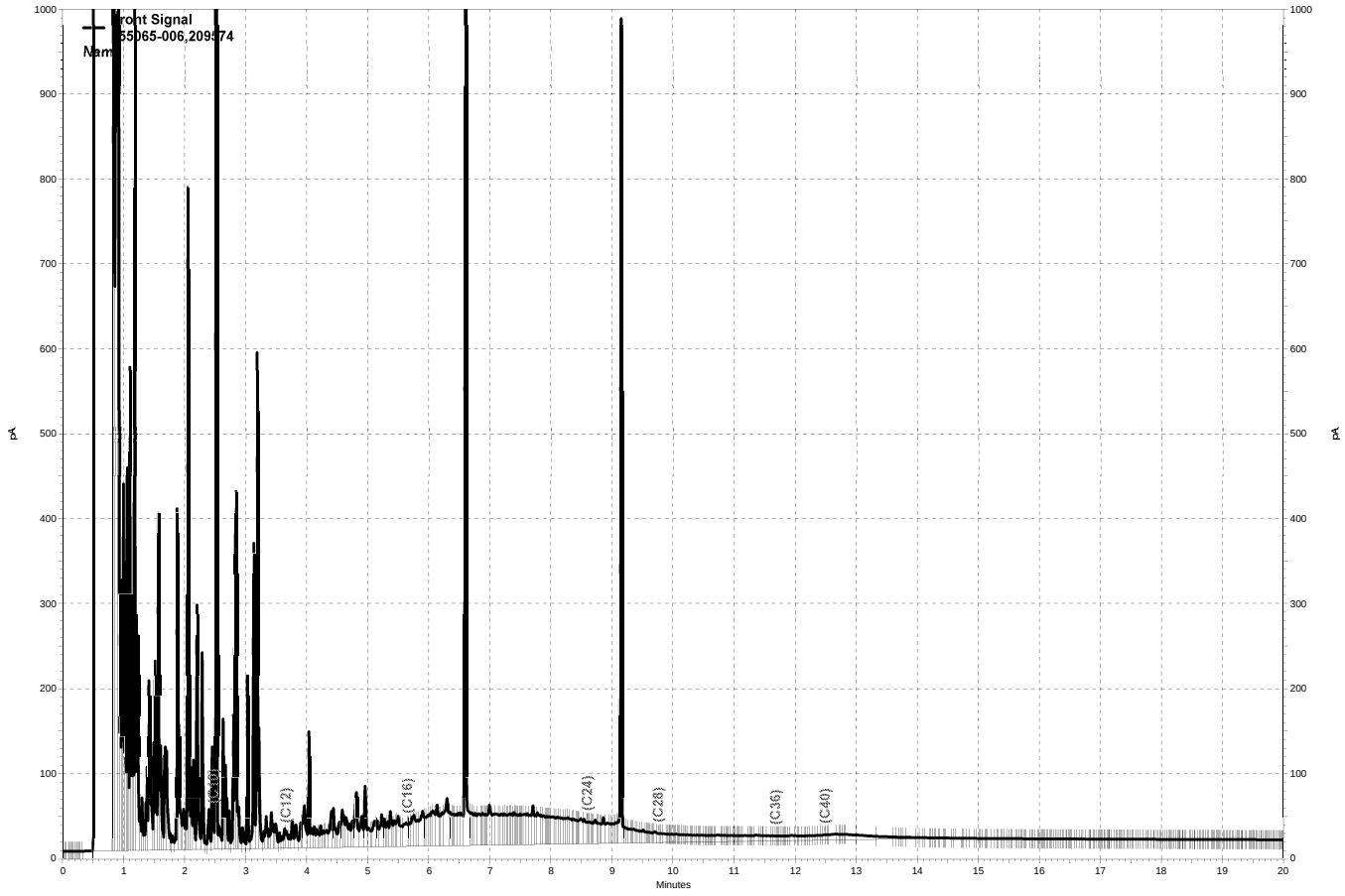

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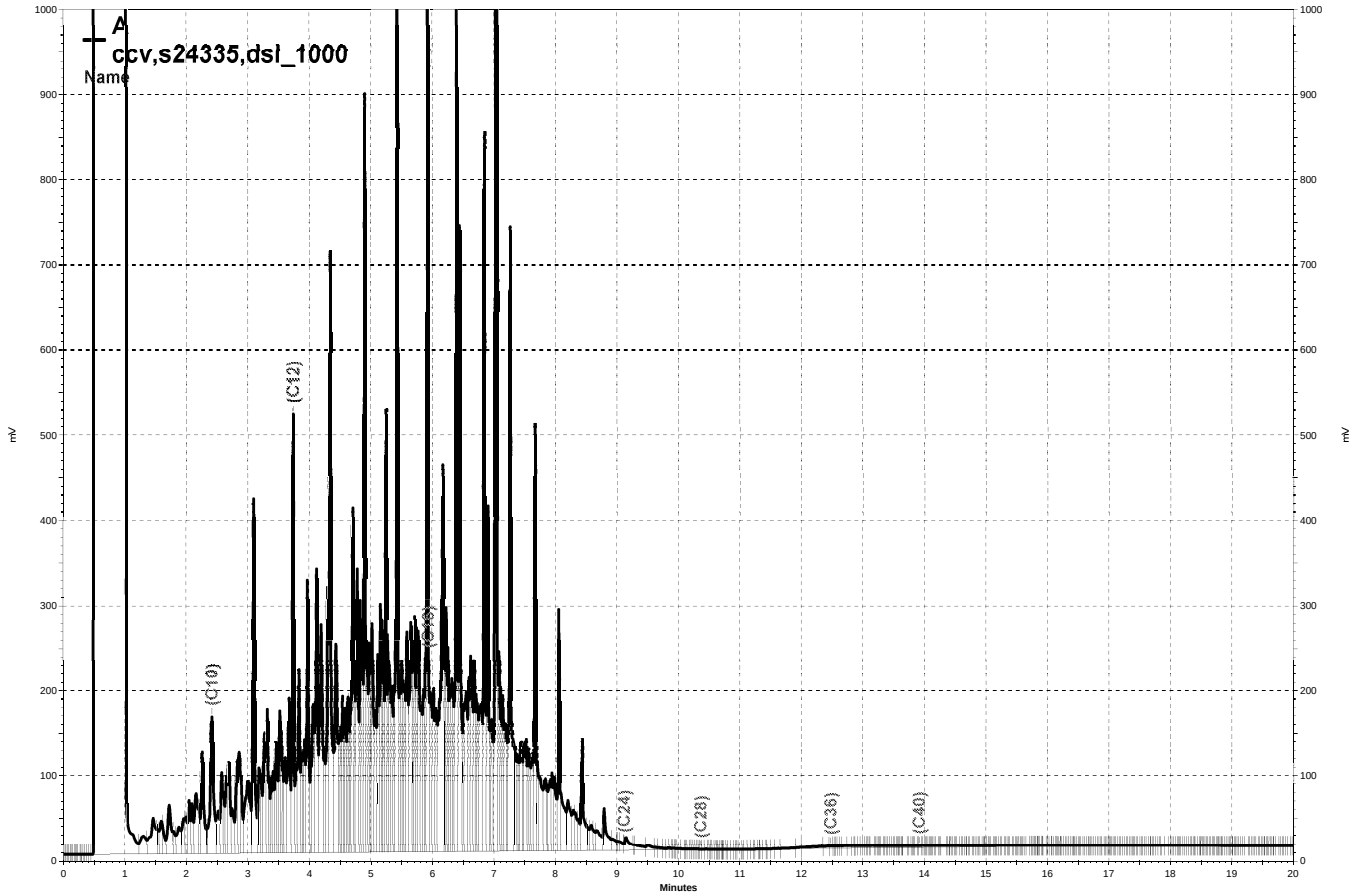

