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**2007 ANNUAL  
GROUNDWATER MONITORING AND  
PRODUCT EXTRACTION REPORT**

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

*Prepared for:*

**BAY CENTER INVESTOR LLC  
6475 CHRISTIE AVENUE, SUITE 550  
EMERYVILLE, CA 94608**

**January 2008**

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*Prepared for:*

**BAY CENTER INVESTOR LLC  
6475 CHRISTIE AVENUE, SUITE 550  
EMERYVILLE, CA 94608**

*Prepared by:*

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

**January 28, 2008**

Project No. 2007-65

January 28, 2008

Ms. Sarah Irving  
Bay Center Investor, LLC  
6475 Christie Avenue, Suite 550  
Emeryville, CA 94608

Subject: 2007 Annual Groundwater Monitoring and Product Extraction Report  
EmeryBay Phase I Condo Parking Garage – 6400 Christie Avenue, Emeryville, CA

Dear Ms. Irving:

Enclosed is the Stellar Environmental Solutions, Inc. report summarizing the December 2007 annual groundwater monitoring event and product extraction activities at the above referenced site. This project is being conducted for Bay Center Investor, LLC c/o Harvest Properties (property owner), and follows previous sampling events (conducted by Groundwater Technology, Inc. in 1988, 1989, and 1991, and by PES Environmental, Inc. in 2004 and 2006).

There is no agreement currently in place with the regulatory agency, Alameda County Environmental Health Department (ACEH), regarding the frequency of groundwater sampling. In addition, the case officer for this site is no longer with ACEH, and no replacement case officer has yet been appointed.

This report summarizes the sixth sampling event conducted at the site since 1988. In accordance with California State Water Resources Control Board requirements, a copy of this report in pdf format will be uploaded to the State GeoTracker system.

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

Sincerely,



Richard S. Makdisi, R.G., R.E.A.  
Principal

cc: Donna Drogos, ACEH



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## **1.0 INTRODUCTION**

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### **PROJECT BACKGROUND**

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

### **SITE AND VICINITY DESCRIPTION**

The project site is located at 6400 Christie Avenue in Emeryville, California (see Figure 1). The project site, which slopes to the south, is wholly developed with a ground-floor parking area and apartment complex known as the Emery Bay Phase I Condos and parking garage. The area of monitoring and product extraction is primarily located in the northeastern portion of the parking garage. Figure 2 is a site plan. The site is bordered to the east by the Emery Bay Phase II Condos and parking garage, to the north by 65<sup>th</sup> Avenue, beyond Christie Avenue and to the west by the Bay Center Offices, and to the south by 64<sup>th</sup> 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 Motor Freight Station, associated with the Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day Emery Bay Phase I Condo complex and parking garage. The building remained on the property until 1986, when it was demolished to build the present-day structures. Twelve underground fuel storage tanks (UFSTs) containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels in 1987, at which time soil and groundwater contamination was discovered.



Image courtesy of the U.S. Geological Survey



**SITE LOCATION ON AERIAL PHOTO**

**6400 Christie Ave.  
Emeryville, CA**

By: MJC

JANUARY 2008

**Figure 1**



2007-565-01



**LEGEND**

--- Subject property boundary

Image © 2008 TerraMetrics

© 2007 Google



**SITE PLAN AND ADJACENT LAND USE**

6400 Christie Ave.  
Emeryville, CA

By: MJC

JANUARY 2008

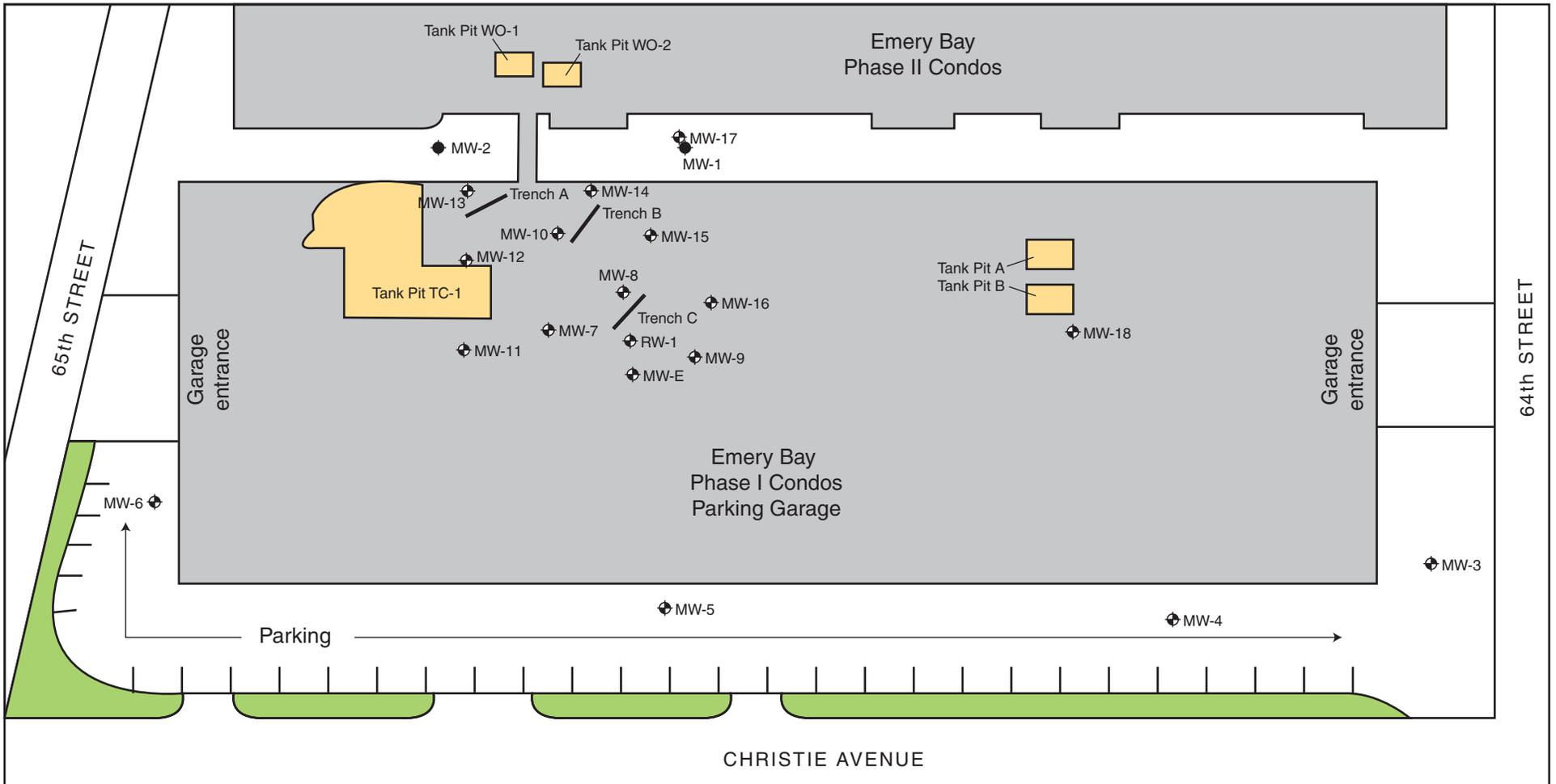
**Figure 2**



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

In response to the contamination in the garage area of the Emery Bay Phase I Condo complex, a light non-aqueous phase liquid (LNAPL) groundwater pump and treat system was installed by Groundwater Technology, Inc. (GTI) in 1989. The system extracted approximately 1,000,000 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 per condition of the discharge permits granted by the East Bay Municipal Utility District (EBMUD) and the Bay Area Air Quality Management District (BAAQMD). The first groundwater monitoring event for MW-1 through MW-6 occurred in December 1988. The second monitoring event, which also included MW-E and RW-1, occurred in March 1989. Subsequently, the groundwater extraction system operated by GTI was closed in late 1990 when corrosion and other mechanical problems caused the system to fail. Recovery of LNAPL continued manually on RW-1 until 1991, and a third groundwater sampling event occurred in February 1991. In 1994, the GTI recovery system was removed. Appendix A contains the historical analytical results.

No groundwater monitoring well sampling events occurred at the site between 1991 and 2004, when PES was retained to evaluate and implement remediation of the residual contamination at the TC-1 (former location of seven UFSTs) Emery Bay Phase I Condo complex area. (Harding Lawson Associates conducted soil and groundwater sampling on the Phase II Apartment complex area during this time, but not for the purpose of product extraction or remediation.) In 2004, PES installed an additional ten 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 1 extraction well in the Phase I parking garage area. The first groundwater monitoring event for the current wells was conducted in March 2004, and the second event was conducted in December 2006.



**LEGEND**

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

0 60  
SCALE: 1/2" = 60 FEET



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

**Figure 3**

by: MJC

JANUARY 2008

A previous SES report (SES, 2007) provides a full discussion of prior 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 Appendix A.

## **OBJECTIVES AND SCOPE OF WORK**

This report discusses the following activities conducted/coordinated by SES in the current annual monitoring period:

- Collecting water levels in site wells to determine groundwater flow direction
- Sampling site wells for contaminant analysis
- Evaluating hydrochemical and groundwater elevation trends in the context of plume stability and case closure assessment
- LNAPL product extraction from trenches A, B, and C

## **REGULATORY OVERSIGHT**

The original groundwater extraction system installed at the Emery Bay Phase I Condo parking garage removed contaminated groundwater, treated it through a two-phase carbon filtration unit, and then discharged the treated water to the municipal storm drain system. For this reason, the original regulatory agencies overseeing the site were the BAAQMD and EBMUD. Sampling of the monitoring wells and groundwater treatment system discharge was required per the EBMUD permit guideline (account #500-54011) and the BAAQMD air discharge guideline (No. 32325). However, after the treatment system failed in 1991, the permits were no longer required; thus, there was little to no regulatory oversight of the hydrocarbon plume between 1991 and 2004.

Currently, the Alameda County Department of Environmental Health (ACEH) is the Local Oversight Program (LOP) agency providing oversight of LUST sites in the city of Emeryville. SES met with the previous case officer, Barney Chan (who has since left ACEH), to discuss remedial activities and steps toward site closure (Chan, 2007). Mr. Chan indicated that, while a more vigorous approach to monitoring and remediation was desired, he never had access to historical investigations at the site (no previous site documentation had been provided to ACEH or uploaded to the State Water Resources Control Board's [State Water Board's] GeoTracker website as required since 2004). A subsequent letter from ACEH was written to the previous owner and consultant PES requesting the uploading of historical documents and GeoTracker compliant monitoring well survey data.

Following the completion of this report, SES will meet with ACEH to establish a new site officer and then discuss with him/her the recommended actions toward site closure. SES also needs to

ascertain specific GeoTracker upload requirements—e.g., which historical reports should be uploaded (all SES produced reports will be uploaded to the GeoTracker website) and what global identification number (global ID) should be used. Historically, the site was included in the Garret Freight Lines SLIC site under the Regional Water Quality Control Board (Water Board) global ID SLT2O05561 and ACEH case number RO0002799. However, this site encompasses adjacent properties, such as the Bay Center Offices and recently developed apartment complex located south of 64<sup>th</sup> Street. In addition, the SLIC listing is based on metal contamination discovered in soils on the Bay Center site, and does not reflect the leaking underground storage tank remediation currently underway at the Emery Bay Phase I Condos. There is also a GeoTracker LUST listing for the Emery Bay Marketplace at 64<sup>th</sup> and Christie; however, this listing is most likely associated with the Emeryville Market located south of 64<sup>th</sup> Avenue. Therefore, SES recommends establishing a new GeoTracker global ID specific to the Emery Bay Phase I Condos.

This SES report follows previous groundwater sampling events conducted by Groundwater Technology, Inc. in 1988, 1989, and 1991, and two groundwater monitoring events conducted by PES in 2004 and 2006. At this time, it appears as if the contaminant plume could be migrating offsite. However, because of the infrequent groundwater sampling, it is unclear whether the plume is stabilizing or increasing in concentration. It also appears as if an offsite hydrocarbon source may be migrating from south of the site, toward the northwest portion of the subject property. This source is most likely the Emeryville Market LUST site located immediately south of the subject property.

Electronic data format (EDF) files, beginning with this 2007 Annual Monitoring Report, will be successfully uploaded to the GeoTracker database, in accordance with the State Water Board's requirements for EDF submittals.

## **2.0 PHYSICAL SETTING**

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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 SES in 2007.

### **TOPOGRAPHY AND DRAINAGE**

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

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

Storm drains from the roof collect storm runoff for discharge onto the asphalt paved parking lots. Storm sewers collect drainage from the parking lot, as well as from Christie, 64<sup>th</sup>, and 65<sup>th</sup> Streets, that discharges into San Francisco Bay. SES noted several storm drains, in the parking lot area and on the surrounding streets.

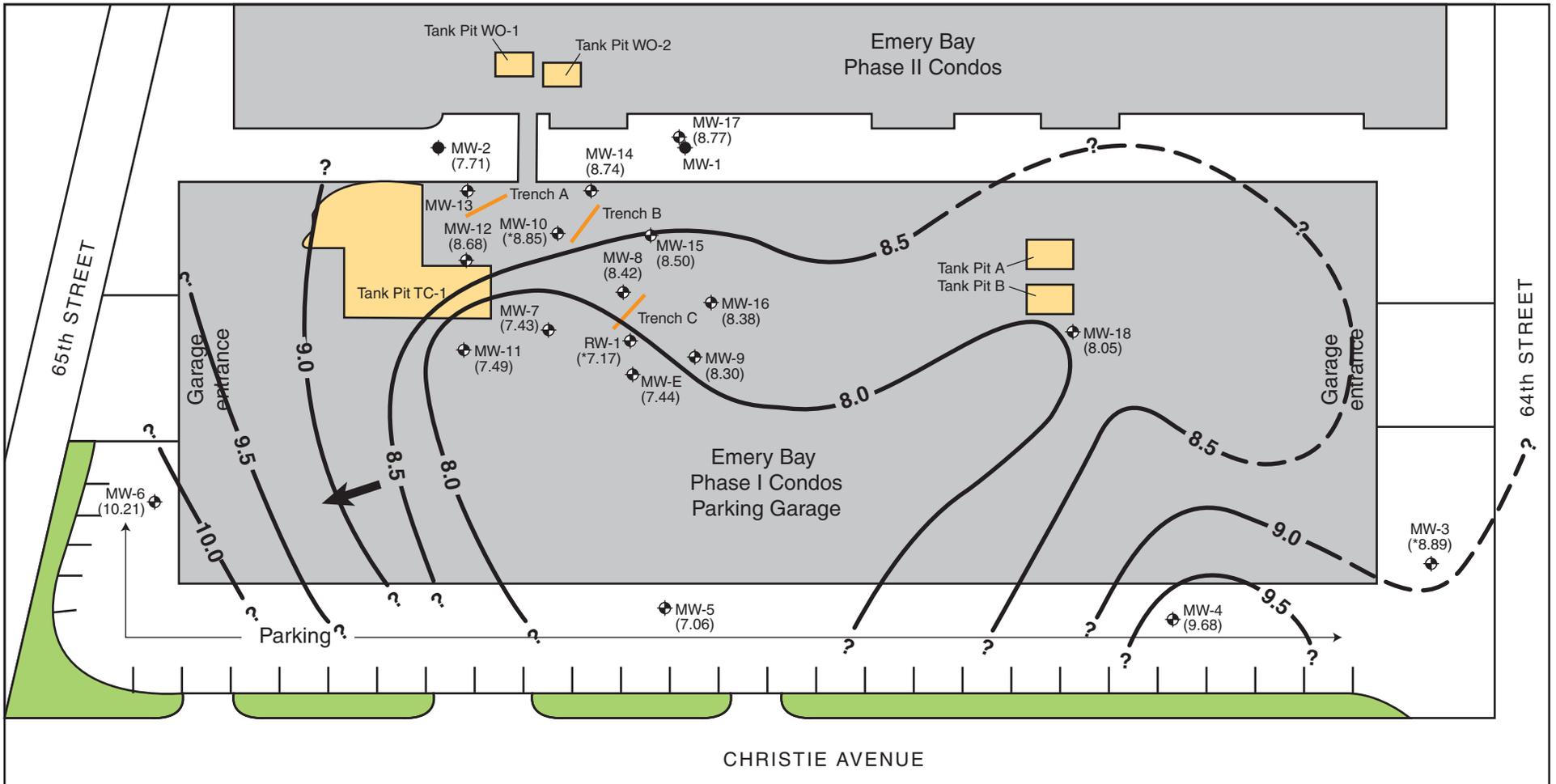
### **GEOLOGY**

The subject property area is underlain with material mapped “Qhbm,” designated early pleistocene alluvium that is moderately consolidated, deeply weathered, poorly sorted, irregularly interbedded clay, silt, sand, and gravel. A geotechnical survey conducted in 1985 found the upper 15 to 20 feet of soil to consist of a combination of fill and soft bay sediment. The upper 1 to 2½ feet of soil was generally pavement and imported fill. The upper 20 feet of firm bearing soil is primarily dense silty sand with intermittent layers of silty and sandy clay. Stiff to very stiff clay was encountered below a depth of approximately 40 feet and extended to the depth of the borings, approximately 101.5 feet (Geomatrix, 1985a). 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**

Section 5.0 contains a detailed discussion of site groundwater elevation trends. Regulatory agency records indicate that the direction of shallow groundwater flow in the site vicinity is to the west-northwest toward San Francisco Bay. Water levels in this area are influenced by tidal patterns. According to water level data obtained from onsite monitoring wells during the December 2007 sampling event, the depth to groundwater ranges from approximately 6 to 11 feet below ground surface (bgs). The groundwater gradient is approximately 0.004 feet per foot.

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



**LEGEND**

- Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- Groundwater elevation contour in feet amsl
- Historical tank pit area
- Landscaping
- Inferred direction of groundwater flow
- \* Free product elevation — no depth to groundwater available

0 60  
SCALE: 1/2" = 60 FEET



2007-65-03



**GROUNDWATER ELEVATION MAP**  
**6400 Christie Ave., Emeryville, CA**

**Figure 4**

by: MJC

DECEMBER 2007

### **3.0 DECEMBER 2007 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 and 9 trench wells
- Collecting post-purge groundwater samples from the 18 wells for laboratory analysis—including benzene, toluene, ethyl benzene, and xylenes (BTEX); methyl tertiary-butyl ether (MTBE); and total petroleum hydrocarbons as gasoline and diesel

The locations of all 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**

Groundwater monitoring well water level measurements, purging, sampling, and field analyses were conducted on December 27, 2007 by Blaine Tech Services under the supervision of SES 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 and 9 trench 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.

Approximately 50 gallons of purge water and equipment decontamination rinse water from the current groundwater sampling event was containerized in a labeled 55-gallon drum. This water will be stored onsite in a secure area and combined with future purge water for disposal.

**Table 1**  
**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 <sup>(a)</sup>	Depth to Free Product (bgs)	Inches of Free Product	Groundwater Elevation (December 27, 2007)
MW-3	25	5 to 20	16.65	7.76 <sup>(b)</sup>	UK	8.89 <sup>(b)</sup>
MW-4	25	5 to 20	16.29	NA	NA	9.68
MW-5	25	5 to 20	16.72	NA	NA	7.06
MW-6	25	5 to 20	16.82	NA	NA	10.21
MW-7	20	5 to 20	17.73	NA	NA	7.43
MW-8	16	5 to 16	17.84	NA	NA	8.42
MW-9	20	5 to 20	17.84	NA	NA	8.30
MW-10	20	5 to 20	17.83	8.98 <sup>(b)</sup>	UK	8.85 <sup>(b)</sup>
MW-11	20	5 to 20	17.76	NA	NA	7.49
MW-12	20	5 to 20	17.83	NA	NA	8.68
MW-13	20	5 to 20	17.66	9.39	0.56	7.71
MW-14	20	5 to 20	17.60	8.84	0.02	8.74
MW-15	20	5 to 20	17.80	NA	NA	8.50
MW-16	20	5 to 20	17.74	NA	NA	8.38
MW-17	20	5 to 20	18.17	9.32	0.08	8.77
MW-18	20	5 to 20	16.35	NA	NA	8.05
MW-E	47	7 to 40	17.47	NA	NA	7.44
RW-1	30	unknown	16.70	9.53 <sup>(b)</sup>	UK	7.17 <sup>(b)</sup>
TA-E	11-13	6-8 to 11-13	17.20	8.41	0.02	8.77
TA-M	11-13	6-8 to 11-13	17.21	8.43	0.01	8.77
TA-W	11-13	6-8 to 11-13	17.28	8.50	0.01	8.77
TB-E	11-13	6-8 to 11-13	17.24	NA	NA	8.77
TB-M	11-13	6-8 to 11-13	17.30	NA	NA	8.78
TB-W	11-13	6-8 to 11-13	17.33	NA	NA	8.78
TC-E	11-13	6-8 to 11-13	17.07	8.71	0.01	8.35
TC-M	11-13	6-8 to 11-13	17.37	NA	NA	8.37
TC-W	11-13	6-8 to 11-13	17.32	NA	NA	7.38

Notes:

<sup>(a)</sup> Relative to mean sea level.

<sup>(b)</sup> Depth to groundwater could not be determined as free product density would not allow a clear delineation. Elevation is based on depth to free product.

bgs = below ground surface

NA = No free product in well.

UK = Depth of free product unknown.

MW3 through MW6 and MW-E are 2-inch PVC. MW7 through MW18 are ¾-inch PVC. RW-1 is 10-inch PVC.

## **4.0 CURRENT MONITORING EVENT ANALYTICAL RESULTS AND FINDINGS**

---

This section presents the field and laboratory analytical results of the current groundwater monitoring event. Table 2 and Figure 5 summarize the contaminant analytical results of the current monitoring event samples. Appendix C contains the certified analytical laboratory report and chain-of-custody record.

### **GROUNDWATER SAMPLE RESULTS**

#### **Hydrocarbon Contaminants**

Gasoline was detected in MW-3, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-E, and RW-1 above the Water Board Environmental Screening Level (ESL) where groundwater is not a drinking water resource (100 micrograms per liter [ $\mu\text{g/L}$ ]). Gasoline was also detected in MW-9 and MW-16, but below the ESL. The highest concentration (68,000  $\mu\text{g/L}$ ) was observed in MW-13. This is below the concentration of 87,000  $\mu\text{g/L}$  observed during the 2006 sampling event. All of the concentrations for gasoline exhibited during this sampling event were either below the 2006 sampling event concentrations, or within 1,000  $\mu\text{g/L}$  above the previous 2006 sampling event concentrations. Figure 6 shows an isoconcentration contour map of TPHg concentrations in groundwater based on the December 2007 monitoring well analytical results.

Diesel was detected in all site wells above the ESL where groundwater is not a drinking water resource of 100  $\mu\text{g/L}$ , with the exception of MW-13. MW-13 could not be sampled for diesel during this monitoring event due to inadequate sampling volume. The highest concentration (8,600  $\mu\text{g/L}$ ) was observed in MW-18. This is significantly above the 2006 sampling event where no diesel was detected above the laboratory detection limit in this well. In general, concentrations were 2 to 3 orders of magnitude higher than the previous 2006 sampling event. It should also be noted that concentrations of diesel in MW-5 (5,100  $\mu\text{g/L}$ ), MW-6 (1,000  $\mu\text{g/L}$ ), and MW-3 (960  $\mu\text{g/L}$ )—the downgradient and crossgradient wells—were significantly above their 2006 concentrations. These concentrations are especially significant because they could signify the movement of the diesel plume off of subject property site and toward San Francisco Bay.

**Table 2**  
**Groundwater Sample Analytical Results – December 27, 2007**  
**6400 Christie Avenue, Emeryville, California**

Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	<b>150</b>	<b>960</b>	0.54	0.54	<0.5	<0.5	<2.0
MW-4	<50	<b>710</b>	<0.5	<0.5	<0.5	<0.5	<2.0
MW-5	<50	<b>5,100</b>	1.3	<0.5	<0.5	1.23	<2.0
MW-6	<50	<b>1,000</b>	0.98	0.81	<0.5	0.5	<2.0
MW-7	<b>3,100</b>	<b>6,300</b>	<b>640</b>	28	48	231	<10
MW-8	<b>30,000</b>	<b>5,900</b>	<b>11,000</b>	180	<b>650</b>	<b>561</b>	<100
MW-9	84	<b>8,400</b>	4.7	1.1	<0.5	1.9	<2.0
MW-10	<b>13,000</b>	<b>4,700</b>	<b>5,300</b>	96	42	86	<50
MW-11	<b>1,500</b>	<b>6,900</b>	320	44	53	140	<2.0
MW-12	<b>17,000</b>	<b>2,700</b>	<b>8,000</b>	110	25	115	<40
MW-13	<b>68,000</b>	NS <sup>(b)</sup>	<b>19,000</b>	<b>650</b>	<b>1,700</b>	<b>2,440</b>	<100
MW-14	<b>6,800</b>	<b>2,600</b>	<b>3,100</b>	150	220	168	<20
MW-15	<b>8,100</b>	<b>3,300</b>	<b>3,000</b>	48	28	44.5	<20
MW-16	71	<b>8,500</b>	13	2.6	<0.5	1.46	<2.0
MW-17	<b>5,000</b>	<b>2,900</b>	<b>1,100</b>	260	110	206	<10
MW-18	<50	<b>8,600</b>	0.98	<0.5	<0.5	<0.5	<2.0
MW-E	<b>7,000</b>	<b>6,900</b>	<b>3,300</b>	50	51	80	<20
RW-1	<b>770</b>	<b>2,100</b>	110	<0.5	3.8	1.96	<2.0
ESLs <sup>(a)</sup>	<b>100/100</b>	<b>100/100</b>	<b>1/500</b>	<b>150/500</b>	<b>300/400</b>	<b>420/420</b>	<b>13/100</b>

Notes:

<sup>(a)</sup> Water Board Environmental Screening Levels for residential sites where groundwater is/is not a drinking water resource (Water Board, 2007).

<sup>(b)</sup> MW-13 was not sampled for diesel because not enough sample material could be obtained to run the analysis.

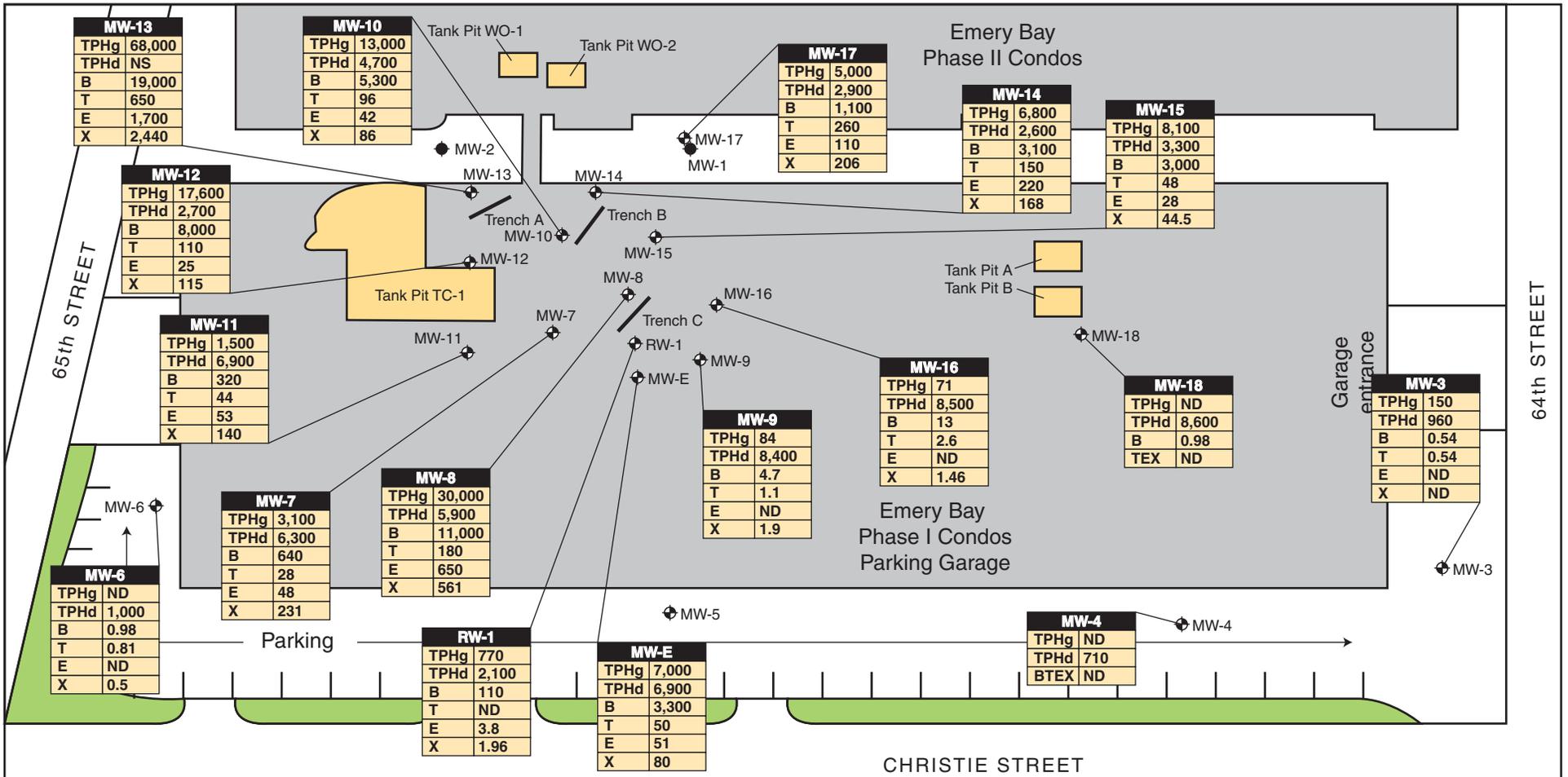
MTBE = methyl tertiary-butyl ether

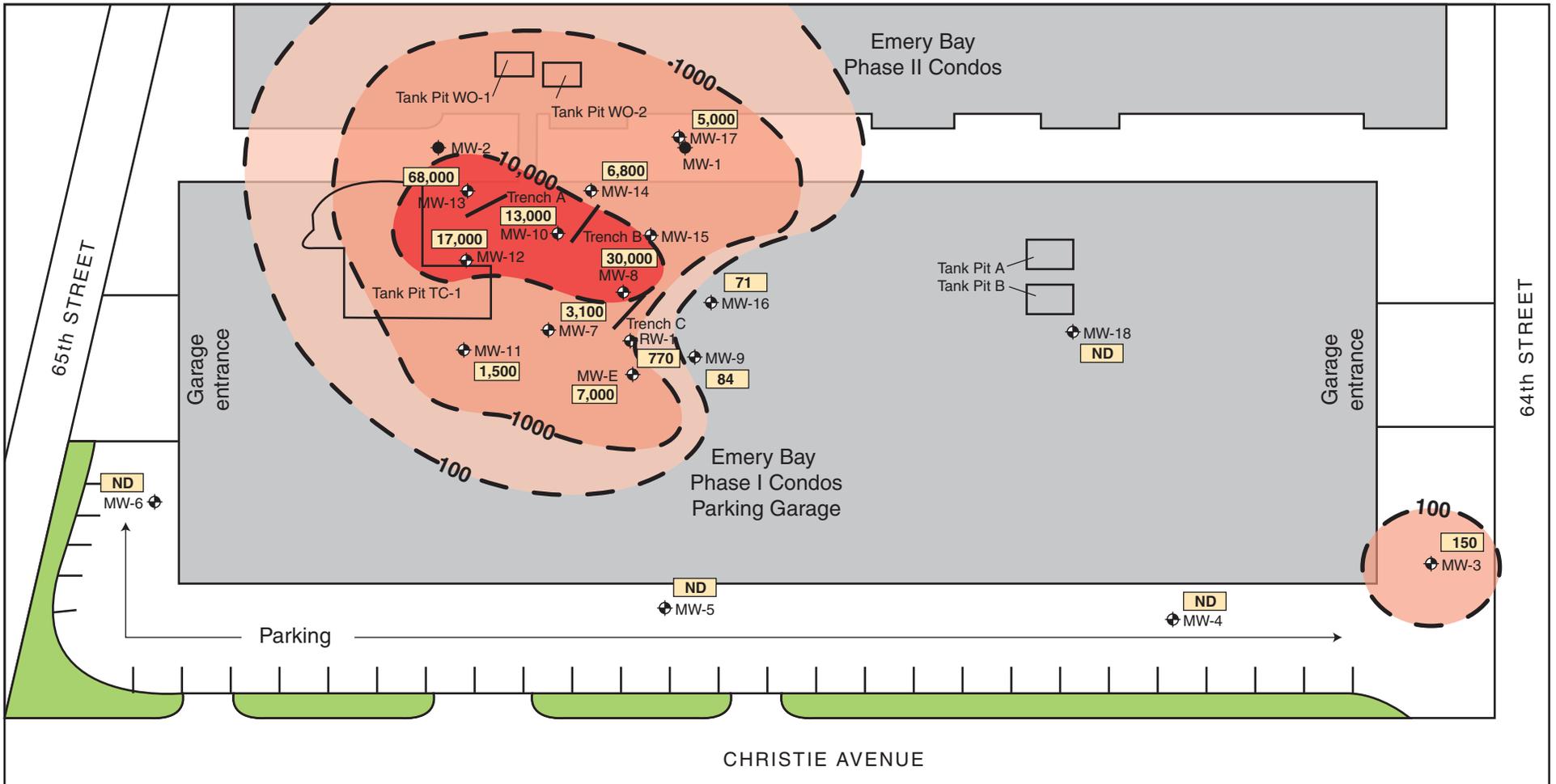
TPHg = total petroleum hydrocarbons – gasoline range (equivalent to total volatile hydrocarbons – gasoline range)

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

NS= not sampled (inaccessible)

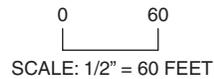
All concentrations are expressed in micrograms per liter (µg/L), equivalent to parts per billion (ppb). Results listed in **bold-face type** are above the ESLs where groundwater is not a drinking water resource.





**LEGEND**

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



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

**Figure 6**

by: MJC

DECEMBER 2007

Figure 7 is an isoconcentration contour map of TPHd concentrations in groundwater based on the December 2007 monitoring well analytical results. Figure 8 plots the change in diesel concentrations in the two downgradient wells (MW-5 and MW-6) from their installation in 1988 to the December 2007 sampling event. Figure 9 plots the change in diesel concentrations in source area wells MW-11 and MW-12 from their installation in 2004 to the December 2007 sampling event. Figure 10 plots the change in crossgradient wells MW-18 and MW-3 from their installation in 2004 and 1988, respectively, to date.

Concentrations of benzene exceeded the ESL of 500 µg/L where groundwater is not a drinking water resource for MW-7, MW-8, MW-10, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E. Concentration of benzene were also found in MW-3, MW-5, MW-6, MW-9, MW-11, MW-16, MW-18, and RW-1, but were below the ESL. The concentration of toluene was found to be above the 500-µg/L ESL in MW-13. Ethylbenzene and total xylene concentrations in MW-8 and MW-13 were above the 400 µg/L and 420 µg/L ESLs, respectively. No concentrations of MTBE above laboratory detection limits were found in any of the monitoring wells.

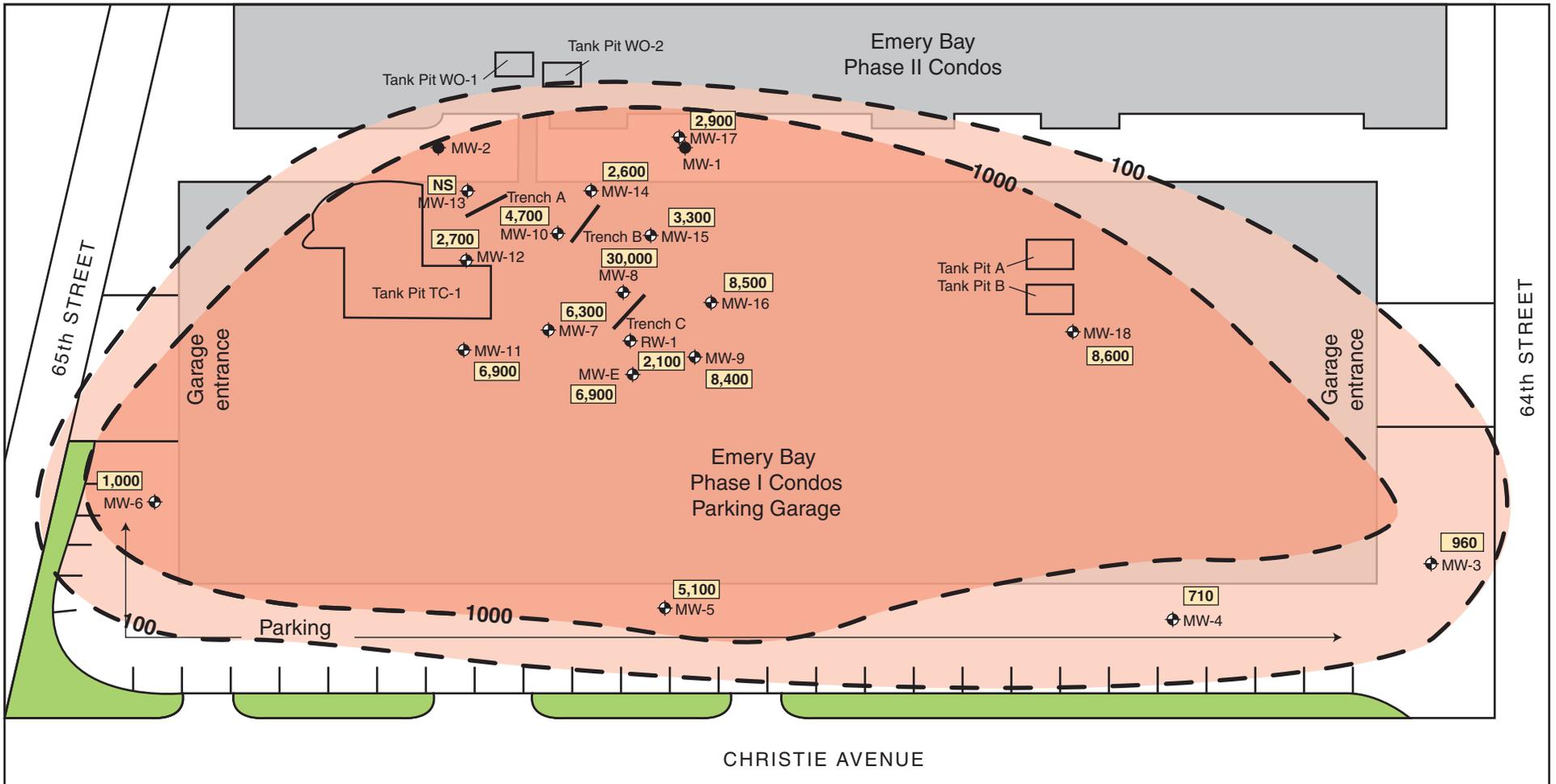
### **Quality Control Sample Analytical Results**

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).