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APPENDIX D

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

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

MW-5					
Sampling Event No.	**Date**	**TOC Elevation**	**DTW**	**DTP**	**GW Elevation**
1	Dec-88	14.65	10.23	NP	4.42
2	May-89	14.56[a]	9.29	NP	5.27
3	Feb-91	14.56	10.04	NP	4.52
4	Mar-04	17.11[b]	9.10	NP	8.01
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.72[c]	9.66	NA	7.06
7	Mar-08	16.72	9.72	NP	7.00
8	Jun-08	16.72	9.72	NP	7.00
9	Sep-08	16.72	8.56	NP	8.16
10	Dec-08	16.72	9.75	NP	6.97
11	Mar-09	16.72	9.31	NP	7.41
12	Sep-09	16.72	9.79	NP	6.93
13	Mar-10	16.72	9.48	NP	7.24
14	Sep-10	16.72	9.90	NP	6.82
15	Mar-11	16.72	9.29	NP	7.43
16	Sep-11	16.72	9.77	NP	6.95
17	Mar-12	16.72	9.19	NP	7.53
18	Sep-12	16.72	9.70	NP	7.02
19	Mar-13	16.72	10.63	NP	6.09
19	Sep-13	16.72	10.20	NP	6.52
20	Mar-14	16.72	9.68	NP	7.04

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Notes:

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

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

NS = Not sampled

NP = No product

NM - Not measured

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

TOC Elevation = Top of Casing Elevation

DTW = Depth to water from the top of the casing

DTP - Depth to product from the top of the casing

GW Elevation - Groundwater elevation as compared to mean sea level

[a] Wells resurveyed in May 1989

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

[c] Wells resurveyed by PES in April 2007

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

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

[f] Depth to groundwater = depth to free product as difference could not be determined

APPENDIX E

Historical Product Extraction Data Table

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

	Well or Trench Location																											
Extraction Date	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**	**MW-12**	**MW-13**	**MW-14**	**MW-15**	**MW-16**	**MW-17**	**MW-18**	**MW-E**	**RW-1**	**TA-E**	**TA-M**	**TA-W**	**TB-E**	**TB-M**	**TB-W**	**TC-E**	**TC-M**	**TC-W**	**Total Extracted**
Apr-04	---	---	---	---	---	1.00	---	1.00	---	---	---	---	---	---	---	---	---	19.75	---	---	---	---	---	---	---	---	---	21.75
May-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22.5	---	---	---	---	---	---	---	---	---	22.50
Sep-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.74	---	---	---	---	---	---	---	---	---	0.74
Oct-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5.22	---	---	---	---	---	---	---	---	---	0.00
2004 Total																												**44.99**
Jan-05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.00
Apr-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.3	---	---	---	---	---	---	3.30
Jun-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8.9	9.2	10.3	---	---	---	---	---	---	28.40
Jul-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.6	5	5.3	---	---	---	---	---	---	13.90
Aug-06	---	---	---	---	---	0.8	---	0.8	---	---	1	0.2	0.2	---	---	---	---	---	0.2	0.2	0.4	---	---	---	---	---	---	3.80
Sep-06	---	---	---	---	---	---	---	0.8	---	---	0.2	0.3	---	---	---	---	---	---	0.6	---	0.6	---	---	---	---	---	---	2.50
Nov-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	0.20
Dec-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	0.20
2006 Total																												**52.30**
Jan-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	0.20
Feb-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	0.20
Mar-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	0.20
Nov-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.81	0.68	---	---	---	0.63	---	---	2.12
Dec-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01	0.61	0.07	---	---	---	0.002	---	---	0.69
2007 Total																												**3.41**
Feb-08	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.08	0.06	0.18	0.04	0.06	0.06	0.08	0.05	0.05	1.14
Feb-08	---	---	0.05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.15	0.15	0.30	---	---	---	---	---	---	1.10
Mar-08	---	---	---	0.02	0.002	0.02	0.001	0.04	0.02	0.03	0.004	0.01	0.02	0.01	0.01	0.003	0.012	0.3	0.09	0.06	0.09	---	---	---	0.06	---	---	0.80
Mar-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	0.008	---	---	---	---	---	---	0.01
May-08	0.09	---	---	---	---	---	---	0.075	---	0.075	0.019	0.009	---	---	0.13	---	---	1.397	0.866	1.466	1.431	---	---	---	---	---	---	5.56
Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.11	0.57	---	---	---	---	---	---	0.83
Aug-08	0.12	---	---	---	---	---	---	0.048	---	0.024	0.009	---	---	---	---	---	---	0.75	0.9	1.6	0.7	0.3	0.3	---	0.15	---	---	4.90
Sep-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.03	0.09	0.048	---	---	---	---	---	---	0.17
Nov-08	0.078	---	---	---	---	0.009	---	---	---	0.06	0.009	---	---	0.003	0.06	---	---	0.6	0.1	0.03	---	0.06	0.06	0.06	0.06	0.09	0.09	1.37
Dec-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0003	0.08	---	---	---	---	0.03	---	---	0.11
2008 Total																												**14.99**
Mar-09	0.279	---	---	---	---	0.378	---	0.369	---	0.261	0.007	0.023	0.117	---	0.342	---	0.023	1.800	0.750	0.950	1.010	0.153	0.153	0.153	0.653	0.153	0.153	7.73
Jun-09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.5	---	---	---	---	---	---	---	---	0.50
Sep-09	0.286	---	---	---	0.022	0.418	---	0.176	0.308	0.176	0.088	0.007	0.176	0.088	0.176	0.022	0.066	7.15	1.4	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	19.46
Dec-09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0	0.9	0.06	---	---	---	0	---	---	0.96
2009 Total																												**28.65**
Mar-10	0.14	---	---	---	0.01	0.18	0.02	0.60	---	0.60	0.03	0.10	0.69	0.04	0.30	0.02	---	8.00	1.30	1.00	1.00	0.50	1.00	0.50	1.00	1.00	1.00	19.03
Jun-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.75	---	---	---	---	---	---	---	0.75
Sep-10	0.3	0.2	0.4	0.5	0.01	0.5	0.01	0.5	---	1.6	0.02	0.01	1.5	0.02	1.0	0.02	0.1	6.9	1.00	1.00	1.00	0.3	0.3	0.4	1.00	0.5	0.5	19.59
Dec-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.10	0.00	0.05	---	---	---	0.00	---	---	0.15
2010 Total																												**39.52**
Mar-11	---	---	---	---	---	0.002	---	0.002	---	---	---	0.002	---	---	0.003	---	---	0.002	0.06	0.06	0.02	---	---	---	0	---	---	0.15
Sep-11	0.2	--	--	--	--	0.3	--	--	--	--	0.2	--	--	0.1	--	--	--	0.5	--	0.45	0.25	0.1	0.1	0.1	--	0.1	0.1	2.50
2011 Total																												**2.65**
Mar-12	0.015	--	--	--	--	0.015	--	--	--	--	0.06	--	--	--	0.01	--	--	0.06	0.13	0.03	0.015	--	0.01	--	--	0.015	0.015	0.375
Sep-12	--	--	--	--	--	0.03	--	0.023	--	--	0.08	--	--	--	--	--	0.015	0.06	0.045	0.08	0.09	--	--	--	--	--	--	0.423
2012 Total																												**0.798**
Mar-13	0.06	--	--	--	--	0.08	--	0.015	--	--	0.08	--	--	--	--	--	0.01	0.06	0.05	0.12	0.07	--	--	--	0.03	0.03	0.03	0.635
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
Total Extracted	**1.74**	**0.20**	**0.45**	**0.52**	**0.04**	**3.75**	**0.03**	**4.58**	**0.33**	**2.83**	**1.81**	**0.66**	**2.70**	**0.28**	**2.03**	**0.07**	**0.26**	**76.84**	**22.03**	**25.96**	**28.80**	**2.55**	**3.08**	**2.37**	**4.83**	**3.08**	**3.08**	**194.88**