### **REGULATORY CONSIDERATIONS**

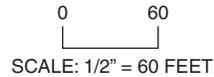
As specified in the East Bay Plain Groundwater beneficial Use Evaluation Report by the San Francisco Bay Region Water Quality Board (Water Board, 1999), all groundwater is considered a potential source of drinking water unless otherwise indicated by the Water Board, and is assumed to ultimately discharge to a surface water body and potentially impact aquatic organisms. The subject property location is listed as occurring within Zone B, designated as groundwater that is unlikely to be used as drinking water resource. The basin is shallow in this area, with depths 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 ESLs for residential and commercial/industrial properties where groundwater is/is not a potential drinking water resource. As stipulated in the ESL document (Water Board, 2007), ESLs are not cleanup criteria; rather, they are conservative screening-level criteria designed to be protective of both drinking water resources and aquatic environments in general. The



**LEGEND**

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



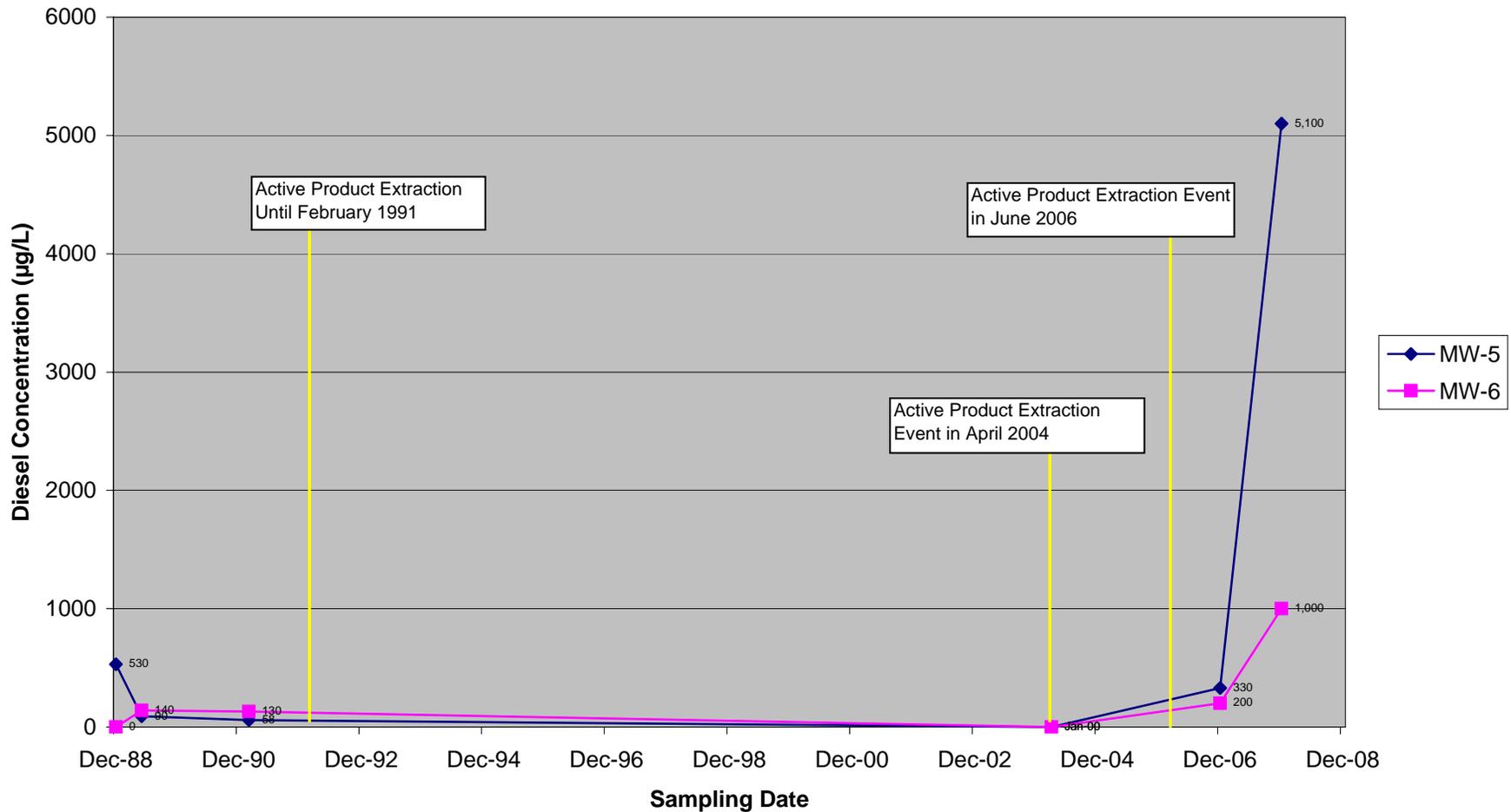
**TOTAL PETROLEUM HYDROCARBON PLUME AS DIESEL**  
**6400 Christie Ave., Emeryville, CA**

**Figure 7**

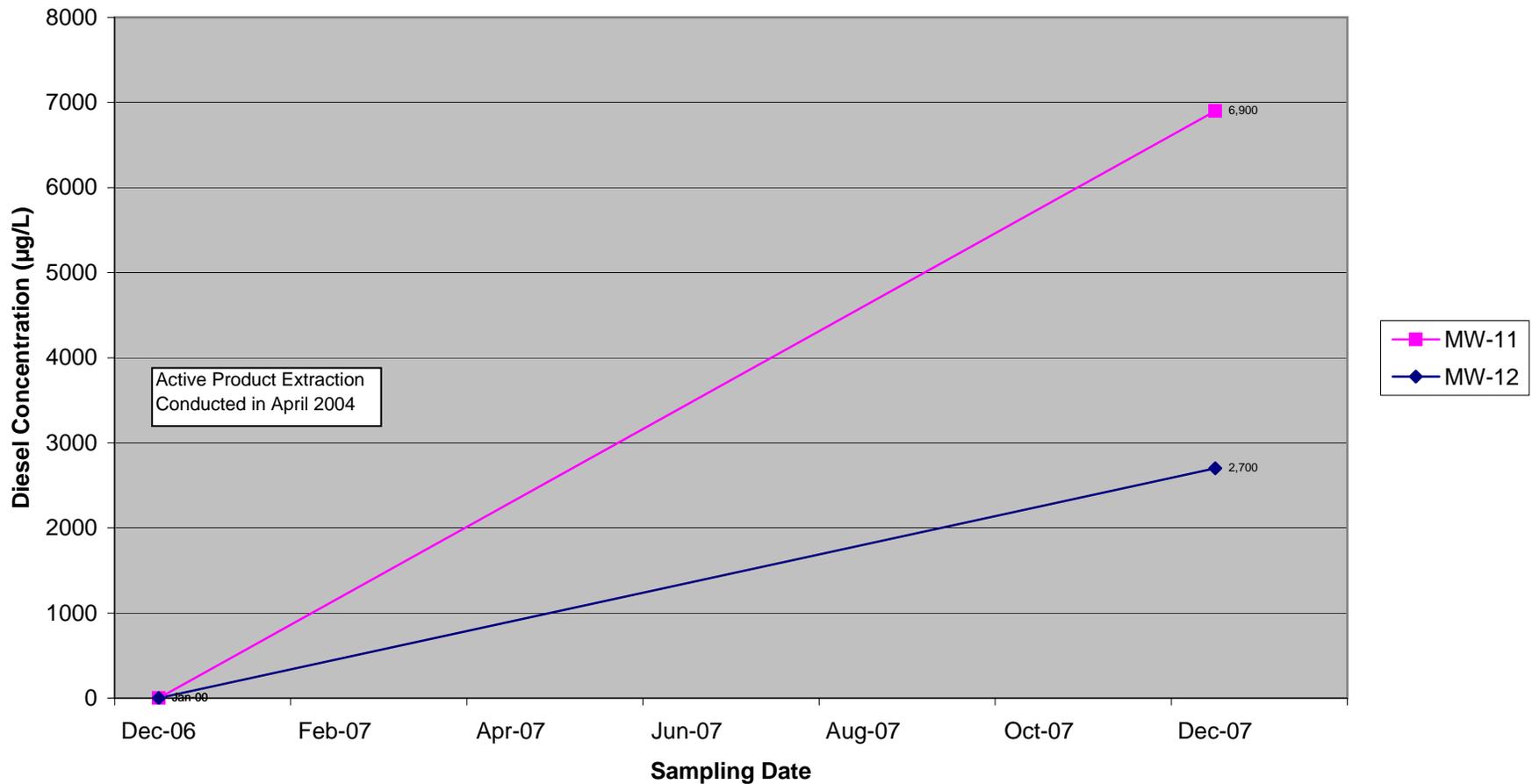
by: MJC

DECEMBER 2007

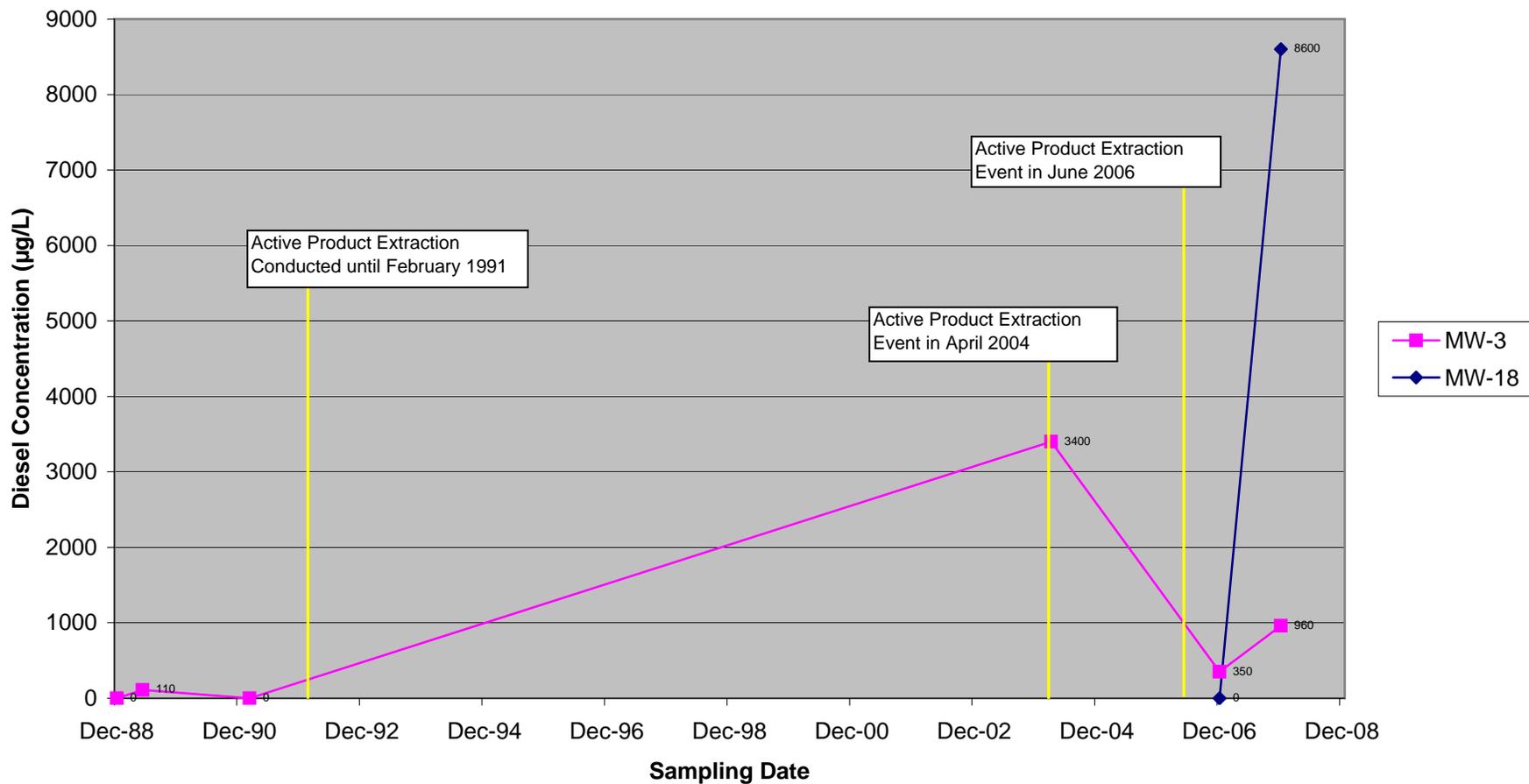
**Figure 8**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Downgradient Wells MW-5 and MW-6**  
**December 1988 - 2007**



**Figure 9**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Source Wells MW-11 and MW-12**  
**December 2006 - 2007**



**Figure 10**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Crossgradient Well MW-3 and MW-18**  
**December 1988 - 2007**



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 may be warranted, such as monitoring plume stability to demonstrate no risk to sensitive receptors in the case of sites where drinking water is not threatened. As the subject property is a residential property where groundwater is not a potential drinking water resource (as stipulated above), 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. While gasoline, benzene, and ethylbenzene concentrations have generally decreased or only slightly increased; concentrations of diesel, toluene, and total xylenes have significantly increased.

## **5.0 FREE-PHASE HYDROCARBON PRODUCT REMEDICATION SYSTEM**

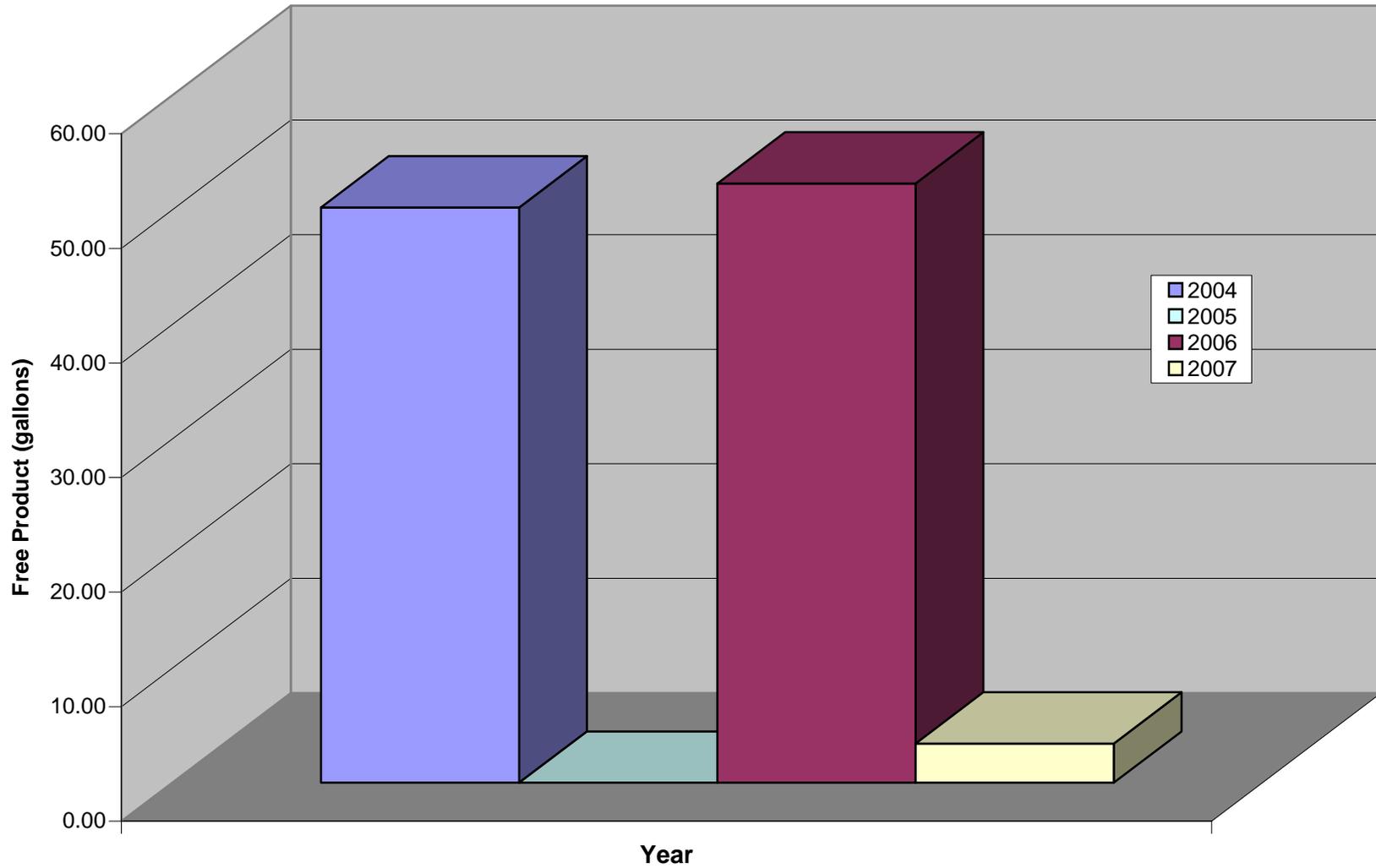
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This section describes the historical free product extraction in the Emery Bay Phase I Condo parking garage, the construction details of the current LNAPL remediation system located on the northeastern portion of the garage, and the most recent removal activities conducted in November and December 2007. Table 3 summarizes the product removed during the November and December 2007 events. Appendix E contains field data sheets and a summary of historical product removal. Figure 11 compares the amount of total product removed on a yearly basis from 2004 to the present.

### **LNAPL REMEDIATION SYSTEM CONSTRUCTION**

In an attempt to maximize free product removal, PES constructed three trenches each containing three sump wells. These were installed in the northeastern area of the Emery Bay Phase I Condo parking garage. This area has historically been the area with the highest concentrations of contamination and accumulation of free product. The trenches (TA, TB, and TC) extend to depths between approximately 12.5 and 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 between 6 to 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). Appendix D contains the trench schematic. Passive skimmers, manufactured by QED Environmental Systems (of Oakland, California), were then placed in each of the sumps in Trench A. During a site inspection in November 2007, SES noted two skimmers in each of the sumps in Trench A, no skimmers in Trench B, and one skimmer in Trench C in sump TC-E. The skimmers operate by floating on the surface of the water. The water collects in a filtration reservoir, which allows water to pass through. A tube connected to the reservoir then filters the collected 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.

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



## **HISTORICAL FREE PRODUCT EXTRACTION**

As mentioned under “Previous Investigations” in Section 1.0, contaminated soil and groundwater was discovered during the removal of 12 UFSTs from the Emery Bay Phase I and Phase II parcels in approximately 1986. To remediate groundwater during the Phase I and Phase II Condo construction, a groundwater extraction and remediation system was installed by Groundwater Technology in 1988. Approximately 1,000,000 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 removed in 1994.

In 2004, PES began manual extraction on RW-1 and removed approximately 48 gallons of LNAPL (PES, 2004a). To accelerate free product removal, PES constructed a new LNAPL hydrocarbon remediation (described below) system 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 by PES were conducted in 2005, approximately 50 gallons of hydrocarbons were removed in 2006, approximately 0.6 gallons of hydrocarbons were removed by PES between January and November 2007. In November and December 2007, after SES was retained for the project, the skimmer system only yielded 2.82 gallons. Appendix E contains historical trench product extraction data. Figure 11 graphs the comparison of free product extraction on a yearly basis.

## **NOVEMBER 2007 AND DECEMBER 2007 PRODUCT REMOVAL EVENTS**

Historical yield from the trench recovery system has not been very productive, with the one liter passive skimmer collection reservoirs not filling up. The highest hydrocarbon product yield has been active pumping on recovery well RW-1 or at various other wells. Table 3, shows the yield from the trenches in the November-December 2007 timeframe.

On November 26, 2007 and December 27, 2007, SES removed the LNAPL from the passive skimmer collection reservoirs located in Trenches A and C. As noted previously, there are currently no skimmers located in Trench B; however, the current water level is less than the height of the skimmer device (approximately 2.5 feet). For the skimmer to function, it must be allowed to float on top of the water table. Therefore, as water levels rise during the upcoming rainy season, SES will reevaluate the placement of skimmers in these sump wells.

**Table 3**  
**Trench Product Extraction**  
**November and December 2007**

Trench ID	Number of Skimmers in Well	Total Product Removed (gallons)		
		November 2007	December 2007	Total
TA-E	2	0.0	0.01	0.01
TA-M	2	0.81	0.61	1.42
TA-W	2	0.68	0.07	0.75
TB-E	0	NA	NA	NA
TB-M	0	NA	NA	NA
TB-W	0	NA	NA	NA
TC-E	1	0.63	0.002	0.632
TC-M	0	NA	NA	NA
TC-W	0	NA	NA	NA
<b>Total Product Removed</b>		2.12	0.7	2.82

Note: NA = No skimmer located in the well; no product extracted.

During the November 2007 extraction event, one skimmer was located in TC-E, and two skimmers were located in each of the sump wells at TA-W, TA-M, and TA-E. SES removed 0.63 gallon from TC-E; however, the rope connecting the skimmer to the sump well lid had disconnected and the tubing facilitating product skimming had slipped, so that the skimmer reservoir was not completely full. SES fixed the tubing and reconnected the rope. SES removed 0.68 gallon from TA-W and 0.81 gallon from TA-M. Each of these sumps contained two skimmers, but due to the depth to water, only one of the skimmers in each well was submerged. Neither of the two skimmers in TA-E was submerged. SES also discovered that approximately 6 to 8 inches of sedimentation had developed on the bottom of TA-M and TA-E, and possibly on several of the other sumps as well. Removing this sediment would facilitate greater product collection in these wells. In total, 2.12 gallons of product was removed during the November 2007 event.

During the December 2007 extraction event, approximately 0.01 gallon of free product was removed from TA-E, 0.61 gallon from TA-M, and 0.07 gallon from TA-W. No skimmers were located in Trench B, and no free product was measured in the trench well. From Trench C, 0.002 gallon was removed from TC-E. No skimmers were located in TC-M or TC-W, and no free product was encountered in these wells. In total, approximately 0.7 gallon of product was removed during the December 2007 event. Appendix E contains the field documentation for both the November and December 2007 extraction events, as well as tables of historical extraction events.

## **DISCUSSION**

As mentioned under “Historical Free Product Extraction” in this chapter, no product extraction was conducted by PES in 2005. Product removal in 2006 was reported at a significant 52 gallons by PES, but it was not achieved through collection from the trench hydrocarbon skimmers, but through active pumping. The recovery by PES from the start of 2007 through October 2007, when SES assumed environmental consulting activities, was limited to 0.6 gallons collected from the skimmers. There has also been no removal of free product from well RW-1 since 2004, at which time approximately 50 gallons of free product was removed by active pumping. The majority of free product apparently was removed from active pumping and removal activities rather than from the trench well skimmers. Thus the conclusion is that the trench recovery system is not very effective. In 2007, passive extraction of free product through trench well skimmers only removed 3.41 gallons.