Note:

APPENDIX F

Purge Water Disposal Documentation

EnviroClean MSDS

BILL OF LADING/MANIFEST

1. Shipper's US EPA ID No. (If Applicable): ~~CAL000574145~~ | Document No.: 82310 | 2. Page 1 of 1

SHIPPER

3. Shipper's Name and Mailing Address: Bay Center Apartments
6400 Christie Ave
Emeryville CA 94608-1009

4. Shipper's Phone (ggg.Jggg-9999

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
~~SAFETY-KLEEN SYSTEMS, INC.~~	~~TXR000051605~~	~~972-265-2000~~
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone
EVG SAFETY-KLEEN OF CALIFORNIA, INC. 6880 SMITH AVE. NEWARK CA 94560	CAD980887418	510-795-4400

	11. Shipping Name and Description	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a.	NON-REGULATED LIQUID (VAC-OIL, WATER, SLUDGE) (NOT USDOT/NOT USEPA REGULATED) (NOT CA REGULATED)		0.01	TT	01000	G
b.						
c.						
d.						

15. Special Handling Instruction and Additional Information

SK SHIP# 213091793 BA28005

24 HR EMERGENCY #1-800-468-1760 (SAFETY-KLEEN)
SK AUTHORIZED TO RETAIN LICENSED SUBSEQUENT CARRIERS AS NECESSARY

DOT/PRFL A. 3299/150451 B. C. D.

A) NONE B) C) D)

USE 16A OR 16B

16a. US DOT HAZARDOUS MATERIALS SHIPPER'S CERTIFICATION: *This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Printed/Typed Name: Henry Pietropaoli | Signature required here if US DOT regulated | Month 05 Day 13 Year 14

16b. NON-REGULATED SHIPPER'S CERTIFICATION: I certify the materials described above on this form are not subject to federal regulations for Transportation or Disposal.

Printed/Typed Name: X | Sign here if material is not DOT regulated: X | Month 05 Day 13 Year 14

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Marlon Shelton | Signature | Month 05 Day 13 Year 14

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

510-613-8751

20. Facility Owner or Operator: Certification of receipt of materials covered by this form except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

24 HR EMERGENCY # 800-468-1760
(SAFETY-KLEEN-CONTRACT #94138)

GENERATOR'S COPY

FORM NO. 01-90291 (04/11)

EnviroClean
Degassing/Hydrocarbon Removal/Remediation Chemistry

Contents

PHYSICAL PROPERTIES

Product Name	EnviroClean
Physical Form	Clear Liquid
Color	Colorless unless dyed
Specific Gravity (Water = 1)	1.028 +/- .01
Solubility in Water	100%
Freezing/Melting Point	NE
Flash Point (^{0}F)	>200^0 F
pH	8.5 +/- .25
Reportable Quantity (RQ)	None

Complete information on health hazards, protective equipment, handling precautions, environmental hazards and disposal is listed in the current EnviroClean Material Safety Data Sheet (MSDS) for this product.

SUMMARY

EnviroClean is a non-flammable, non-toxic, water-based, proprietary blend of non-ionic ethoxylated octylphenolic surfactants that has been specifically engineered as a cleanup/mitigation agent for a wide range of hydrocarbon products. EnviroClean has been shown to be effective for quickly and effectively suppressing or completely eliminating VOCs, LEL's, benzene and low levels of H_2S and mercaptans in open or confined spaces.

EnviroClean has been used for cleanup of hydrocarbon spills and soil remediation. In these applications, EnviroClean effectively conditions (physically) the hydrocarbon such that the microbes that naturally occur can more readily consume it. It turns hydrocarbons into a nutrient source for the microbes. When sufficiently mixed with hydrocarbon and water, the EnviroClean forms a homogeneous solution of hydrocarbon, EnviroClean and water, which is very stable.

EnviroClean is a concentrated product that readily biodegrades.

EnviroClean is commercially available in 5-gallon units, 55-gallon drums, 275 and 330-gallon totes and bulk from Oklahoma City, Oklahoma, Wappingers Falls, New York, and Houston, Texas.

FLUID DESIGN

EnviroClean is a proprietary blend of surfactants that needs to be diluted to be effective and it is very safe to workers and the environment. EnviroClean does **not** contain caustic, therefore does not have the common harmful side effects associated with caustic based products. The product is designed for use as a degassing agent and a cleaner/degreaser for remediation. The product does not contain any enzymes or biomass itself. It works by conditioning the hydrocarbon so that the naturally occurring microbes (bacteria) are able to readily consume it. Through the application of the appropriate dilution and mixing, the EnviroClean will capture the hydrocarbon and tie it up in a solution that is very stable. The formation of this solution results in extremely small particles that will not recoalesce. It is important to note that if EnviroClean reaches its saturation point the oversaturated hydrocarbon will breakout of solution very quickly. This will allow for easy removal or reclamation of any hydrocarbon that is not preconditioned for remediation.

In addition to tying up the hydrocarbon in solution, the product is very effective when contacted with hydrocarbon vapors at suppressing volatile organic vapors, gases, and odors. Once combustible and flammable hydrocarbon vapors are tied up in the resultant solution, the solution will be very difficult to ignite. It also accelerates the biodegradation process of the hydrocarbon, thereby enhancing recycling or reclamation of water.

EnviroClean has been demonstrated to be effective on gas, oil, lube oil, hydraulic oil, most petroleum-based products, animal and vegetable oils, fats, and tallow oils. EnviroClean cleans the heavy tar build-up, asphaltenes or oily residue from inside of tanks and vessels. Furthermore, once a surface has been cleaned with EnviroClean, the cleaned surface will resist the deposition of oily materials.

EnviroClean can be used to cleanup oil spills whether in/on soil or hard surfaces. The first step in this process is to remove as much of the free oil as possible. This step is followed by contacting the contaminated surface appropriately with the proper dilution of EnviroClean and water. The treatment solution will contact the hydrocarbon molecules and change their behavior such that they are now essentially water soluble. The large increase in interfacial surface area creates conditions that are favorable to degradation and consumption by bacteria and microbes. The product converts hydrocarbons into a very good nutrient source for bacteria and microbes.

EnviroClean is typically fed at concentrations between 1% and 6%, depending on the nature of the hydrocarbon contamination problem. It can be diluted with most types of water – hard, soft or brackish water. The product has an unlimited shelf life when unopened. EnviroClean is effective at ambient temperatures. However, the **effectiveness will increase as the temperature of the application is increased**. EnviroClean does not require the use of steam, but has been shown to be very effective when injected into the steam (vapor) phase.

FIELD MIXING PROCEDURES

Mixing Concentrates

EnviroClean is usually delivered as a concentrate and **must** be diluted with water to work properly. Cleaning solutions can be formulated by premixing or eduction. It is not necessary to provide high shear agitation when preparing a batch of cleaning solution since EnviroClean is 100% soluble in water. It is recommended that when preparing the cleaning solution you first add the water into the mix container and then follow by the addition of EnviroClean. This will minimize foaming as the EnviroClean and water form a homogeneous solution.

For premixing, the following procedure may be used:

1. Add the correct amount of water to the container.
2. Depending on the desired strength, add the correct amount of EnviroClean to the container.
3. If the final solution is not a consistent pink color, mild agitation may be required until a consistent pink color is achieved.

Quality Control Testing

There is no easy field testing procedure to monitor the concentration of active ingredients in the EnviroClean formulation. Visually the color changes from rose color to lighter pink as the product is further diluted. Effectiveness can also be predicted by quantifying the amount of hydrocarbon that is to be picked up. By observing the effluent from the use of EnviroClean, an adjustment in the cleaning solution concentration can be made. If it is observed that free oil is floating on the effluent solution, then the concentration should be increased.

MATERIAL REQUIREMENTS

For specific protocols and application rates, please refer to the available **Product Usage Guide**, product label, or consult with the manufacturer or authorized distributor for additional guidance.

Equipment Cleaning & Parts Washing

EnviroClean is very effective for equipment cleaning applications. EnviroClean is used at light dilutions and has a significant “life of batch” as well as low foaming tendencies. The surfactants in EnviroClean desorb and micro-emulsify grease and oil contamination and separate it from solids (metal shavings, grit, etc.) allowing them to settle without accumulating oily sludges. These factors make EnviroClean ideal for spray wash systems as well as dip/agitating equipment. Some agitation or circulation of the fluid is required for thorough cleaning. For

equipment cleaning applications, EnviroClean is normally diluted to a 3% - 6% solution with water.

Soil Remediation

Calculate the volume of hydrocarbon contained in the contaminated area. It is important to determine accurately the depth of oil penetration into the soil. It will be important to agitate the soil to just below the depth of penetration. Once the estimate of hydrocarbon is known, the amount of the normal dilution of EnviroClean for soil remediation is 32 parts water to 1 part EnviroClean (3% solution). The EnviroClean solution will use the naturally occurring bacteria in the soil and begin to consume the hydrocarbon, which has been put into a form that can be quickly consumed. The remediation process normally occurs over 4 to 12 weeks.

The following step-by-step procedure can be used for soil remediation using EnviroClean:

1. If contaminated soil is deeper than 12", excavate the soil and spread at the surface to a depth of 10" – 12" and then proceed with this protocol. If contaminated soil is 12" in depth or less, thoroughly mix and aerate the soil in place utilizing a roto-tiller or similar equipment. If soil is extremely oily or gummy, mix clean soil with oily soil to expedite clean up and to make it easier to work with.

2. Utilizing local soil or rock, build a small berm surrounding the treatment area to prevent rain water run off from the site.

3. To determine treatment volumes of EnviroClean, measure the square footage area of the treatment cell and divide that number by 27 to find cubic yards per foot of depth (i.e. treatment area is 100' x 50': 100 x 50 ÷ 27 = 185). Multiply that number x .06 to determine the amount of EnviroClean to utilize in the treatment (i.e. 185 x .06 = 11 gallons EnviroClean). Dilute the EnviroClean to approximately a 3% solution (32 to 1 or 352 gallons water to 11 gallons EnviroClean). Spray the 3% EnviroClean solution over the entire treatment cell.