The lack of any significant recovery of hydrocarbon product from the plume area since 2006 is the most obvious reason why the late December 2007 groundwater monitoring event showed increased diesel concentrations, and to a lesser extent gasoline concentrations, compared to the December 2006 monitoring event. The recent increase in diesel concentrations in the monitoring wells strongly suggests more active pumping is needed to recover hydrocarbon contamination and reduce the size of the contaminant plume; and to prevent the plume from migrating offsite. Figures 8, 9, and 10 demonstrate diesel concentration responses to active free product extraction events.

The annual groundwater monitoring does not provide sufficient hydrologic and hydrochemical data of the plume to fully understand its dynamics, which is critical to designing an appropriate site closure strategy.

## **6.0 SUMMARY, CONCLUSIONS, AND PROPOSED ACTIONS**

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### **FINDINGS AND CONCLUSIONS**

- The subject property parcel was developed as early as 1958 with the Motor Freight Station, associated with the Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day Emery Bay Phase I Condo complex and parking garage. In 1986, the building was demolished and 12 UFSTs containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels. Soil and groundwater contamination was discovered.
- In response to the contamination, a LNAPL groundwater pump and treat system was installed in 1989, but failed in 1991. Active pumping of free product began again in 2004, and a product extraction system consisting of passive product removal was installed in 2006. Groundwater monitoring events have been sporadically conducted since 1988.
- There are currently a total of 18 monitoring wells and 9 product extraction trench wells onsite. This is the sixth sampling event conducted since 1988.
- Site geological conditions consist of a combination of fill and soft bay sediment to between 15 to 20 feet bgs covered by approximately 1 to 2½ feet of pavement and imported fill. The upper 20 feet of firm bearing soil is primarily dense silty sand with intermittent layers of silty and sandy clay. Stiff to very stiff clay extends from a depth of approximately 40 feet to approximately 102 feet.
- The groundwater direction during this monitoring event was found to be to the west-northwest, toward San Francisco Bay.
- Groundwater elevations in the December 2007 monitoring event ranged from 7.06 to 10.21 feet above mean sea level, and the groundwater gradient is approximately 0.004 feet per foot.
- Current contaminants of concern include total petroleum hydrocarbons as gasoline and diesel, MTBE, and BTEX. Current groundwater concentrations exceed the ESLs for contaminants in groundwater.
- Gasoline was detected in MW-3, MW-7, MW-8, MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-17, MW-E, and RW-1 above the ESL where groundwater is not a drinking water resource (100 µg/L). Gasoline was also detected in MW-9 and MW-16, but below the ESL.

- Diesel was detected in all sampled site wells above the ESL where groundwater is not a drinking water resource (100 µg/L). In general, concentrations were 2 to 3 orders of magnitude higher than the previous sampling event. Concentrations of diesel in MW-5 (5,100 µg/L), MW-6 (1,000 µg/L), and MW-3 (960 µg/L)—the downgradient and crossgradient wells—were significantly above their 2006 concentrations.
- Concentrations of benzene exceeded the ESL where groundwater is not a drinking water resource (500 µg/L) in MW-7, MW-8, MW-10, MW-12, MW-13, MW-14, MW-15, MW-17, and MW-E. Concentrations of benzene were also found in MW-3, MW-5, MW-6, MW-9, MW-11, MW-16, MW-18, and RW-1, but were below the ESL. Concentrations of toluene were above the 500 µg/L ESL in MW-13. Ethylbenzene and total xylene concentrations in MW-8 and MW-13 were above the 400 µg/L and 420 µg/L ESLs, respectively. No MTBE was found in any of the monitoring wells above the laboratory detection limit.
- In total, 2.82 gallons of free product was extracted from the trench sump wells in November and December 2007. Only 3.41 gallons was removed in total in 2007. This is well below the approximate 50 gallons removed in both 2004 and 2006 using a combination of active pumping techniques and passive skimming of trench wells. Historical active pumping techniques were also used on select monitoring wells.
- Recent increases in total petroleum hydrocarbon concentrations are likely due to the absence of an active pumping product removal event in 2007.
- The annual groundwater monitoring does not provide sufficient hydrologic and hydrochemical data on the plume to fully understand its dynamics, which is critical to designing an appropriate site closure strategy.
- The trench recover system, where free product is designed to collect in 1-liter skimmers, is not very effective. Pumping at various wells is critical to maintaining some dynamic equilibrium so that the plume does not migrate outbound. While the passive free product removal system in trench sump wells does remove some free product, it appears inadequate in controlling plume migration in the absence of other removal actions.

## RECOMMENDATIONS

- Groundwater monitoring of site wells on a quarterly basis should be completed to establish the baseline to meet site closure criteria. This will also aid in better understanding the dynamic equilibrium of the plume, and what needs to be done to stabilize and reduce it to ultimately achieve site closure. The quarterly monitoring will allow for an evaluation of seasonal hydrocarbon plume trends and groundwater directional flow.

- SES recommends conducting an active free product removal event as soon as possible to control plume migration. The goal will be to remove something on the order of 50 gallons, equal to that which was removed in 2004 and 2006.
- ACEH should continue to be contacted until a case worker can be assigned, and met with to design a roadmap to regulatory closure. We further recommend that the ACEH-requested work be implemented, and that all future technical reports be provided to the appropriate regulatory agencies—including electronic uploads to ACEH’s ftp system and the State Water Board’s GeoTracker system.
- In our professional opinion, groundwater monitoring and both active and passive free product removal is the appropriate action to further evaluate the magnitude and stability of the contaminant plume over time, and to determine whether site closure criteria can be met.

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## 8.0 LIMITATIONS

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This report has been prepared for the exclusive use of Bay Center Investor LLC and Harvest Properties, 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. 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**

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### **Historical Groundwater Well Analytical Results**

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

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

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

MW-3									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	4,200	NA	77	1,400	140	560	NA
2	May-89	110	1,800	NA	64	250	61	110	NA
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	3,400	440	3,900	<0.5	<0.5	1.5	<1.0	9.7
5	Dec-06	350	280	230	<0.5	<0.5	<0.5	<0.5	2.0
6	Dec-07	960	150	NA	0.54	0.54	<0.5	<0.5	<2.0

MW-4									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	100	NA	2.0	1.0	<0.5	2.0	NA
2	May-89	60	18	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	<10	<10	NA	<0.3	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	50	<200	<0.5	<0.5	<0.5	<0.5	<1.0
6	Dec-07	710	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-5									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	530	890	NS	<1.0	<1.0	1.0	3.0	NA
2	May-89	90	5.0	NS	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	58	<10	NS	0.6	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	330	<25	<200	0.6	<0.5	<0.5	<0.5	<1.0
6	Dec-07	5,100	1.3	NA	1.3	<0.5	<0.5	1.23	<2.0

MW-6									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	52	NS	1.0	<0.5	<0.5	<0.5	NA
2	May-89	140	31	NS	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	130	40	NS	0.8	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	200	43	<200	1.1	<0.5	<0.5	<0.5	<1.0
6	Dec-07	1,000	<50	NS	0.98	0.81	<0.5	0.5	<2.0

MW-7									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
4	Mar-04	1,600	490	1,900	240	100	14	56	<2.5
5	Dec-06	420	<25	470	<0.5	<0.5	<0.5	<0.5	<1.0
6	Dec-07	6,300	3,100	NS	640	28	48	231	<10

MW-8									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
4	Mar-04	140,000	51,000	56,000	19,000	720	2,400	3,300	<50
5	Dec-06	2,400	29,000	<380	13,000	<100	640	500	<200
6	Dec-07	5,900	30,000	NS	11,000	180	650	561	<100

MW-9									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
4	Mar-04	1,300	95	1,500	4.7	0.68	<0.5	<1.0	<0.5
5	Dec-06	<50	92	<200	2.8	<0.5	<0.5	<0.5	<1.0
6	Dec-07	8,400	84	NS	4.7	1.1	<0.5	1.9	<2.0

MW-10									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
4	Mar-04	840,000	14,000	<100,000	4,000	77	200	120	<50
5	Dec-06	19,000	12,000	<4,000	4,600	42	90	52	<50
6	Dec-07	4,700	13,000	NS	5,300	96	42	86	<50

MW-11									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
5	Dec-06	<50	920	<200	26	4.5	1.8	5.4	<1.0
6	Dec-07	6,900	1,500	NS	320	44	53	140	<2.0

MW-12									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
5	Dec-06	<50	19,000	<200	9,100	51	<50	110	<100
6	Dec-07	2,700	17,000	NS	8,000	110	25	115	<40

MW-13									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
5	Dec-06	12,000	87,000	2,100	18,000	470	2,400	3,500	<400
6	Dec-07	NA	68,000	NS	19,000	650	1,700	2,440	<100

MW-14									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
5	Dec-06	<50	8,300	<200	3,700	240	230	260	<50
6	Dec-07	2,600	6,800	NS	3,100	150	220	168	<20

MW-15									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
5	Dec-06	<50	9,200	<200	3,700	<25	60	57	<50
6	Dec-07	3,300	8,100	NS	3,000	48	28	44.5	<20

MW-16									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
5	Dec-06	<50	190	<200	11.0	1.4	<0.5	<0.5	<1.0
6	Dec-07	8,500	71	NS	13	2.6	<0.5	1.46	<2.0

MW-17									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
5	Dec-06	<50	14,000	<200	3,400	1,100	480	<0.5	<1.0
6	Dec-07	2,900	5,000	NS	1,100	260	110	206	<10

MW-18									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
5	Dec-06	<50	120	<200	22	6.2	3.2	6.2	<2.0
6	Dec-07	8,600	<50	NS	0.98	<0.5	<0.5	<0.5	<2.0

MW-E									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	100	5,400	NA	3,200	690	97	330	NA
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	470	810	<500	340	6.1	2.2	7.7	<1.0
5	Dec-06	280	1,900	<200	910	<10	10	<10	<20
6	Dec-07	6,900	7,000	NS	3,300	50	51	80	<20

RW-1									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	NS	NS	NS	NS	NS	NS	NS	NS
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	640	<200	100	1.3	2	1.6	<1.0
6	Dec-07	2,100	770	NS	110	<0.5	3.8	1.96	<2.0

Notes:

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

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

NS = Not sampled

NA = Not analyzed

All concentrations shown in µg/L

## **APPENDIX B**

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### **Groundwater Monitoring Field Data Sheets**

# Chain of Custody Record

Lab job no. \_\_\_\_\_

 Date 12/27/07

 Page 1 of 2

 Laboratory C&T  
 Address 2323 FIGHT ST  
BERKELEY, CA

 Method of Shipment LAND

Shipment No. \_\_\_\_\_

Airbill No. \_\_\_\_\_

Cooler No. \_\_\_\_\_

Project Owner \_\_\_\_\_

 Site Address 65TH & BAY ST  
EMERYVILLE CA

 Project Manager R. WALDISI

Telephone No. (510) 644-3123

 Project Name BAY CENTRAL APTS.

Fax No. (510) 644-3859

 Project Number 071227-DA1

 Samplers: (Signature) D. Rainal

200249

Filtered	No. of Containers	Analysis Required										Remarks
		TEH-d	TEH-g	BTEX	MTBE							
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								
X	X	X	X	X								

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation												
						Cooler	Chemical											
1	MW-4	12/27	1150		41FL vials / 1 L <sup>40</sup> <sub>1hr</sub>	✓												
2	MW-6		1230		"	✓												
3	MW-9		1300		"	✓												
4	MW-12		1340		"	✓												
5	MW-16		1405		"	✓												
6	MW-E		1500		"	✓												
7	MW-15		1454		"	✓												
8	MW-18		1416		"	✓												
9	MW-11		1340		"	✓												
10	MW-7		1235		"	✓												
11	MW-5		1155		"	✓												
12	MW-8		1520		"	✓												

Relinquished by: <u>D. Rainal</u> Signature _____ Printed <u>D. Rainal</u> Company <u>Blaine Tech</u>	Date <u>12/28</u> Time <u>1610</u> <u>1545</u> <u>1545</u>	Received by: <u>Long Wu</u> Signature _____ Printed <u>Long Wu</u> Company <u>C&amp;T</u>	Date <u>12/27</u> Time _____	Relinquished by: _____ Signature _____ Printed _____ Company _____	Date _____ Time _____	Received by: _____ Signature _____ Printed _____ Company _____	Date _____ Time _____						
Turnaround Time: _____ Comments: <u>EDF required</u>				Relinquished by: _____ Signature _____ Printed _____ Company _____				Date _____ Time _____		Received by: _____ Signature _____ Printed _____ Company _____		Date _____ Time _____	

2000-00-01

★ Stellar Environmental Solutions

on ice, intact

2198 Sixth Street #201, Berkeley, CA 94710

\*EDF required



# Chain of Custody Record

Lab job no. \_\_\_\_\_  
 Date 12/27/07  
 Page 1 of 2

Laboratory C&T Method of Shipment HAND  
 Address 2323 FERRIS ST Shipment No. \_\_\_\_\_  
BERKELEY, CA  
 Airbill No. \_\_\_\_\_  
 Project Owner \_\_\_\_\_ Cooler No. \_\_\_\_\_  
 Site Address 6574 9TH ST Project Manager R. WALDISI  
EMERYVILLE, CA Telephone No. (510) 644-3123  
 Project Name BAY CENTER APTS. Fax No. (510) 644-3859  
 Project Number 071227-DA1 Samplers: (Signature) [Signature]

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation		Filtered	No. of Containers	Analysis Required				Remarks
						Cooler	Chemical							
MW-4		12/27	1150		411CL vials/1L Nalgene	✓				X	X	X	X	
MW-6			1230		"	✓				X	X	X	X	
MW-9			1300		"	✓				X	X	X	X	
MW-12			1340		"	✓				X	X	X	X	
MW-16			1405		"	✓				X	X	X	X	
MW-E			1500		"	✓				X	X	X	X	
MW-15			1454		"	✓				X	X	X	X	
MW-18			1416		"	✓				X	X	X	X	
MW-11			1340		"	✓				X	X	X	X	
MW-7			1235		"	✓				X	X	X	X	
MW-5			1155		"	✓				X	X	X	X	
MW-8			1520		"	✓				X	X	X	X	

Relinquished by: Signature <u>[Signature]</u> Printed <u>D. Reynal</u> Company <u>Blaine Tech</u>	Date <u>12/28</u> Time <u>1610</u>	Received by: Signature <u>[Signature]</u> Printed <u>Ling Wu</u> Company <u>C&amp;T</u>	Date <u>12/27/07</u> Time _____	Relinquished by: Signature _____ Printed _____ Company _____	Date _____ Time _____	Received by: Signature _____ Printed _____ Company _____	Date _____ Time _____
Turnaround Time: _____				Relinquished by: Signature _____ Printed _____ Company _____			
Comments: <u>EDF required</u>				Received by: Signature _____ Printed _____ Company _____			

Filtered  
 No. of Containers  
 TEH-d (BOIS)  
 TEH-g  
 BTEB  
 MTRBE

★ Stellar Environmental Solutions

on ice, intact

2198 Sixth Street #201, Berkeley, CA 94710

\*EDF required

2000-00-01

# Chain of Custody Record

Lab job no. \_\_\_\_\_  
 Date 12/28/07  
 Page 2 of 2

Laboratory CIT Method of Shipment HAND  
 Address 2323 5th St Shipment No. \_\_\_\_\_  
Berkeley, CA  
 Airbill No. \_\_\_\_\_  
 Project Owner \_\_\_\_\_ Cooler No. \_\_\_\_\_  
 Site Address 65th & Bay St Project Manager R. Makilisi  
Emeryville, CA Telephone No. (510) 644-3123  
 Project Name Bay Center Apts Fax No. (510) 644-3859  
 Project Number 071227-DR1 Samplers: (Signature) [Signature]

Filtered	No. of Containers	Analysis Required										Remarks	
		TEH-d (8015)	TEH-g	BTEX	MTBE								
		X	X	X	X								OK to Run Samples 12/28/07
		X	X	X	X								On Hold. Call Client
		X	X	X	X								On Hold. Call Client
		X	X	X	X								On Hold. Call Client
		X	X	X	X								On Hold. Call Client
		X	X	X	X								On Hold. Call Client

Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation	
						Cooler	Chemical
RW-1		12/28/07	1140		4 HCl Vials / 12 Amber	✓	
MW-3			1307		"	✓	
MW-17			1332		"	✓	
MW-10			1456		"	✓	
MW-13			1523		4 HCl Vials	✓	
MW-14			1356		4 HCl Vials / 12 Amber	✓	

Relinquished by: Signature <u>[Signature]</u> Printed <u>K. Cordes</u> Company <u>Blaine Tech</u>	Date <u>12/28/07</u> Time <u>1610</u>	Received by: Signature <u>[Signature]</u> Printed <u>King Wu</u> Company <u>CIT</u>	Date <u>12/28/07</u> Time <u>1610</u>	Relinquished by: Signature _____ Printed _____ Company _____	Date _____ Time _____	Received by: Signature _____ Printed _____ Company _____	Date _____ Time _____				
Turnaround Time: _____ Comments: <u>EDF Required</u>				Relinquished by: Signature _____ Printed _____ Company _____				Received by: Signature _____ Printed _____ Company _____			

2005-00-01

on ice, intact





# WELLHEAD INSPECTION CHECKLIST

Date 12/27/07 Client Skuller Env.  
 Site Address 65<sup>th</sup> & Bay St. Emeryville Ca.  
 Job Number 071227-DRI Technician DR

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-3							X	
MW-4							R	
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						DR	
MW-14	X							
MW-15	X							
MW-16	X							
MW-17							X	
MW-18	X							

NOTES: MW-3 Christy box, SIPH on casing. MW-21 Christy box. No lock  
 MW-5 Christy box. No lock MW-6 Christy box. No lock.  
 MW-17 - 1 bolt. Had to move garbage bin to get to. MW-9 No bolts  
 MW-7 - 1 of 2 bolts MW-11 - 1 of 2 bolts

# WELLHEAD INSPECTION CHECKLIST

Date 12/27/07 Client Stellar Env.  
 Site Address 65<sup>th</sup> & Bay Sts. Emeryville Ca.  
 Job Number 071227 - DRI Technician DR

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-E							X	
RW-1							X	
TA-W		2/4 bolts missing						
TA-M							X	
TA-E							X	
TB-W							X	
TB-M							X	
TB-E							X	
TC-W							X	
TC-M							X	
TC-E							X	

NOTES: MW-E Bent casing No bolts RW-1 1 bolt stripped

## WELL GAUGING DATA

Project # 071227-DRI Date 12/27/07 Client Stellar Env.

Site 65<sup>th</sup> & Bay Sts. 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	0916	2		7.76						✓
MW-4	0919	2					6.61	24.94		
MW-5	0926	2					9.66	24.84		
MW-6	0929	2					6.61	23.30		
MW-7	0903	3/4					10.30	19.35		
MW-8	0955	3/4					9.42	15.70		✓
MW-9	0908	3/4					9.34	19.13		
MW-10	1006	3/4		8.98	ON TAPE 10.43					✓
MW-11	0916	3/4					10.27	18.70		
MW-12	0922	3/4					9.15	18.55		
MW-13	1000	3/4		9.39	0.56		9.95	—		✓
MW-14	0945	3/4		8.84	0.02		8.86	—		✓
MW-15	0949	3/4					9.30	18.40		✓
MW-16	0928	3/4					9.36	18.23		
MW-17	0927	3/4		9.32	0.08		9.40	—		✓
MW-18	0933	3/4					8.30	19.51		
MW-E	0939	2					10.03	44.91		

*[Handwritten signatures and initials]*

## WELL GAUGING DATA

Project # 071221-DRI Date 12/27/07 Client Stellar Env.