4. If, after a week, little to no rainfall has fallen, water the site thoroughly.

5. Wait another week and repeat steps 1 and 3, if needed.

6. Monitor and continue the treatment protocol until desired clean up levels are reached.

Samples can be taken and analyzed for Total Petroleum Hydrocarbons (TPH) to track the progress of the remediation. If the TPH were to appear to stabilize and not continue to decline, a second application of EnviroClean may be required.

***Note*:** It can be helpful, but not required, to add a highly soluble, high nitrogen fertilizer such as Miracle Grow or Sam's Choice to the first 3% EnviroClean solution.

The addition of bacteria is not typically required. The EnviroClean solution will stimulate the activity level of the naturally occurring bacteria.

In the fall and winter, it helps to expedite the job if the treatment cell is covered with plastic between treatments. This tends to hold in heat and generate additional moisture.

Keeping the soil moist is an integral part of the clean up.

Emergency Response & Spill Cleanup

Small Spill Cleanup: Dilute EnviroClean to a 10% solution. On small spills apply with 2 ½ gallon pressure sprayer or similar device. Cover the entire spill working in a circular motion from outside perimeter toward the center of the spill. After application of EnviroClean has been completed, agitate spill area with forcible stream of water or broom and rinse thoroughly. EnviroClean helps to reduce or eliminate any VOC concerns associated with the cleanup by micro-emulsifying the hydrocarbon on contact drastically reducing the LEL levels in a very short time frame. EnviroClean also eliminates sheens.

On Roadways & Pavement: EnviroClean can be applied with a pressure sprayer or applied through a foam eductor at a 6% setting. EnviroClean will instantly stop the deterioration of asphalt by diesel or gas and eliminate slippery conditions. Dispose in accordance with local rules and regulations.

***Note*:** For use with absorbents, EnviroClean will increase effectiveness by allowing the contaminate to more easily penetrate into the absorbent.

Degassing & Cleaning of Tanks & Equipment

EnviroClean is effective for the degassing and cleaning of all types of petroleum storage tanks. For small tanks of less than 50,000 gallons,

EnviroClean should be utilized through a power washer at dilutions between 2% and 6% depending on the type of product within the vessel and the degree of contamination. Typically for flammables, a 6% solution is utilized to completely agitate the tank residue and to scour the wall of the vessel prior to and during pump out. Lower dilutions may be utilized for products not representing a vapor hazard. EnviroClean is also effective for reducing H2S, Benzene and other VOC's.

Tank Bed Remediation

A common and effective means of mitigating the vapor hazard and remediating the tank bedding is to utilize a "flushing and recovery" technique with a diluted solution of EnviroClean. Typically a 3% to 6% solution of EnviroClean and water is utilized in a batch process to treat the impacted portions of the tank floor area. Simply perforating the affected area with a "buster" or hole saw and allowing the EnviroClean solution to flood the affected bedding will eliminate immediate, and future, recurrences of vapor generation. The process also serves to remediate the contamination by flushing entrained hydrocarbon out of the bedding for recovery and disposal, or re-processing. If necessary, the entire sub-floor area may be treated by saturating the zone of contamination and flushing the fluid to the sump, or other collection point, and recovering the rinsate for disposal. Depending upon the severity of the leak, and the resultant degree of subfloor contamination, the EnviroClean solution can be applied so as to simply saturate the bedding material, or it can be injected so as to flush and recover gross quantities of hydrocarbon.

Chemical Pipeline Pigging

As a general guideline, pump a slug of 3% to 6% solution and chase with water.

VOC Vapor Mitigation & Odor Control

EnviroClean is typically applied at a concentration of 3 – 6% for vapor and/or odor control. Circulate the solution through a manway cannon or other device in order to provide sufficient saturation of the vapor space of the vessel that is being degassed. Check the vapor level of the tank before circulation begins. Circulate for about 2 hours and let the tank settle for about 2 hours. Check the vapor level in the tank. More than one circulation may be required for complete vapor suppression. The holding capacity of EnviroClean may require sweetening or circulation with a fresh batch of product, depending on the amount of hydrocarbon vapors originally contained in the vessel.

Dilute EnviroClean to a 3% to 6% solution. Coverage is normally at 3 to 4 square yards of surface area per gallon. Heavy contamination or mercaptan type odors may require a stronger solution of EnviroClean.

Typically, 1 gallon of EnviroClean concentrate diluted to a 3% to 6% solution will render up to 6 gallons of petroleum product nonflammable when properly applied.

Hard Surface Cleaning & Decontamination

For heavy soiled oil and grease on hard surfaces: Mix a 6% solution of concentrate with clean water in quantity sufficient to cover contaminated area. Apply generous amounts with spray applicator, or equivalent and allow reasonable time for the surfactants in EnviroClean to penetrate and break down the hydrocarbon and grime. Once applied, solution may be scrubbed or brushed in for stubborn soiling. Next, apply EnviroClean at a 1% - 2% solution through a power washer (heated power wash system will expedite the process). Flush residue to containment and dispose of as local rules apply.

For lightly soiled or freshly oiled surfaces:
EnviroClean may be used through any power washer or steam jenny currently available. Operating temperatures of 140 degrees F. will maximize effectiveness. Solution strengths of 1 – 2% may be used for lighter decontamination duties. For small applications, a 5% solution (16 oz. EnviroClean concentrate to 2.5 gallons water) may be applied with a small pump sprayer and scrubbed or brushed into surface.

Insitu Free Product Recovery Enhancement

EnviroClean is effective for the insitu solubilization and recovery enhancement of entrained Free Product Hydrocarbon in the subsurface to facilitate recovery or biodegradation. Dilutions of 2% v/v are typical for light ends (i.e. gasoline) while concentrations of 3% to 6% are effective for Diesel Range Organic (DRO's) and heavier oils. Applications vary, however the EnviroClean solution is injected into the contaminated zone followed typically by a recovery event.

Soil Flushing and Recovery

EnviroClean is effective for the insitu solubilization and recovery enhancement of entrained Free Product Hydrocarbon in surface and sub-surface soil to facilitate recovery or biodegradation. Dilutions of 2% v/v are typical for light ends (i.e. gasoline) while concentrations of 3% to 6% are effective for Diesel Range Organic (DRO's) and heavier oils. Applications vary, however the EnviroClean solution is injected into or flushed through the contaminated zone.

Surface Washing & Shoreline Cleanup

Dilute EnviroClean to a 2% solution. On small spills apply with 2.5 gallon pressure sprayer or similar device. Cover entire spill, working in a circular motion, from outside perimeter toward the center of the spill. After application of EnviroClean has been completed, agitate spill area with forcible stream of water or broom and rinse thoroughly.

On larger spills, specific applications and protocols should be developed taking into account local risks and considerations.

***Note*:** EnviroClean is listed on the U.S. E.P.A. NCP Product Schedule as a Surface Washing Agent (listed SW #31). This listing does *not* mean that U.S. E.P.A. approves, licenses, certifies, or authorizes the use of EnviroClean on an oil discharge. This listing means only that data have been submitted to EPA as required by subpart J of the National Contingency Plan § 300.915.

Fire Fighting for Class A & B Fires

Proportioning Rate:	6%
GPM Flow Rate:	95 – 110
PSI at Eductor:	200 or MFG's recommendations
Hose Length:	As per MFG's suggestion
Nozzle Type:	Standard adjustable or automatic
Coverage:	0.2 gpm per square foot
Nozzle Pattern:	Hard cone to coarse stream
Application:	Starting from the outside perimeter, using a stirring, mixing action.

Contaminated Soil Excavation

In most cases a 3% solution of EnviroClean will be adequate to keep vapor emissions within acceptable limits. Dilute EnviroClean concentrate with water at a ratio of 1 part EnviroClean to 32 parts water to make a 3% solution. The EnviroClean solution should be applied evenly to the soil surface in sufficient quantity to dampen the surface well. As a general rule, 1 gallon of solution will cover approximately 4 sq. yd. of soil surface area.

APPENDIX G

March 2014 Soil Boring Logs

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring Log

BORING NUMBER B1 Page 1 of 1

PROJECT Bridgewater Apartments
OWNER Harvest Properties
LOCATION 6400 Christie Avenue, Emeryville, CA
PROJECT NUMBER 2007-65
TOTAL DEPTH 20 feet bgs
BOREHOLE DIA. 2-1/2 inch
SURFACE ELEV. Unknown
WATER FIRST ENCOUNTERED 17 feet
DRILLING COMPANY Cascade
DRILLING METHOD Direct Push
DRILLER Amador
GEOLOGIST S. Bittman
DATE DRILLED 3/11/14

DEPTH (feet)	GRAPHIC LOG	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0		Concrete slab 6"	
		Asphalt 4"	
2		Clayey gravel (GC) to Sandy Clay (CL), fill	
4		Asphalt 3.5-4'	Poor recovery 4-8'
6			
8		Interbedded silty clay (CL) and clayey silt (ML), gravelly, grey green, very stiff, moist to wet	No obvious hydrocarbon contamination noted
10			
12			Set temporary 1" diameter PVC well screen @ 10-20'. Collect B1-SES-W grab groundwater sample.
14			
		Organic clay (OH), black, woody, moist	
16			
		Sandy clay (CL) to clayey sand (SC), brown, soft, wet	
18			
20		Silty clay (CH), brown, moist, stiff - no discoloration	
		Total depth = 20'	

▽ First encountered groundwater ▼ Equilibrated groundwater level

2007-65-75

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring Log

BORING NUMBER B2 Page 1 of 1

PROJECT Bridgewater Apartments
OWNER Harvest Properties
LOCATION 6400 Christie Avenue, Emeryville, CA
PROJECT NUMBER 2007-65
TOTAL DEPTH 6 feet bgs
BOREHOLE DIA. 2-1/2 inch
SURFACE ELEV. Unknown
WATER FIRST ENCOUNTERED NA
DRILLING COMPANY Cascade
DRILLING METHOD Direct Push
DRILLER Amador
GEOLOGIST S. Bittman
DATE DRILLED 3/11/14

DEPTH (feet)	GRAPHIC LOG	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0		Concrete slab 5"	
		Base rock ~2"	
2		Clay, sand, brick fill	
4		Clayey sand (SC), gray-green, damp, hard	No obvious hydrocarbon contamination noted
6		Refused at 6'	
8			
10			
12			
14			
16			
18			
20			

▽ First encountered groundwater ▼ Equilibrated groundwater level

2007-65-76

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring Log

BORING NUMBER B3 Page 1 of 1

PROJECT Bridgewater Apartments
OWNER Harvest Properties
LOCATION 6400 Christie Avenue, Emeryville, CA
PROJECT NUMBER 2007-65
TOTAL DEPTH 20 feet bgs
BOREHOLE DIA. 2-1/2 inch
SURFACE ELEV. Unknown
WATER FIRST ENCOUNTERED 16-1/2”
DRILLING COMPANY Cascade
DRILLING METHOD Direct Push
DRILLER Amador
GEOLOGIST S. Bittman
DATE DRILLED 3/11/14

DEPTH (feet)	GRAPHIC LOG	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0		Concrete slab 5"	
		Clayey gravel, brick, glass, metal debris, fill	
2			
4			Poor recovery 4-8'
6			
8			
10		▼ Silty clay (CL-CH), dark grey, moist, very stiff	
12			
14			Set temporary 1" diameter PVC well casing from 10-20'. Collect B3-SES-W grab groundwater sample.
16		▽	
18		Clayey sand (SC), fine-grained, wet, dense	
20		Total depth = 20'	

2007-65-77

▽ First encountered groundwater ▼ Equilibrated groundwater level

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring Log

BORING NUMBER B4 Page 1 of 1

PROJECT Bridgewater Apartments
OWNER Harvest Properties
LOCATION 6400 Christie Avenue, Emeryville, CA
PROJECT NUMBER 2007-65
TOTAL DEPTH 5 feet bgs
BOREHOLE DIA. 2-1/2 inch
SURFACE ELEV. Unknown
WATER FIRST ENCOUNTERED NA
DRILLING COMPANY Cascade
DRILLING METHOD Direct Push
DRILLER Amador
GEOLOGIST S. Bittman
DATE DRILLED 3/11/14

DEPTH (feet)	GRAPHIC LOG	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0		Asphalt 3"	
		Baserock 3"	
2		Clayey gravel fill, brick, glass - debris	
4			
		Refusal at 5 ft. bgs	
6			
8			
10			
12			
14			
16			
18			
20			

2007-65-78

▽ First encountered groundwater ▼ Equilibrated groundwater level

STELLAR
ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

Soil Boring Log

BORING NUMBER B5 Page 1 of 1

PROJECT Bridgewater Apartments
OWNER Harvest Properties
LOCATION 6400 Christie Avenue, Emeryville, CA
PROJECT NUMBER 2007-65
TOTAL DEPTH 20 feet bgs
BOREHOLE DIA. 2-1/2 inch
SURFACE ELEV. Unknown
WATER FIRST ENCOUNTERED 18 ft.
DRILLING COMPANY Cascade
DRILLING METHOD Direct Push
DRILLER Amador
GEOLOGIST S. Bittman
DATE DRILLED 3/11/14