Site 65<sup>th</sup> + Bay Sts. 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 <del>TOB</del>	Notes
RW-1	1013	10		9.53						✓
* TA-w	0925	10	Y/Y	8.50	0.01	275	8.51			
* TA-m	0942	10	Y/Y	8.43	0.01	2300	8.44			
* TA-E	0958	10	Y/Y	8.41	0.02	50	8.43			
TB-w	1012	10	N/Y	No SPH detected			8.55	11.49		
TB-m	1018	10	N/N	No SPH detected			8.52	11.51		
TB-E	1024	10	N/N	No SPH detected			8.47	11.61		
TC-w	1036	10	N/N	No SPH detected			9.94	12.00		
TC-m	1044	10	N/Y	No SPH detected			9.00	12.06		
* TC-E	1052	10	Y/Y	8.71	0.01	10	8.72			↓
* skimmer(s) in well										

## WELL MONITORING DATA SHEET

Project #: 071227-DR1	Client: Steller
Sampler: KF	Date: 12/28/07
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): —	Depth to Water (DTW): —
Depth to Free Product: 7.76	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 <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New tubing</u>
--	--	---

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

\_\_\_\_\_ (Gals.) X \_\_\_\_\_ = \_\_\_\_\_ Gals.  
 1 Case Volume                      Specified Volumes                      Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1258						Started purge
1304						Ended purge
						Depth to free product @ 1301 = 7.78
						1304 = 7.81

Did well dewater? Yes  No  Gallons actually evacuated: |

Sampling Date: 12/28/07 Sampling Time: 1307 Depth to Water: —

Sample I.D.: MW-3 Laboratory: Kiff CalScience Other CST

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

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 #: 071227-DR1	Client: <i>Stellar Env.</i>
Sampler: <i>DR/KC</i>	Date: <i>12/27/07</i>
Well I.D.: <i>MW-4</i>	Well Diameter: <i>3</i> 4 6 8 _____
Total Well Depth (TD): <i>24.94</i>	Depth to Water (DTW): <i>6.61</i>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <i>PVC</i> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <i>10.28</i>	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

$$2.9 \text{ (Gals.)} \times 3 = 8.7 \text{ Gals.}$$
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1132	14.4	6.89	1017	377	2.9	odor / cloudy
1137	14.5	6.96	1002	419	5.8	"
1142	14.3	7.02	998	522	8.7	"

Did well dewater? Yes  No      Gallons actually evacuated: *8.7*

Sampling Date: *12/27/07*      Sampling Time: *1150*      Depth to Water: *7.72*

Sample I.D.: *MW-4*      Laboratory: Kiff CalScience Other *(C+I)*

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

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 #: 071227-DR1	Client: Steller Env.
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-5	Well Diameter: ② 3 4 6 8
Total Well Depth (TD): 24.72	Depth to Water (DTW): 9.63
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <del>PVC</del> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.65	

Purge Method: <del>Bailer</del>	Water	Sampling Method:
<del>Disposable Bailer</del>	Peristaltic	Bailer
Positive Air Displacement	Extraction Pump	<del>Disposable Bailer</del>
Electric Submersible	Other _____	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	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1135	16.8	6.58	2581	>1000	2.4	dark gray
1138	17.6	7.24	2569	>1000	4.8	"
1142	17.7	7.42	2539	>1000	7.2	gray
						DTW = 10.61 @ 1144

Did well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>	Gallons actually evacuated: 7.2	
Sampling Date: 12/27/07	Sampling Time: 1155	Depth to Water: 13.91
Sample I.D.: MW-5	Laboratory: Kiff CalScience	Other: <u>(CTI)</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <u>Sec Col</u>	
EB I.D. (if applicable): @ _____ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other:	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L	
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV	

## WELL MONITORING DATA SHEET

Project #: 071227-DR1	Client: Steller Env.
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-6	Well Diameter: $\varnothing$ 3 4 6 8 _____
Total Well Depth (TD): 6.61	Depth to Water (DTW): 23.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <del>PVC</del> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 26.64	

Purge Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other _____	Sampling Method: Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	--	---

1.7	3	= 5.1
(Gals.) X	Specified Volumes	Calculated Volume
1 Case Volume		

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1216	13.9	10.8	1616	195	1.7	clearly color
1219	14.7	10.9	1621	270	3.4	"
1222	15.0	10.9	1629	329	5.1	"

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 5.1	
Sampling Date: 12/27/07	Sampling Time: 1230	Depth to Water: 25.82
Sample I.D.: MW-6	Laboratory: Kiff CalScience	Other: <u>(C+I)</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <u>See CC</u>	
EB I.D. (if applicable): @ _____ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other:	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L	
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV	

## WELL MONITORING DATA SHEET

Project #: 071227-DR1	Client: Steller Env.
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-7	Well Diameter: 2 3 4 6 8 <u>3 1/4"</u>
Total Well Depth (TD): 19.35	Depth to Water (DTW): 10.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.11	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New Tubing</u>
--	---	---

0.3 (Gals.) X 3 = 0.9 Gals.
1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1227	12.6	8.26	8.3	>1000	0.3	Brown, foamy
1229	13.1	8.27	12.9	>1000	0.6	"
1231	13.3	8.27	13.4	>1000	0.9	"

Did well dewater? Yes  No  Gallons actually evacuated: 1

Sampling Date: 12/27/07      Sampling Time: 1235      Depth to Water: 12.02

Sample I.D.: MW-7      Laboratory: Kiff CalScience Other: (C+T)

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

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 #: <b>071227-DR1</b>	Client: <b>Stellar</b>
Sampler: <b>KF</b>	Date: <b>12/28/07</b>
Well I.D.: <b>MW-10</b>	Well Diameter: 2 3 4 6 8 <b>3/4"</b>
Total Well Depth (TD): <b>—</b>	Depth to Water (DTW): <del>10.43</del> <b>(0)</b>
Depth to Free Product: <b>8.98</b>	Thickness of Free Product (feet): <b>10.43</b>
Referenced to: <b>PVC</b> 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 <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <b>New Tubing</b>
--	--	---

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

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1447						<b>- began purge</b>
1453						<b>- ended purge</b>

Did well dewater? Yes  **No**  Gallons actually evacuated: **1**

Sampling Date: **12/28/07** Sampling Time: **1456** Depth to Water: **—**

Sample I.D.: **MW-10** Laboratory: Kiff CalScience Other **C&T**

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 #: 071227-DRI	Client: <i>Stellar Env.</i>
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-11	Well Diameter: 2 3 4 6 8 <u>3/4"</u>
Total Well Depth (TD): 18.70	Depth to Water (DTW): 10.27
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVD</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>11.96</u>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New Tubing</u>
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0.2	3	= 0.6
Gals.) X	Specified Volumes	Calculated Volume
1 Case Volume		

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1334	14.0	7.81	3012	71000	0.2	gray
1335	14.4	7.90	2771	271	0.4	cloudy
1336	14.5	7.82	2772	125	0.6	clear

Did well dewater? Yes  No  Gallons actually evacuated: 0.6

Sampling Date: 12/27/07 Sampling Time: 1340 Depth to Water: 10.28

Sample I.D.: MW-11 Laboratory: Kiff CalScience Other (C+I)

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

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 #: 071227-DRI	Client: <i>Stellar Env.</i>
Sampler: <i>SR/KC</i>	Date: <i>12/27/07</i>
Well I.D.: <i>MW-12</i>	Well Diameter: 2 3 4 6 8 <i>3/4"</i>
Total Well Depth (TD): <i>18.55</i>	Depth to Water (DTW): <i>9.15</i>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <i>PVD</i> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <i>11.09</i>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port <input checked="" type="checkbox"/> Dedicated Tubing Other: _____
--	--	---

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

<i>0.2</i> (Gals.) X	<i>3</i>	=	<i>0.6</i> Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1323	12.0	8.3	1690	301	0.2	cloudy
1326	12.7	8.0	1628	412	0.4	"
1329	12.8	8.0	1614	457	0.6	"

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

Sampling Date: *12/27/07* Sampling Time: *1340* Depth to Water: *—*

Sample I.D.: *MW-12* Laboratory: Kiff CalScience Other  *(C+T)*

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

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 #: 071227-DR1	Client: Stellar
Sampler: KF	Date: 12/28/07
Well I.D.: MW-13	Well Diameter: 2 3 4 6 8 <u>3/4"</u>
Total Well Depth (TD):	Depth to Water (DTW): 9.95
Depth to Free Product: 9.39	Thickness of Free Product (feet): 0.56
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer	Waterra	Sampling Method: Bailer
Disposable Bailer	<input checked="" type="checkbox"/> Peristaltic	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <u>New Tubing</u>

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1514						Began purge
1520						ended purge
						* unable to collect Amber.
						Product in sample water.

Did well dewater?    Yes     No    Gallons actually evacuated: 1

Sampling Date: 12/28/07    Sampling Time: 1523    Depth to Water: —

Sample I.D.: MW-13    Laboratory: Kiff    CalScience    Other: CST

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 #: 071227-DR1	Client: Steller
Sampler: KF	Date: 12/28/07
Well I.D.: MW-14	Well Diameter: 2 3 4 6 8 <u>3/4"</u>
Total Well Depth (TD): —	Depth to Water (DTW): 8.86
Depth to Free Product: 8.84	Thickness of Free Product (feet): 0.02
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New tubing</u>
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\_\_\_\_\_ (Gals.) X \_\_\_\_\_ = \_\_\_\_\_ Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1347						begin purge
1353						end purging

Did well dewater? Yes   No      Gallons actually evacuated: 1

Sampling Date: 12/28/07      Sampling Time: 1356      Depth to Water: —

Sample I.D.: MW-14      Laboratory: Kiff CalScience Other: EST

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

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 #: 071227-DR1	Client: <i>Stellar Env.</i>
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-15	Well Diameter: 2 3 4 6 8 <u>3/4"</u>
Total Well Depth (TD): 18.40	Depth to Water (DTW): 9.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.12	

Purge Method: Bailer	Watera	Sampling Method: Bailer
Disposable Bailer	<input checked="" type="checkbox"/> Peristaltic	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <u>New Tubing</u>

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

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1448	14.0	8.02	1589	99.8	0.2	clear
1449	14.1	7.70	1555	29.4	0.4	clear
1450	14.0	7.56	1557	18.7	0.6	clear

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 0.6	
Sampling Date: 12/27/07	Sampling Time: 1454	Depth to Water: 9.31
Sample I.D.: MW-15	Laboratory: Kiff CalScience	Other: <u>(C+I)</u>
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other: <u>See Col</u>	
EB I.D. (if applicable): @ _____ Time	Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5)	Other:	
D.O. (if req'd): Pre-purge: _____ mg/L	Post-purge: _____ mg/L	
O.R.P. (if req'd): Pre-purge: _____ mV	Post-purge: _____ mV	



## WELL MONITORING DATA SHEET

Project #: 071227-DR1	Client: Stellar
Sampler: KF	Date: 12/28/07
Well I.D.: MW-17	Well Diameter: 2 3 4 6 8 <u>3/4"</u>
Total Well Depth (TD): —	Depth to Water (DTW): 9.40
Depth to Free Product: 9.32	Thickness of Free Product (feet): 0.08
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New Tubing</u>
--	--	---

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

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1323						- began purge
1329						- ended purge

Did well dewater? Yes  No  Gallons actually evacuated: 1

Sampling Date: 12/28/07 Sampling Time: 1332 Depth to Water: \_\_\_\_\_

Sample I.D.: MW-17 Laboratory: Kiff CalScience Other: CST

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

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 #: 071227-DR1	Client: <i>Shiller Env.</i>
Sampler: <i>DR/KC</i>	Date: <i>12/27/07</i>
Well I.D.: <i>MW-18</i>	Well Diameter: 2 3 4 6 8 <u><i>3/4"</i></u>
Total Well Depth (TD): <i>19.51</i>	Depth to Water (DTW): <i>8.30</i>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u><i>PVD</i></u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <i>10.54</i>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u><i>New tubing</i></u>
--	--	--

<u><i>0.2</i></u> (Gals.) X	<u><i>3</i></u> =	<u><i>0.6</i></u> Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<i>1409</i>	<i>13.3</i>	<i>7.58</i>	<i>7181</i>	<i>71000</i>	<i>0.2</i>	<i>gray, odor</i>
<i>1410</i>	<i>14.6</i>	<i>7.31</i>	<i>6998</i>	<i>&gt;10000</i>	<i>0.4</i>	<i>"</i>
<i>1412</i>	<i>14.5</i>	<i>7.29</i>	<i>7355</i>	<i>&gt;10000</i>	<i>0.6</i>	<i>"</i>

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

Sampling Date: *12/27/07* Sampling Time: *1416* Depth to Water: *8.42*

Sample I.D.: *MW-18* Laboratory: Kiff CalScience Other *(CTI)*

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

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 #: 071227-DR1	Client: Steller Env.
Sampler: DR/KC	Date: 12/27/07
Well I.D.: MW-E	Well Diameter: 2 3 4 6 8 _____
Total Well Depth (TD): 44.91	Depth to Water (DTW): 10.03
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]: 17.01	

Purge Method:  Bailer      Waterra      Sampling Method:  Bailer  
 Disposable Bailer       Peristaltic       Disposable Bailer  
 Positive Air Displacement      Extraction Pump      Extraction Port  
 Electric Submersible      Other \_\_\_\_\_       Dedicated Tubing  
 Other: \_\_\_\_\_

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

5.6 (Gals.) X 3 = 16.8 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1432	14.2	8.3	3239	26	5.6	clear
1442	15.1	7.9	3408	49	10.2	"
1452	15.2	7.7	3491	63	16.8	"

Did well dewater?    Yes     No      Gallons actually evacuated: 16.8

Sampling Date: 12/27/07    Sampling Time: 1500    Depth to Water: —

Sample I.D.: MW-E      Laboratory: Kiff CalScience    Other:  (CTI)

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

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 #: <u>071227-DR1</u>	Client: <u>Stellar</u>
Sampler: <u>KE</u>	Date: <u>12/28/07</u>
Well I.D.: <u>RW-1</u>	Well Diameter: 2 3 4 6 8 <u>10"</u>
Total Well Depth (TD): <u>—</u>	Depth to Water (DTW): <u>—</u>
Depth to Free Product: <u>9.53</u>	Thickness of Free Product (feet): <u>—</u>
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <input checked="" type="checkbox"/> Peristaltic Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>New Tubing</u>
--	--	---

\_\_\_\_\_ (Gals.) X \_\_\_\_\_ = \_\_\_\_\_ Gals.  
 1 Case Volume                  Specified Volumes                  Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>1130</u>						<u>begin purging. No parameters taken due to SPI-1 per client</u>
<u>1136</u>						<u>End purge</u>

Did well dewater? Yes  No  Gallons actually evacuated: \_\_\_\_\_

Sampling Date: 12/28/07 Sampling Time: 1140 Depth to Water: —

Sample I.D.: RW-1 Laboratory: Kiff CalScience Other C&T

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

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**

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### **Analytical Laboratory Report & Chain-of-Custody Record**



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

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

Laboratory Job Number 200249
ANALYTICAL REPORT

Stellar Environmental Solutions
2198 6th Street
Berkeley, CA 94710

Project : STANDARD
Location : Bay Center Apts.
Level : II

Table with 2 columns: Sample ID and Lab ID. Lists 18 samples from MW-4 to MW-14 and RW-1.

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 signatures. 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: [Handwritten Signature]
Project Manager

Date: 01/16/2008

Signature: [Handwritten Signature]
Operations Manager

Date: 01/16/2008

### CASE NARRATIVE

Laboratory number: 200249  
Client: Stellar Environmental Solutions  
Location: Bay Center Apts.  
Request Date: 12/28/07, 01/02/08  
Samples Received: 12/28/07

This hardcopy data package contains sample and QC results for eighteen water samples, requested for the above referenced project on 12/28/07 and 01/02/08. The samples were received on ice and intact.

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

High surrogate recoveries were observed for trifluorotoluene (FID) in a number of samples, due to matrix interference; the corresponding bromofluorobenzene (FID) surrogate recoveries were within limits. MW-18 (lab # 200249-008) gasoline and MBTXE and MW-7 (lab # 200249-010) MBTXE had pH greater than 2 and were not analyzed within 7 days. MW-7(200249-010) for gasoline was analyzed within 7 days.. The VOA vials were marked as preserved. No other analytical problems were encountered.

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

No analytical problems were encountered.



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-9 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-003

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	84	50	133366	01/03/08	EPA 8015B
MTBE	ND	2.0	133466	01/05/08	EPA 8021B
Benzene	4.7	0.50	133466	01/05/08	EPA 8021B
Toluene	1.1	0.50	133466	01/05/08	EPA 8021B
Ethylbenzene	ND	0.50	133466	01/05/08	EPA 8021B
m,p-Xylenes	1.2	0.50	133466	01/05/08	EPA 8021B
o-Xylene	0.70	0.50	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	97	73-134	133366	01/03/08	EPA 8015B
Bromofluorobenzene (FID)	96	77-140	133366	01/03/08	EPA 8015B
Trifluorotoluene (PID)	104	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	104	74-135	133466	01/05/08	EPA 8021B

Field ID: MW-12 Diln Fac: 20.00  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-004

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	17,000	1,000	133366	01/04/08	EPA 8015B
MTBE	ND	40	133466	01/05/08	EPA 8021B
Benzene	8,000	10	133466	01/05/08	EPA 8021B
Toluene	110	10	133466	01/05/08	EPA 8021B
Ethylbenzene	25	10	133466	01/05/08	EPA 8021B
m,p-Xylenes	99	10	133466	01/05/08	EPA 8021B
o-Xylene	16	10	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	114	73-134	133366	01/04/08	EPA 8015B
Bromofluorobenzene (FID)	93	77-140	133366	01/04/08	EPA 8015B
Trifluorotoluene (PID)	106	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	101	74-135	133466	01/05/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-16 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-005

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	71	50	133366	01/04/08	EPA 8015B
MTBE	ND	2.0	133466	01/05/08	EPA 8021B
Benzene	13	0.50	133466	01/05/08	EPA 8021B
Toluene	2.6	0.50	133466	01/05/08	EPA 8021B
Ethylbenzene	ND	0.50	133466	01/05/08	EPA 8021B
m,p-Xylenes	0.85	0.50	133466	01/05/08	EPA 8021B
o-Xylene	0.61	0.50	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	97	73-134	133366	01/04/08	EPA 8015B
Bromofluorobenzene (FID)	96	77-140	133366	01/04/08	EPA 8015B
Trifluorotoluene (PID)	100	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	107	74-135	133466	01/05/08	EPA 8021B

Field ID: MW-E Diln Fac: 10.00  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-006

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	7,000	500	133366	01/04/08	EPA 8015B
MTBE	ND	20	133466	01/05/08	EPA 8021B
Benzene	3,300	5.0	133466	01/05/08	EPA 8021B
Toluene	50	5.0	133466	01/05/08	EPA 8021B
Ethylbenzene	51	5.0	133466	01/05/08	EPA 8021B
m,p-Xylenes	63	5.0	133466	01/05/08	EPA 8021B
o-Xylene	17	5.0	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	104	73-134	133366	01/04/08	EPA 8015B
Bromofluorobenzene (FID)	94	77-140	133366	01/04/08	EPA 8015B
Trifluorotoluene (PID)	105	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	101	74-135	133466	01/05/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-15 Diln Fac: 10.00  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-007

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	8,100	500	133366	01/04/08	EPA 8015B
MTBE	ND	20	133466	01/05/08	EPA 8021B
Benzene	3,000	5.0	133466	01/05/08	EPA 8021B
Toluene	48	5.0	133466	01/05/08	EPA 8021B
Ethylbenzene	28	5.0	133466	01/05/08	EPA 8021B
m,p-Xylenes	39	5.0	133466	01/05/08	EPA 8021B
o-Xylene	5.5 C	5.0	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	115	73-134	133366	01/04/08	EPA 8015B
Bromofluorobenzene (FID)	92	77-140	133366	01/04/08	EPA 8015B
Trifluorotoluene (PID)	108	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	101	74-135	133466	01/05/08	EPA 8021B

Field ID: MW-18 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-008

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	ND	50	133366	01/03/08	EPA 8015B
MTBE	ND	2.0	133466	01/05/08	EPA 8021B
Benzene	0.98	0.50	133466	01/05/08	EPA 8021B
Toluene	ND	0.50	133466	01/05/08	EPA 8021B
Ethylbenzene	ND	0.50	133466	01/05/08	EPA 8021B
m,p-Xylenes	ND	0.50	133466	01/05/08	EPA 8021B
o-Xylene	ND	0.50	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	90	73-134	133366	01/03/08	EPA 8015B
Bromofluorobenzene (FID)	93	77-140	133366	01/03/08	EPA 8015B
Trifluorotoluene (PID)	99	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	103	74-135	133466	01/05/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-11 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-009

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	1,500	50	133366	01/04/08	EPA 8015B
MTBE	ND	2.0	133466	01/05/08	EPA 8021B
Benzene	320	0.50	133466	01/05/08	EPA 8021B
Toluene	44	0.50	133466	01/05/08	EPA 8021B
Ethylbenzene	53	0.50	133466	01/05/08	EPA 8021B
m,p-Xylenes	110	0.50	133466	01/05/08	EPA 8021B
o-Xylene	30	0.50	133466	01/05/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	132	73-134	133366	01/04/08	EPA 8015B
Bromofluorobenzene (FID)	97	77-140	133366	01/04/08	EPA 8015B
Trifluorotoluene (PID)	123	65-142	133466	01/05/08	EPA 8021B
Bromofluorobenzene (PID)	106	74-135	133466	01/05/08	EPA 8021B

Field ID: MW-7 Diln Fac: 5.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-010