DEPTH (feet)	GRAPHIC LOG	DESCRIPTION/SOIL CLASSIFICATION	REMARKS
0		Asphalt 3"	
		Clayey gravel & brick fill	
2		Dark brown, dry	
4			
6			
8			
		▼ Increasing moisture at 10 ft.	
10			
12			
		Bottom of fill	
14		Silty clay (CL) interbedded with clayey sand (SC), blue green, very stiff to hard, wet @ 18'	Set temporary 1" diameter well screen from 10-20'. Collect B5-SES-W grab groundwater sample.
16			
		▽	
18		Total depth = 20'	
20			

2007-65-78

▽ First encountered groundwater ▼ Equilibrated groundwater level

APPENDIX H

March 2014 Soil Boring Photodocumentation

Subject: Advancing boring B3.	
Site: 6400 Christie Avenue, Emeryville, California	
Date Taken: March 11, 2014	Project No.: SES 2007-65
Photographer: S. Bittman	Photo No.: 01

Subject: Typical fill material in upper 10 feet.	
Site: 6400 Christie Avenue, Emeryville, California	
Date Taken: March 11, 2014	Project No.: SES 2007-65
Photographer: S. Bittman	Photo No.: 02

Subject: Discoloration of water bearing zone- Boring B1	
Site: 6400 Christie Avenue, Emeryville, California	
Date Taken: March 11, 2014	Project No.: SES 2007-65
Photographer: T. Glass	Photo No.: 01

Subject: Grouting (sealing) Boring B1	
Site: 6400 Christie Avenue, Emeryville, California	
Date Taken: March 11, 2014	Project No.: SES 2007-65
Photographer: T. Glass	Photo No.: 02

APPENDIX I

March 2014 Grab Groundwater Sample

Analytical Laboratory Report and Chain-of-Custody Record

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1403409

Report Created for: Stellar Environmental Solutions
2198 Sixth St. #201
Berkeley, CA 94710

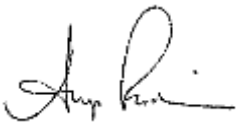
Project Contact: Richard Makdisi
Project P.O.:
Project Name: #2007-65; Harvest Properties

Project Received: 03/12/2014

Analytical Report reviewed & approved for release on 03/19/2014 by:

Question about your data?

Click here to email McCampbell



Angela Rydelius,
Laboratory Manager

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Glossary of Terms & Qualifier Definitions

Client: Stellar Environmental Solutions
Project: #2007-65; Harvest Properties
WorkOrder: 1403409

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not detected at or above the indicated MDL or RL
NR	Matrix interferences, or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix; or sample diluted due to high matrix or analyte content.
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
TEQ	Toxicity Equivalence

Analytical Qualifier

b1	aqueous sample that contains greater than ~1 vol. % sediment
d1	weakly modified or unmodified gasoline is significant
e2	diesel range compounds are significant; no recognizable pattern
e7	oil range compounds are significant

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Analytical Report

Client:	Stellar Environmental Solutions	**WorkOrder:**	1403409
Project:	#2007-65; Harvest Properties	**Extraction Method:**	SW5030B
Date Received:	3/12/14 22:28	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	3/17/14-3/19/14	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
B1-SES-W	**1403409-001A**	**Water**	**03/11/2014**	**GC3**	**88308**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	03/17/2014 19:46
MTBE	ND	5.0	1	03/17/2014 19:46
Benzene	ND	0.50	1	03/17/2014 19:46
Toluene	ND	0.50	1	03/17/2014 19:46
Ethylbenzene	ND	0.50	1	03/17/2014 19:46
Xylenes	ND	0.50	1	03/17/2014 19:46

Surrogates	REC (%)	Limits	Analytical Comments: b1	
aaa-TFT	101	70-130		03/17/2014 19:46

B3-SES-W	1403409-002A	Water	03/11/2014	GC3	88308

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	03/19/2014 13:07
MTBE	ND	5.0	1	03/19/2014 13:07
Benzene	ND	0.50	1	03/19/2014 13:07
Toluene	ND	0.50	1	03/19/2014 13:07
Ethylbenzene	**0.61**	0.50	1	03/19/2014 13:07
Xylenes	ND	0.50	1	03/19/2014 13:07

Surrogates	REC (%)	Limits	Analytical Comments: b1	
aaa-TFT	101	70-130		03/19/2014 13:07

B5-SES-W	1403409-003A	Water	03/11/2014	GC3	88308

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**250**	50	1	03/18/2014 22:06
MTBE	ND	5.0	1	03/18/2014 22:06
Benzene	**16**	0.50	1	03/18/2014 22:06
Toluene	**2.1**	0.50	1	03/18/2014 22:06
Ethylbenzene	**1.5**	0.50	1	03/18/2014 22:06
Xylenes	**4.5**	0.50	1	03/18/2014 22:06

Surrogates	REC (%)	Limits	Analytical Comments: d1,b1	
aaa-TFT	99	70-130		03/18/2014 22:06

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Analytical Report

Client:	Stellar Environmental Solutions	**WorkOrder:**	1403409
Project:	#2007-65; Harvest Properties	**Extraction Method**	SW3510C
Date Received:	3/12/14 22:28	**Analytical Method:**	SW8015B
Date Prepared:	3/12/14	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
B1-SES-W	**1403409-001B**	**Water**	**03/11/2014**	**GC2A**	**88102**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**480**	50	1	03/14/2014 06:53

Surrogates	REC (%)	Limits	Analytical Comments: e7,e2,b1
C9	97	70-130	03/14/2014 06:53

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
B3-SES-W	**1403409-002B**	**Water**	**03/11/2014**	**GC2A**	**88102**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**2000**	50	1	03/14/2014 08:08

Surrogates	REC (%)	Limits	Analytical Comments: e7,e2,b1
C9	95	70-130	03/14/2014 08:08

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
B5-SES-W	**1403409-003B**	**Water**	**03/11/2014**	**GC2B**	**88102**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**3300**	250	5	03/14/2014 08:08

Surrogates	REC (%)	Limits	Analytical Comments: e7,e2,b1
C9	117	70-130	03/14/2014 08:08