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	3,100	250	133366	01/03/08	EPA 8015B
MTBE	ND	10	133466	01/06/08	EPA 8021B
Benzene	640	2.5	133466	01/06/08	EPA 8021B
Toluene	28	2.5	133466	01/06/08	EPA 8021B
Ethylbenzene	48	2.5	133466	01/06/08	EPA 8021B
m,p-Xylenes	180	2.5	133466	01/06/08	EPA 8021B
o-Xylene	51	2.5	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	90	73-134	133366	01/03/08	EPA 8015B
Bromofluorobenzene (FID)	91	77-140	133366	01/03/08	EPA 8015B
Trifluorotoluene (PID)	90	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	101	74-135	133466	01/06/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-5 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-011

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	ND	50	133509	01/03/08	EPA 8015B
MTBE	ND	2.0	133466	01/06/08	EPA 8021B
Benzene	1.3	0.50	133466	01/06/08	EPA 8021B
Toluene	ND	0.50	133466	01/06/08	EPA 8021B
Ethylbenzene	ND	0.50	133466	01/06/08	EPA 8021B
m,p-Xylenes	0.62	0.50	133466	01/06/08	EPA 8021B
o-Xylene	0.61 C	0.50	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	95	73-134	133509	01/03/08	EPA 8015B
Bromofluorobenzene (FID)	95	77-140	133509	01/03/08	EPA 8015B
Trifluorotoluene (PID)	101	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	105	74-135	133466	01/06/08	EPA 8021B

Field ID: MW-8 Batch#: 133515  
 Type: SAMPLE Sampled: 12/27/07  
 Lab ID: 200249-012 Analyzed: 01/07/08  
 Diln Fac: 50.00

Analyte	Result	RL	Analysis
Gasoline C7-C12	30,000	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	11,000	25	EPA 8021B
Toluene	180	25	EPA 8021B
Ethylbenzene	650	25	EPA 8021B
m,p-Xylenes	470	25	EPA 8021B
o-Xylene	91	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	106	73-134	EPA 8015B
Bromofluorobenzene (FID)	98	77-140	EPA 8015B
Trifluorotoluene (PID)	105	65-142	EPA 8021B
Bromofluorobenzene (PID)	99	74-135	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: RW-1 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/28/07  
 Lab ID: 200249-013

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	770	50	133512	01/07/08	EPA 8015B
MTBE	ND	2.0	133466	01/06/08	EPA 8021B
Benzene	110	0.50	133466	01/06/08	EPA 8021B
Toluene	ND	0.50	133466	01/06/08	EPA 8021B
Ethylbenzene	3.8	0.50	133466	01/06/08	EPA 8021B
m,p-Xylenes	1.4	0.50	133466	01/06/08	EPA 8021B
o-Xylene	0.56 C	0.50	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	141 *	73-134	133512	01/07/08	EPA 8015B
Bromofluorobenzene (FID)	109	77-140	133512	01/07/08	EPA 8015B
Trifluorotoluene (PID)	105	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	106	74-135	133466	01/06/08	EPA 8021B

Field ID: MW-3 Diln Fac: 1.000  
 Type: SAMPLE Sampled: 12/28/07  
 Lab ID: 200249-014

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	150	50	133509	01/03/08	EPA 8015B
MTBE	ND	2.0	133466	01/06/08	EPA 8021B
Benzene	0.54	0.50	133466	01/06/08	EPA 8021B
Toluene	0.54	0.50	133466	01/06/08	EPA 8021B
Ethylbenzene	ND	0.50	133466	01/06/08	EPA 8021B
m,p-Xylenes	ND	0.50	133466	01/06/08	EPA 8021B
o-Xylene	ND	0.50	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	100	73-134	133509	01/03/08	EPA 8015B
Bromofluorobenzene (FID)	105	77-140	133509	01/03/08	EPA 8015B
Trifluorotoluene (PID)	100	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	107	74-135	133466	01/06/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Field ID: MW-13 Diln Fac: 50.00  
 Type: SAMPLE Sampled: 12/28/07  
 Lab ID: 200249-017

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	68,000	2,500	133512	01/07/08	EPA 8015B
MTBE	ND	100	133466	01/06/08	EPA 8021B
Benzene	19,000	25	133466	01/06/08	EPA 8021B
Toluene	650	25	133466	01/06/08	EPA 8021B
Ethylbenzene	1,700	25	133466	01/06/08	EPA 8021B
m,p-Xylenes	2,100	25	133466	01/06/08	EPA 8021B
o-Xylene	340	25	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	144 *	73-134	133512	01/07/08	EPA 8015B
Bromofluorobenzene (FID)	101	77-140	133512	01/07/08	EPA 8015B
Trifluorotoluene (PID)	109	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	100	74-135	133466	01/06/08	EPA 8021B

Field ID: MW-14 Diln Fac: 10.00  
 Type: SAMPLE Sampled: 12/28/07  
 Lab ID: 200249-018

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	6,800	500	133515	01/07/08	EPA 8015B
MTBE	ND	20	133466	01/06/08	EPA 8021B
Benzene	3,100	5.0	133466	01/06/08	EPA 8021B
Toluene	150	5.0	133466	01/06/08	EPA 8021B
Ethylbenzene	220	5.0	133466	01/06/08	EPA 8021B
m,p-Xylenes	130	5.0	133466	01/06/08	EPA 8021B
o-Xylene	38	5.0	133466	01/06/08	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	106	73-134	133515	01/07/08	EPA 8015B
Bromofluorobenzene (FID)	100	77-140	133515	01/07/08	EPA 8015B
Trifluorotoluene (PID)	108	65-142	133466	01/06/08	EPA 8021B
Bromofluorobenzene (PID)	103	74-135	133466	01/06/08	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: STANDARD	
Matrix: Water	Received: 12/28/07
Units: ug/L	

Type: BLANK	Batch#: 133512
Lab ID: QC422956	Analyzed: 01/07/08
Diln Fac: 1.000	Analysis: EPA 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		99	73-134
Bromofluorobenzene (FID)		101	77-140
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: BLANK	Batch#: 133515
Lab ID: QC422966	Analyzed: 01/07/08
Diln Fac: 1.000	

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	97	73-134	EPA 8015B
Bromofluorobenzene (FID)	99	77-140	EPA 8015B
Trifluorotoluene (PID)	96	65-142	EPA 8021B
Bromofluorobenzene (PID)	98	74-135	EPA 8021B

\*= Value outside of QC limits; see narrative  
 C= Presence confirmed, but RPD between columns exceeds 40%  
 NA= Not Analyzed  
 ND= Not Detected  
 RL= Reporting Limit

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC422450	Batch#:	133366
Matrix:	Water	Analyzed:	01/03/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	925.2	93	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	102	73-134
Bromofluorobenzene (FID)	92	77-140

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	MW-4	Batch#:	133366
MSS Lab ID:	200249-001	Sampled:	12/27/07
Matrix:	Water	Received:	12/28/07
Units:	ug/L	Analyzed:	01/03/08
Diln Fac:	1.000		

Type: MS Lab ID: QC422451

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	35.85	2,000	1,857	91	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	118	73-134
Bromofluorobenzene (FID)	99	77-140

Type: MSD Lab ID: QC422452

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,866	92	72-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	115	73-134
Bromofluorobenzene (FID)	97	77-140

RPD= Relative Percent Difference

**Batch QC Report**
**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	133466
Units:	ug/L	Analyzed:	01/05/08
Diln Fac:	1.000		

Type: BS Lab ID: QC422817

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.27	103	73-123
Benzene	10.00	9.291	93	80-120
Toluene	10.00	9.791	98	80-120
Ethylbenzene	10.00	9.553	96	80-120
m,p-Xylenes	10.00	9.749	97	80-121
o-Xylene	10.00	10.51	105	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	65-142
Bromofluorobenzene (PID)	96	74-135

Type: BSD Lab ID: QC422932

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	10.59	106	73-123	3	20
Benzene	10.00	9.838	98	80-120	6	20
Toluene	10.00	9.818	98	80-120	0	20
Ethylbenzene	10.00	9.333	93	80-120	2	20
m,p-Xylenes	10.00	9.669	97	80-121	1	20
o-Xylene	10.00	10.24	102	80-120	3	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	65-142
Bromofluorobenzene (PID)	96	74-135

RPD= Relative Percent Difference

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	133509
Units:	ug/L	Analyzed:	01/02/08
Diln Fac:	1.000		

Type: BS Lab ID: QC422950

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	992.4	99	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	73-134
Bromofluorobenzene (FID)	97	77-140

Type: BSD Lab ID: QC422951

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	3,000	2,533	84	79-120	16	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	73-134
Bromofluorobenzene (FID)	94	77-140

RPD= Relative Percent Difference

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC422957	Batch#:	133512
Matrix:	Water	Analyzed:	01/07/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,031	103	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	73-134
Bromofluorobenzene (FID)	102	77-140

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	133515
Units:	ug/L	Analyzed:	01/07/08
Diln Fac:	1.000		

Type: BS Lab ID: QC422967

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.92	109	73-123
Benzene	10.00	9.361	94	80-120
Toluene	10.00	9.454	95	80-120
Ethylbenzene	10.00	9.462	95	80-120
m,p-Xylenes	10.00	9.495	95	80-121
o-Xylene	10.00	9.421	94	80-120

Surrogate	%REC	Limits
Trifluorotoluene (PID)	100	65-142
Bromofluorobenzene (PID)	101	74-135

Type: BSD Lab ID: QC422968

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	11.34	113	73-123	4	20
Benzene	10.00	9.688	97	80-120	3	20
Toluene	10.00	9.959	100	80-120	5	20
Ethylbenzene	10.00	10.47	105	80-120	10	20
m,p-Xylenes	10.00	9.978	100	80-121	5	20
o-Xylene	10.00	10.27	103	80-120	9	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	95	65-142
Bromofluorobenzene (PID)	99	74-135

RPD= Relative Percent Difference

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC422969	Batch#:	133515
Matrix:	Water	Analyzed:	01/07/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	938.8	94	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	73-134
Bromofluorobenzene (FID)	96	77-140

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	133515
MSS Lab ID:	200305-002	Sampled:	01/02/08
Matrix:	Water	Received:	01/03/08
Units:	ug/L	Analyzed:	01/08/08
Diln Fac:	1.000		

Type: MS Lab ID: QC422983

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<13.69	2,000	1,639	82	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	73-134
Bromofluorobenzene (FID)	98	77-140

Type: MSD Lab ID: QC422984

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,634	82	72-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	73-134
Bromofluorobenzene (FID)	99	77-140

RPD= Relative Percent Difference

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	133512
MSS Lab ID:	200287-001	Sampled:	01/02/08
Matrix:	Water	Received:	01/03/08
Units:	ug/L	Analyzed:	01/07/08
Diln Fac:	1.000		

Type: MS Lab ID: QC422985

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	22.85	2,000	1,764	87	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	138 *	73-134
Bromofluorobenzene (FID)	111	77-140

Type: MSD Lab ID: QC422986

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,821	90	72-120	3	20

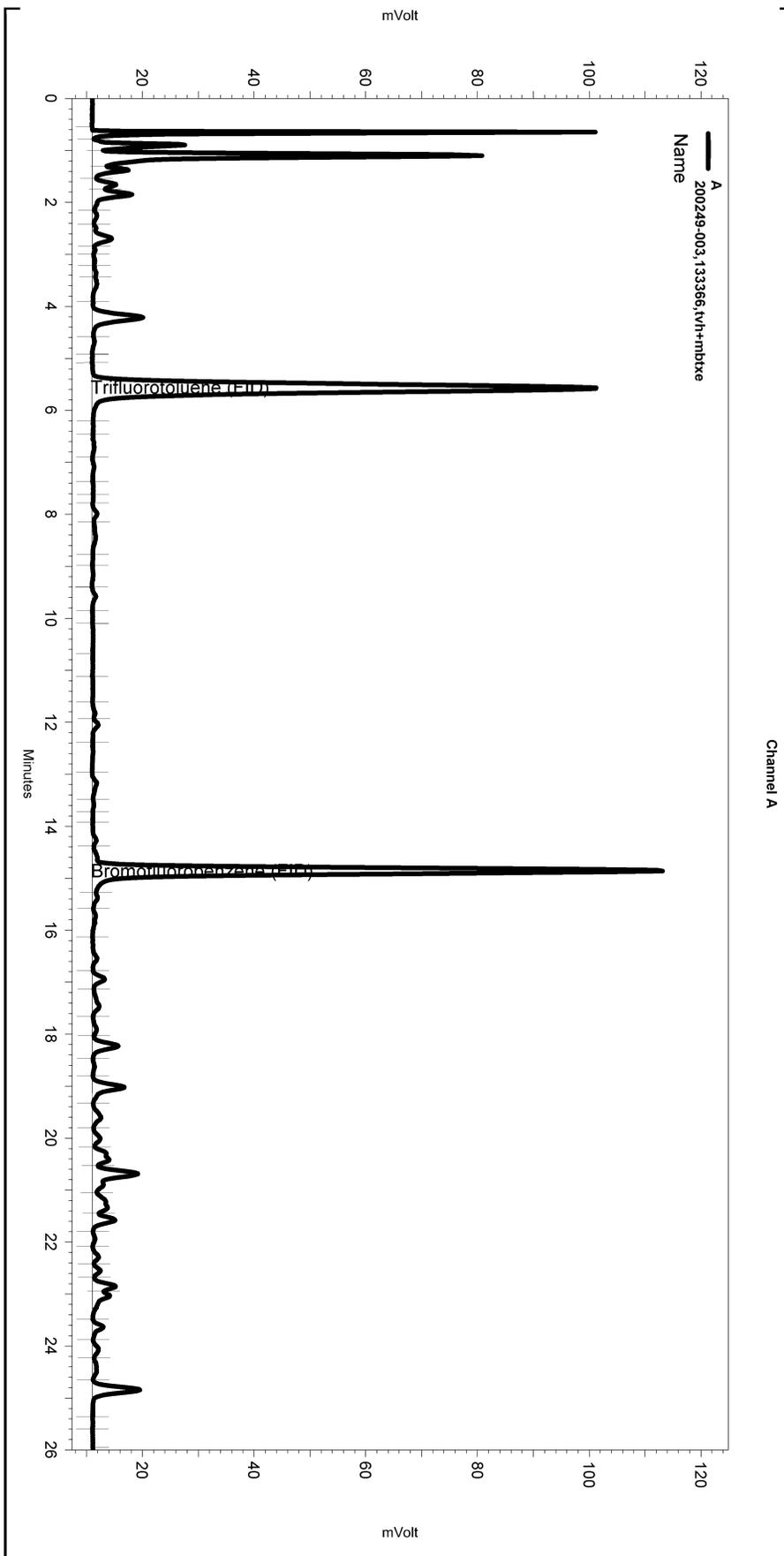
Surrogate	%REC	Limits
Trifluorotoluene (FID)	145 *	73-134
Bromofluorobenzene (FID)	113	77-140

\*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

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Software Version 3.1.7  
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 Analysis Date: 1/4/2008 10:21:19 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: B1.3



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Integration Events

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Yes	Threshold	0	0	50

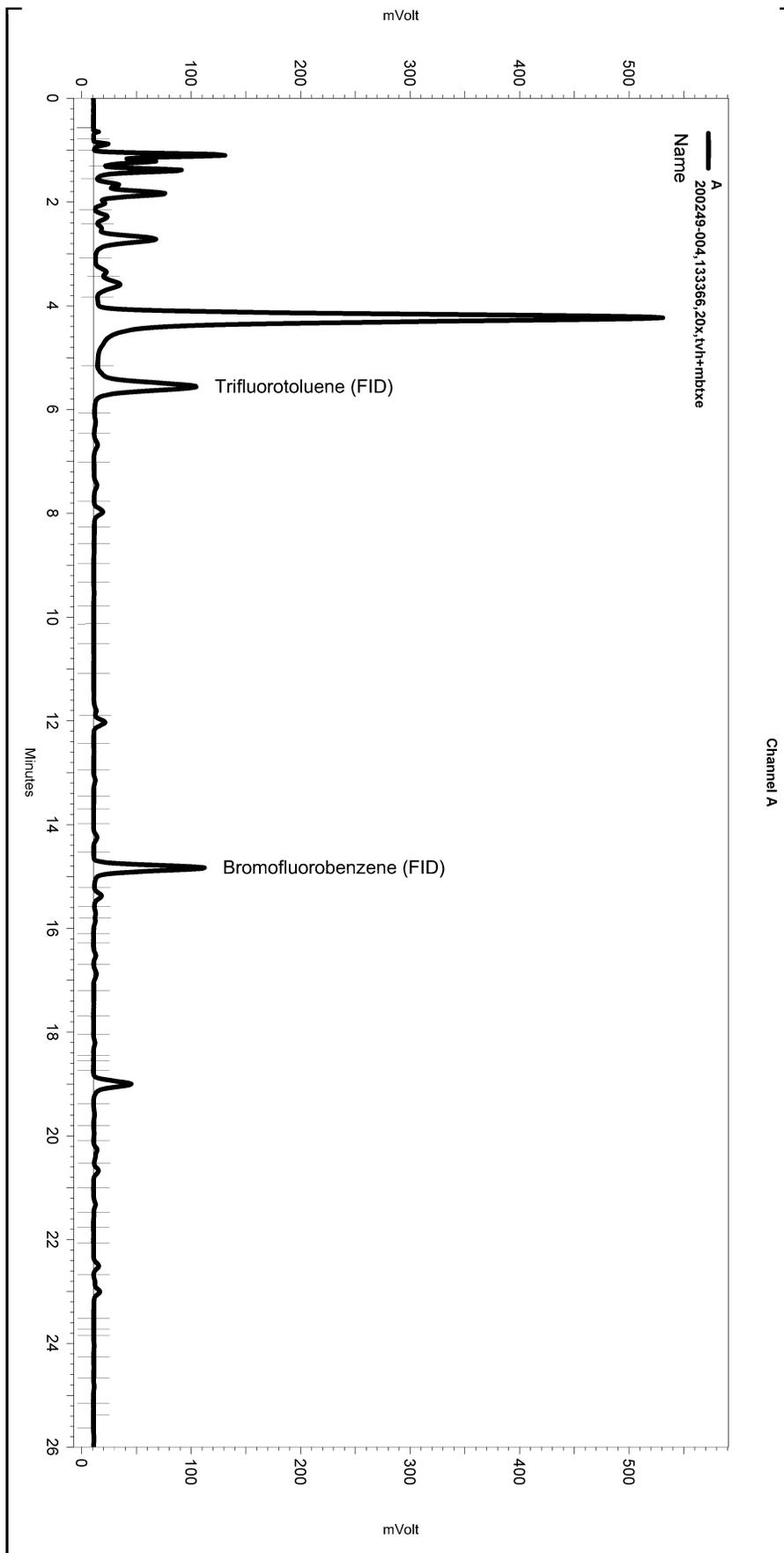
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 Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\003\_023  
 Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
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Software Version 3.1.7  
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 Analysis Date: 1/4/2008 10:21:41 AM  
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 Vial & pH or Core ID: b1.3



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

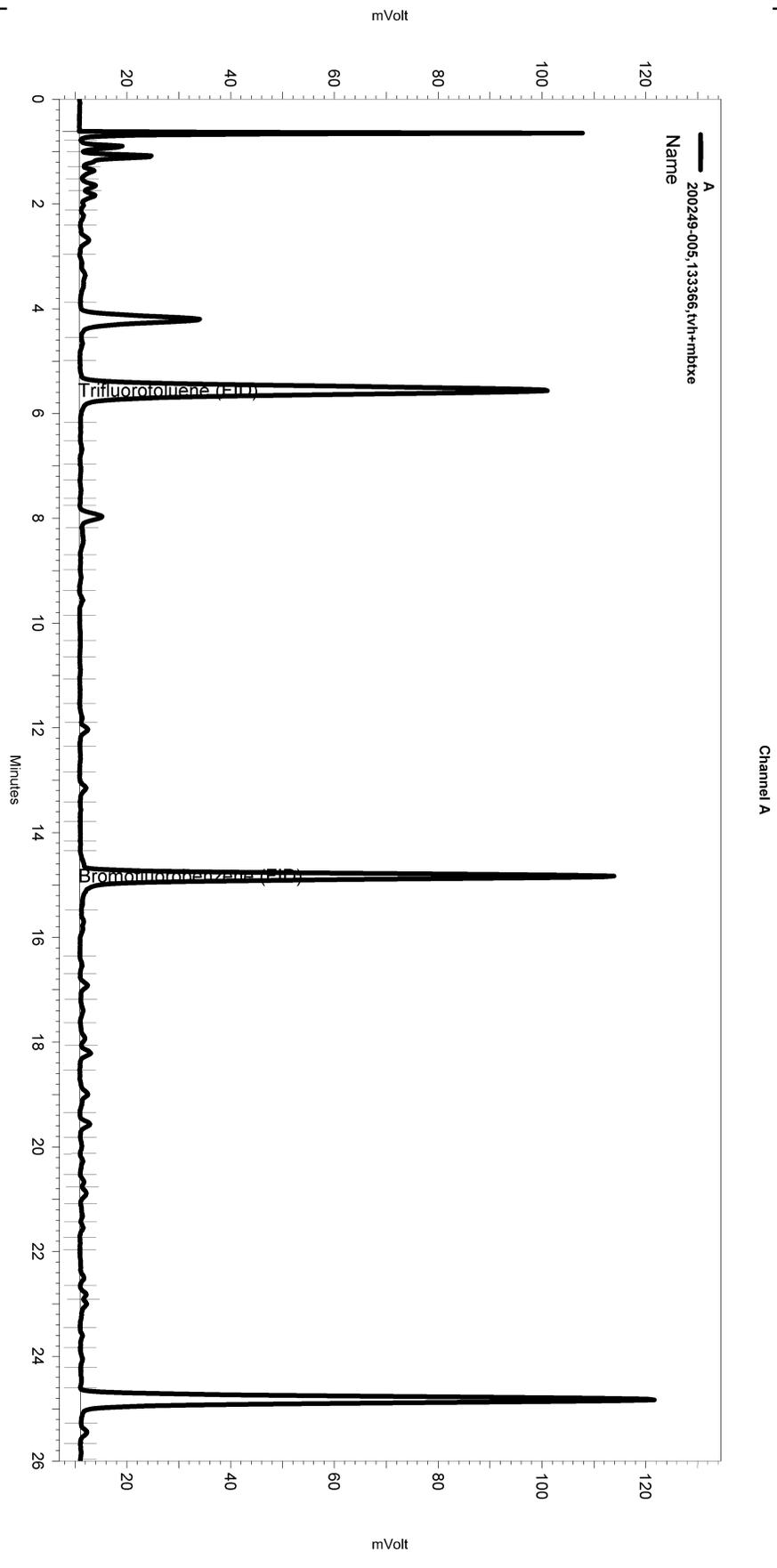
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 Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\003\_024  
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Software Version 3.1.7  
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 Analysis Date: 1/4/2008 10:21:44 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: b1.3



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

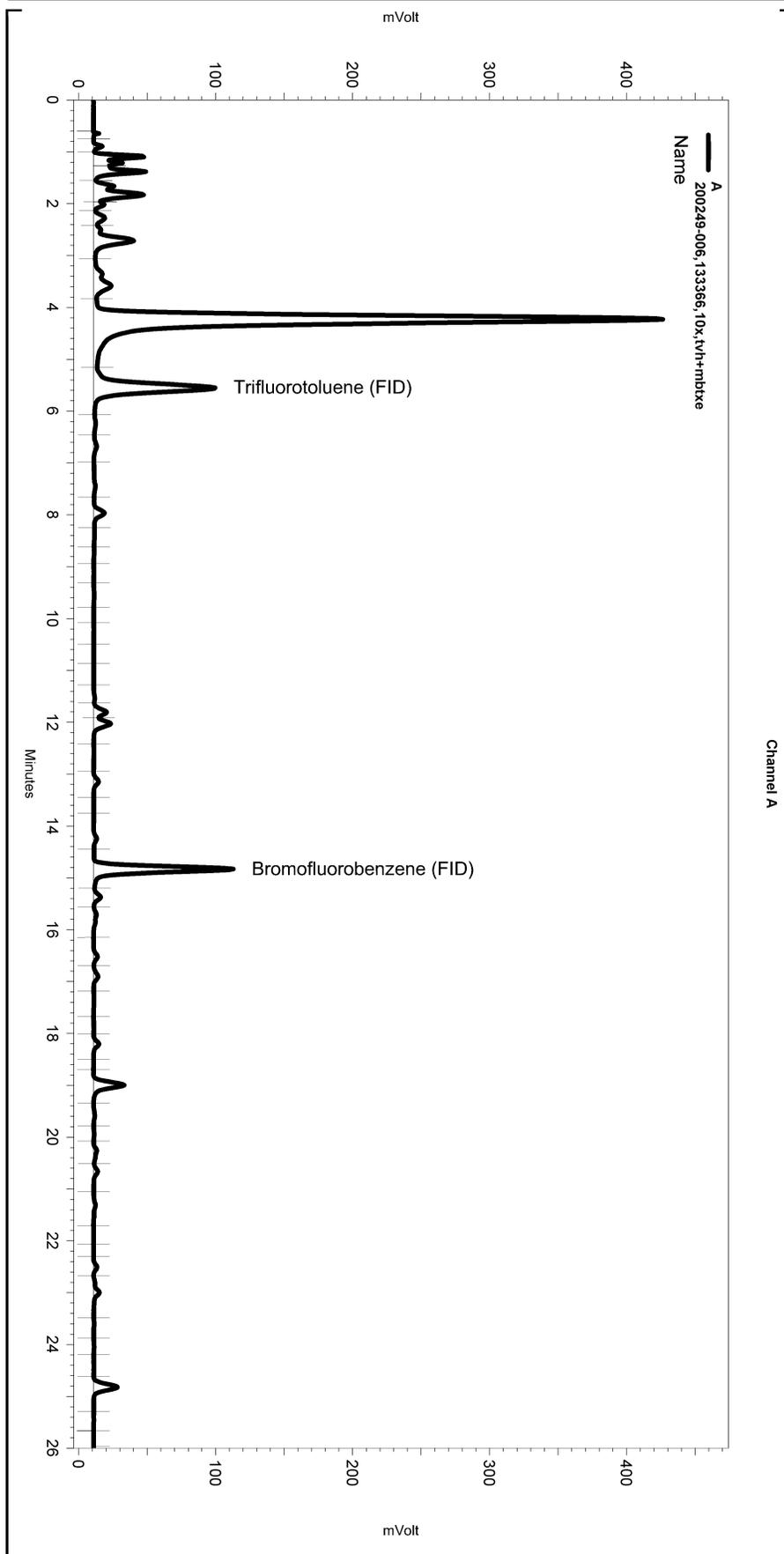
Manual Integration Fixes

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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

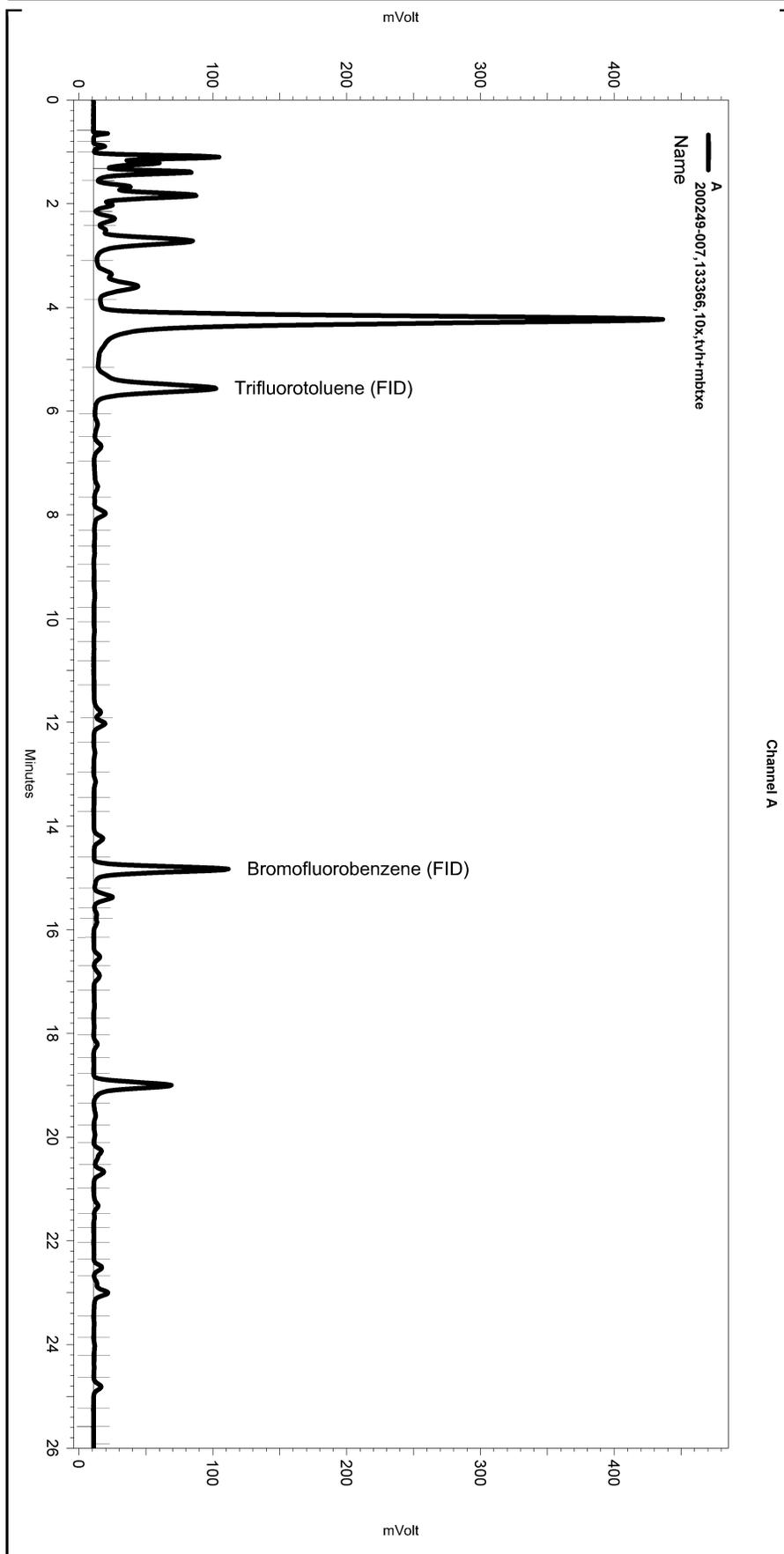
Manual Integration Fixes

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Software Version 3.1.7  
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 Analysis Date: 1/4/2008 10:21:52 AM  
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 Vial & pH or Core ID: b1.3



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Integration Events

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Yes	Threshold	0	0	50

Manual Integration Fixes

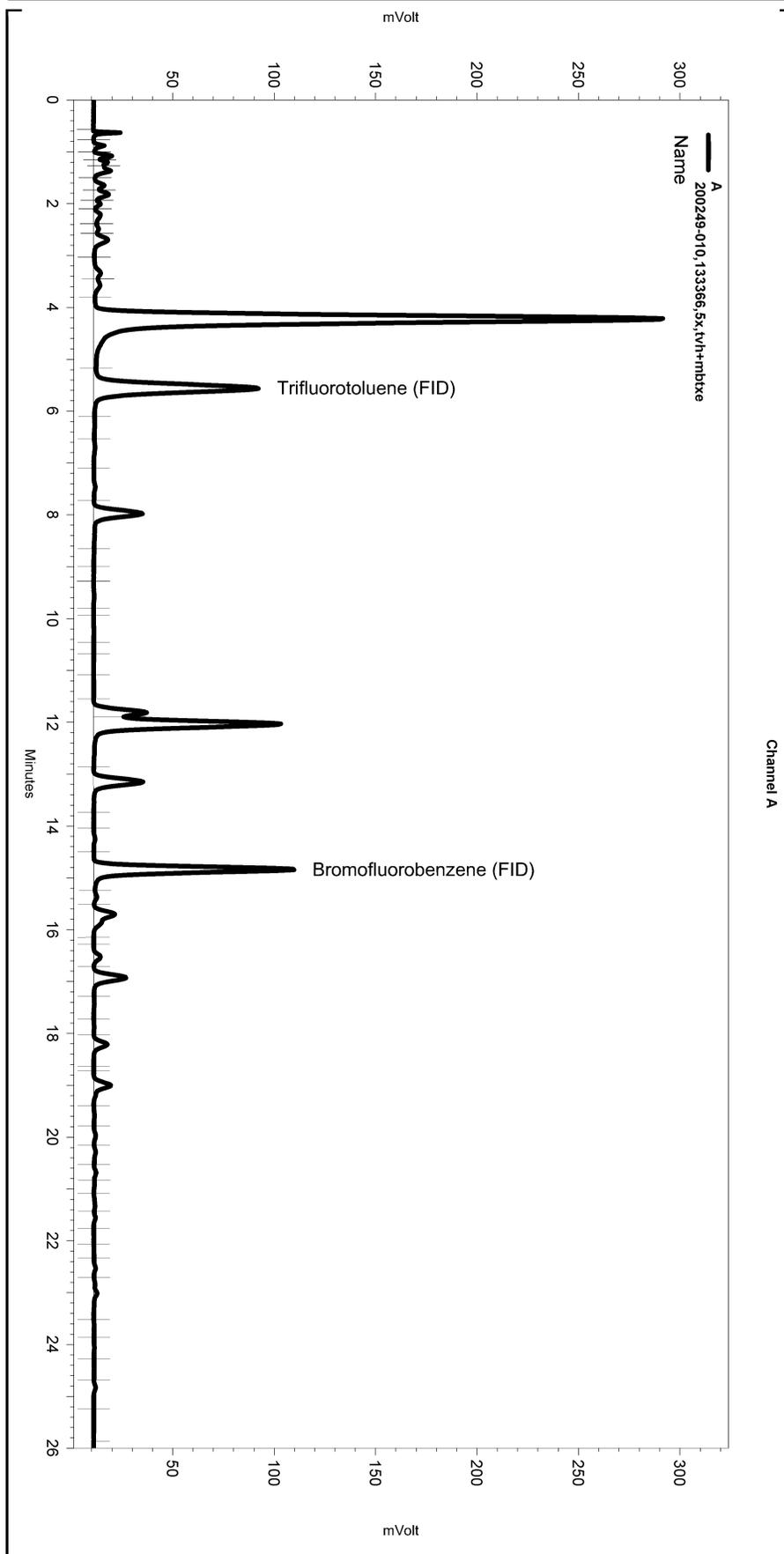
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 Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
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 Run Date: 1/3/2008 9:36:19 PM  
 Analysis Date: 1/4/2008 10:21:11 AM  
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 Vial & pH or Core ID: b2.2



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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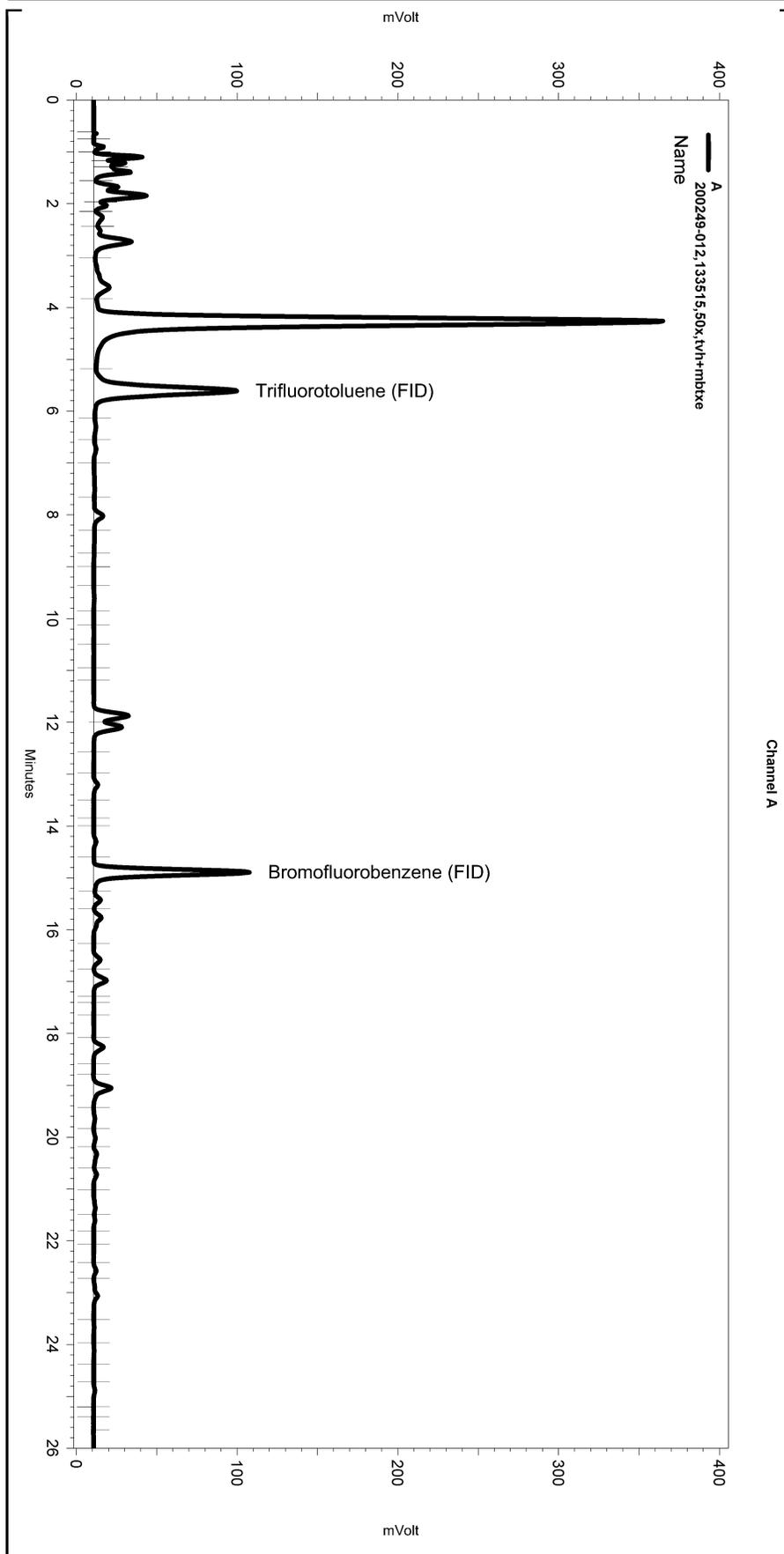
Manual Integration Fixes

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Software Version 3.1.7  
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 Analysis Date: 1/7/2008 5:44:19 PM  
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 Vial & pH or Core ID: c1.3



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Integration Events

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Yes	Threshold	0	0	50

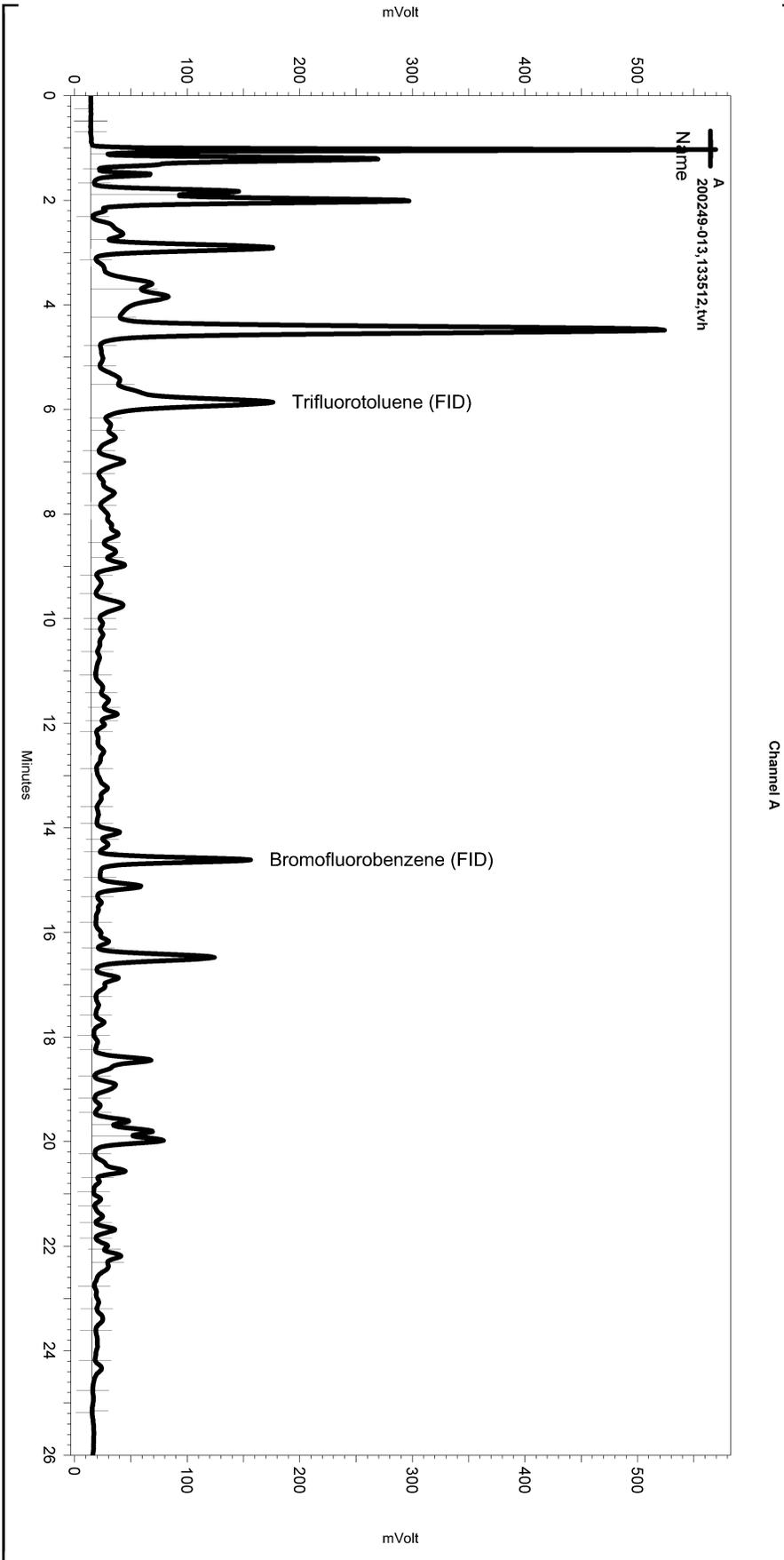
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Software Version 3.1.7  
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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\007\_007

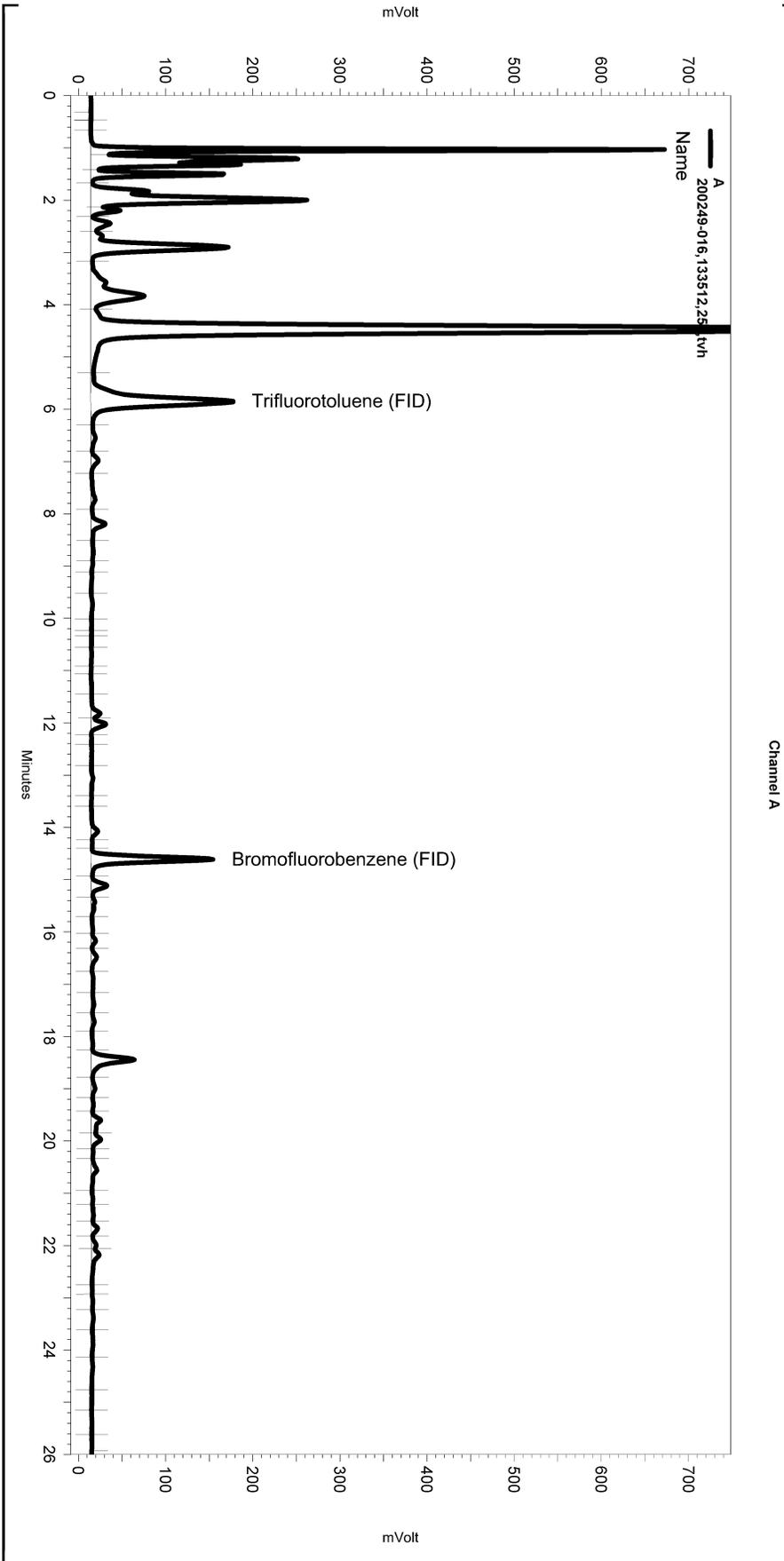
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Software Version 3.1.7  
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 Analysis Date: 1/8/2008 7:21:22 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: c1.3



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

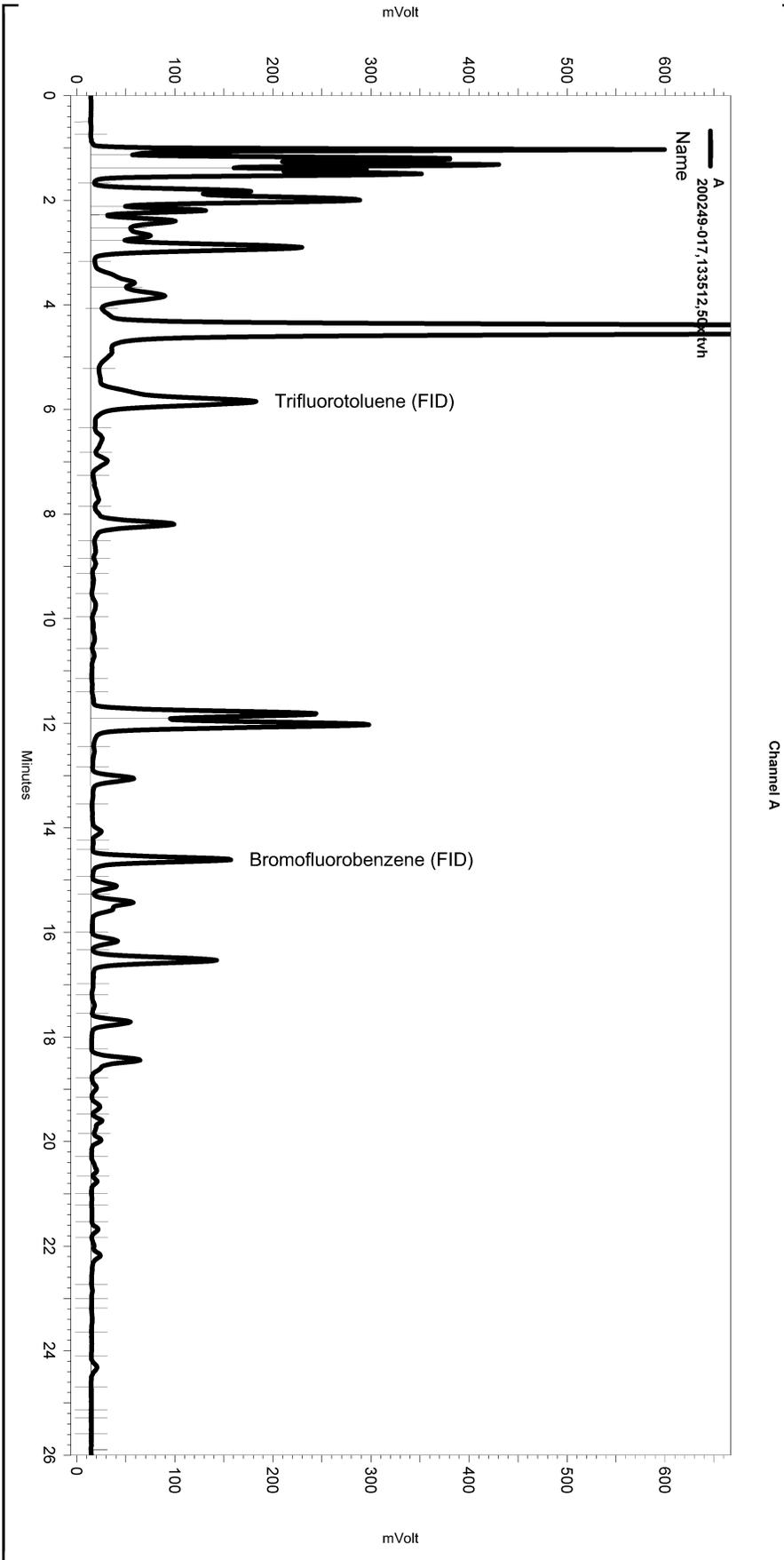
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 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\007\_009  
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Software Version 3.1.7  
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 Analysis Date: 1/8/2008 7:21:27 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: c1.3



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

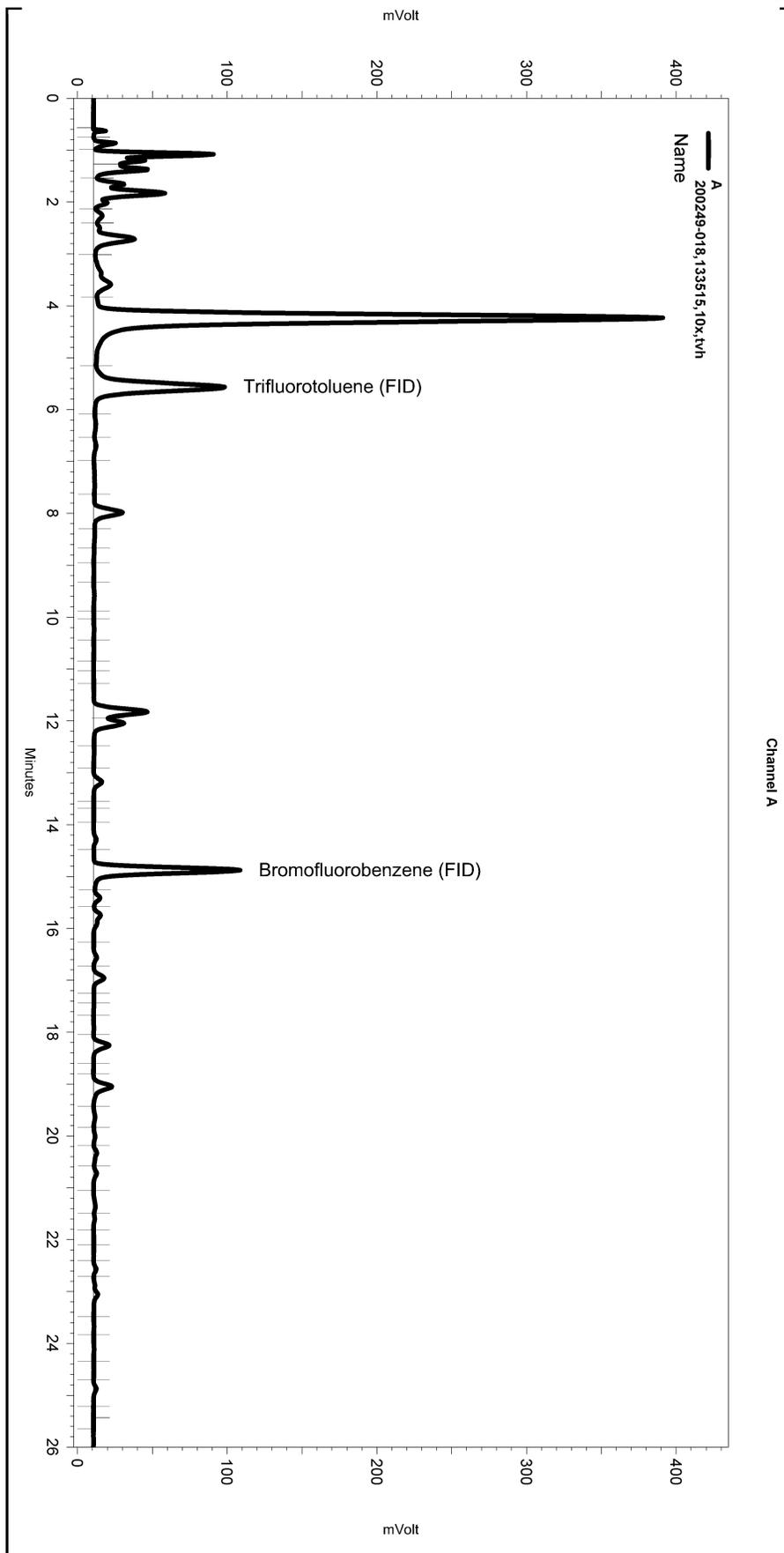
Manual Integration Fixes

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Software Version 3.1.7  
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 Analysis Date: 1/7/2008 5:44:23 PM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: {Data Description}



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Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

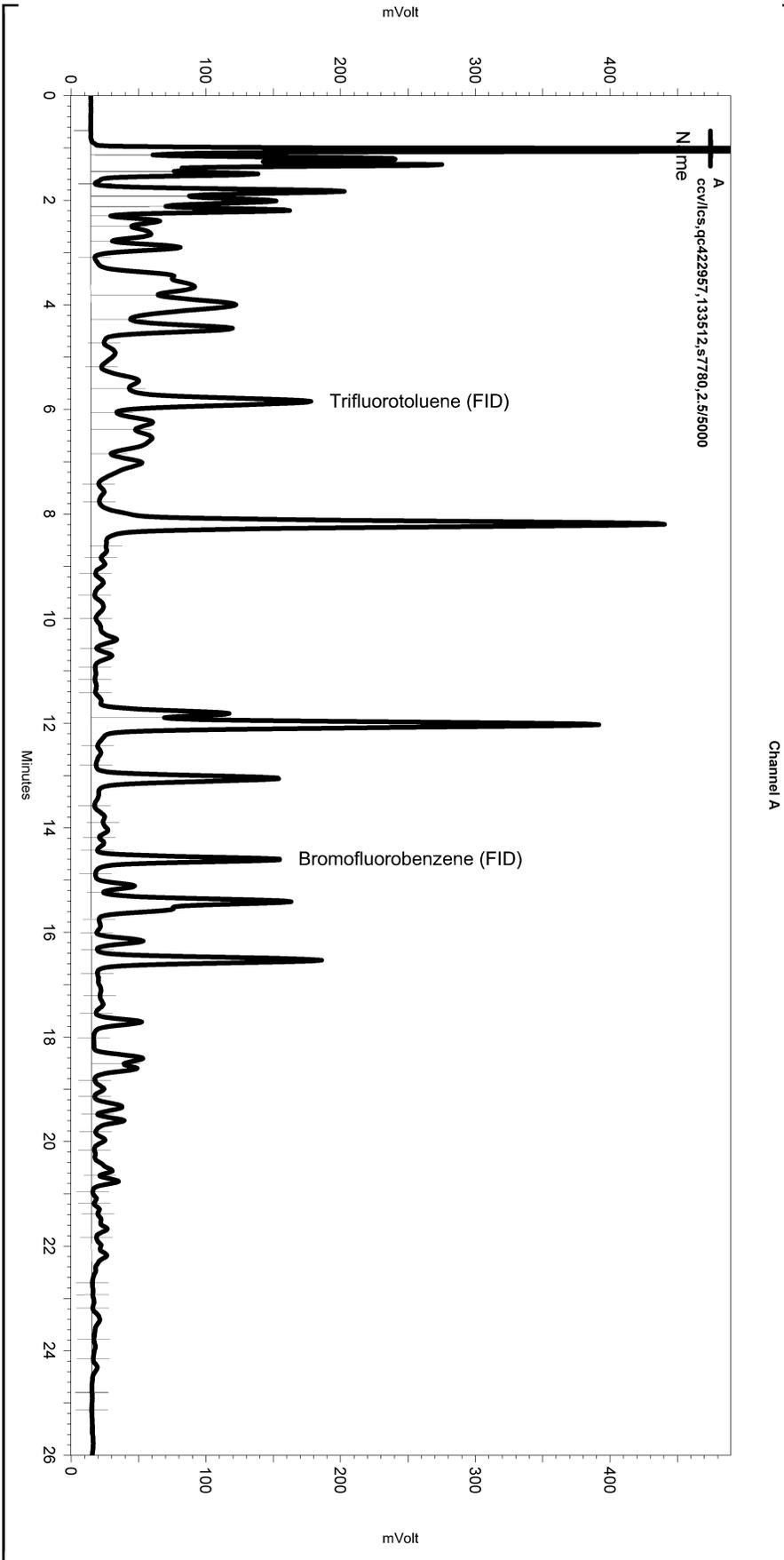
Manual Integration Fixes

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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\007\_005  
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\lvhbtxe004.met

Software Version 3.1.7  
 Run Date: 1/7/2008 1:52:15 PM  
 Analysis Date: 1/8/2008 7:21:06 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: {Data Description}



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Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\007\_005

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

**Total Extractable Hydrocarbons**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 3520C
Project#: STANDARD	Analysis: EPA 8015B
Matrix: Water	Diln Fac: 1.000
Units: ug/L	Received: 12/28/07

Field ID: MW-4	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-001	Analyzed: 01/03/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	710 Y	50

Surrogate	%REC	Limits
Hexacosane	104	61-133

Field ID: MW-6	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-002	Analyzed: 01/03/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	1,000 Y	50

Surrogate	%REC	Limits
Hexacosane	111	61-133

Field ID: MW-9	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-003	Analyzed: 01/04/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	8,400 Y	50

Surrogate	%REC	Limits
Hexacosane	102	61-133

Field ID: MW-12	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-004	Analyzed: 01/03/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	2,700 Y	50

Surrogate	%REC	Limits
Hexacosane	105	61-133

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

**Total Extractable Hydrocarbons**

Lab #: 200249	Location: Bay Center Apts.
Client: Stellar Environmental Solutions	Prep: EPA 3520C
Project#: STANDARD	Analysis: EPA 8015B
Matrix: Water	Diln Fac: 1.000
Units: ug/L	Received: 12/28/07

Field ID: MW-16	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-005	Analyzed: 01/02/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	8,500 Y	50

Surrogate	%REC	Limits
Hexacosane	103	61-133

Field ID: MW-E	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-006	Analyzed: 01/02/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	6,900 Y	50

Surrogate	%REC	Limits
Hexacosane	102	61-133

Field ID: MW-15	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-007	Analyzed: 01/01/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	3,300 Y	50

Surrogate	%REC	Limits
Hexacosane	100	61-133

Field ID: MW-18	Sampled: 12/27/07
Type: SAMPLE	Prepared: 12/30/07
Lab ID: 200249-008	Analyzed: 01/01/08
Batch#: 133307	

Analyte	Result	RL
Diesel C10-C24	8,600 Y	50

Surrogate	%REC	Limits
Hexacosane	96	61-133

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

Total Extractable Hydrocarbons			
Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Received:	12/28/07

Field ID:	MW-11	Sampled:	12/27/07
Type:	SAMPLE	Prepared:	12/30/07
Lab ID:	200249-009	Analyzed:	01/01/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	6,900 Y	50

Surrogate	%REC	Limits
Hexacosane	97	61-133

Field ID:	MW-7	Sampled:	12/27/07
Type:	SAMPLE	Prepared:	12/30/07
Lab ID:	200249-010	Analyzed:	01/02/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	6,300 Y	50

Surrogate	%REC	Limits
Hexacosane	99	61-133

Field ID:	MW-5	Sampled:	12/27/07
Type:	SAMPLE	Prepared:	12/30/07
Lab ID:	200249-011	Analyzed:	01/03/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	5,100 Y	50

Surrogate	%REC	Limits
Hexacosane	109	61-133

Field ID:	MW-8	Sampled:	12/27/07
Type:	SAMPLE	Prepared:	12/30/07
Lab ID:	200249-012	Analyzed:	01/03/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	5,900 Y	50

Surrogate	%REC	Limits
Hexacosane	98	61-133

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

Total Extractable Hydrocarbons			
Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Received:	12/28/07

Field ID:	RW-1	Sampled:	12/28/07
Type:	SAMPLE	Prepared:	12/30/07
Lab ID:	200249-013	Analyzed:	01