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Quality Control Report

Client:	Stellar Environmental Solutions	**WorkOrder:**	1403409
Date Prepared:	3/17/14	**BatchID:**	88308
Date Analyzed:	3/17/14	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	#2007-65; Harvest Properties	**Sample ID:**	MB/LCS-88308 1403429-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	59.87	40	60	-	99.8	70-130
MTBE	ND	10.51	5.0	10	-	105	70-130
Benzene	ND	10.29	0.50	10	-	103	70-130
Toluene	ND	10.27	0.50	10	-	103	70-130
Ethylbenzene	ND	10.14	0.50	10	-	101	70-130
Xylenes	ND	30.61	0.50	30	-	102	70-130
Surrogate Recovery							
aaa-TFT	10	9.728		10	100	97	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR	0	33000	NR	NR	-	NR	
MTBE	NR	NR	0	ND<1000	NR	NR	-	NR	
Benzene	NR	NR	0	12000	NR	NR	-	NR	
Toluene	NR	NR	0	14000	NR	NR	-	NR	
Ethylbenzene	NR	NR	0	1600	NR	NR	-	NR	
Xylenes	NR	NR	0	10000	NR	NR	-	NR	
Surrogate Recovery									
aaa-TFT	NR	NR	0		NR	NR	-	NR	

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Quality Control Report

Client:	Stellar Environmental Solutions	**WorkOrder:**	1403409
Date Prepared:	3/12/14	**BatchID:**	88102
Date Analyzed:	3/13/14 - 3/18/14	**Extraction Method:**	SW3510C
Instrument:	GC2B, GC6B	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	#2007-65; Harvest Properties	**Sample ID:**	MB/LCS-88102

QC Summary Report for SW8015B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	784.1	50	1000	-	78.4	70-130
Surrogate Recovery							
C9	636	606.6		625	102	97	70-130

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1403409 **ClientCode: SESB**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Richard Makdisi
Stellar Environmental Solutions
2198 Sixth St. #201
Berkeley, CA 94710
510-644-3123 FAX: 510-644-3859

Email: rmakdisi@stellar-environmental.com;hpietr
cc/3rd Party:
PO:
ProjectNo: #2007-65; Harvest Properties

Bill to:
Accounts Payable
Stellar Enviormental Solutions
2198 Sixth St. #201
Berkeley, CA 94710
lwheeler@stellar-environmental.com

Requested TAT: **5 days**

Date Received: **03/12/2014**
Date Printed: **03/13/2014**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1403409-001	B1-SES-W	Water	3/11/2014	☐	A	B										
1403409-002	B3-SES-W	Water	3/11/2014	☐	A	B										
1403409-003	B5-SES-W	Water	3/11/2014	☐	A	B										

Test Legend:

1	G-MBTEX_W	2	TPH(D)_W	3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Zoraida Cortez

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: STELLAR ENVIRONMENTAL SOLUTIONS
QC Level: LEVEL 2
Work Order: 1403409
Project: #2007-65; Harvest Properties
Client Contact: Richard Makdisi
Date Received: 3/12/2014
Comments:
Contact's Email: rmakdisi@stellar-environmental.com;hpietropaoli@stellar-

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Number of Containers	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1403409-001A	B1-SES-W	Water	SW8021B/8015Bm (G/MBTEX)	2	VOA w/ HCl	☐	3/11/2014	5 days	2%+	☐	
1403409-001B	B1-SES-W	Water	SW8015B (Diesel)	2	VOA w/ HCl	☐	3/11/2014	5 days	2%+	☐	
1403409-002A	B3-SES-W	Water	SW8021B/8015Bm (G/MBTEX)	2	VOA w/ HCl	☐	3/11/2014	5 days	1%+	☐	
1403409-002B	B3-SES-W	Water	SW8015B (Diesel)	2	VOA w/ HCl	☐	3/11/2014	5 days	1%+	☐	
1403409-003A	B5-SES-W	Water	SW8021B/8015Bm (G/MBTEX)	2	VOA w/ HCl	☐	3/11/2014	5 days	1%+	☐	
1403409-003B	B5-SES-W	Water	SW8015B (Diesel)	2	VOA w/ HCl	☐	3/11/2014	5 days	1%+	☐	
1403409-004A	B1-S-16.5	Soil		1	Acetate Liner	☐	3/11/2014			☑	
1403409-005A	B3-S-15.5	Soil		1	Acetate Liner	☐	3/11/2014			☑	

*** NOTE: STLC and TCLP extractions require 48 hrs to complete; therefore, all TATs begin after the extraction is completed (i.e., 24hr TAT yields results in 72 hrs from sample submission).**

Bottle Legend:

Acetate Liner = Acetate Liner
VOA w/ HCl = 43mL VOA w/ HCl

Chain of Custody Record

1403409

Lab job no. _____
Date _____
Page 1 of 1

Laboratory McCampbell Analytical
Address 1534 Willow Pass Rd
Pittsburg, CA 94565

Method of Shipment Courrier
Shipment No. _____
Airbill No. _____
Cooler No. _____

Project Owner Harvest Properties
Site Address 6400 Christie Ave
Emeryville, CA
Project Name Bay Center
Project Number 2007-65

Project Manager Richard 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	TVHg MBTEX	TEPH	Remarks
+2 B1-SES-W		3/11/14		W	40 ml VOA	✓	HCl		4	X	X	
~~B2-SES-W~~				~~W~~	~~40 ml VOA~~	~~✓~~	~~HCl~~		~~4~~	~~X~~	~~X~~	
+1 B3-SES-W				W	40 ml VOA	✓	HCl		4	X	X	
~~B4-SES-W~~				~~W~~	~~40 ml VOA~~	~~✓~~	~~HCl~~		~~4~~	~~X~~	~~X~~	
+1 B5-SES-W		3/11/14		W	40 ml VOA	✓	HCl		4	X	X	
B1-S-16.5		3/11/14		S	Acetate	✓	⊘		1	X	X	HOLD
B3-S-15.5		3/11/14		S	Acetate	✓	⊘		1	X	X	HOLD

Relinquished by	Date	Received by	Date	Relinquished by	Date	Received by	Date
Signature S. Bittman	3/12/14	Signature	3/12/14	Signature	3/12/14	Signature	3/12
Printed Steve Bittman	Time	Printed DANIEL LOA	Time 1934	Printed DANIEL LOA	Time	Printed Zoraida Cortez	Time
Company SES		Company MCCAMPBELL		Company MAI		Company MAI	

Turnaround Time: Normal 5-DAY

Comments: _____

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

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Sample Receipt Checklist

Client Name: **Stellar Environmental Solutions** Date and Time Received: **3/12/2014 10:28:16 PM**

Project Name: **#2007-65; Harvest Properties** LogIn Reviewed by: Zoraida Cortez

WorkOrder N°: **1403409** Matrix: Soil/Water Carrier: Daniel (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 3°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	NA ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Comments: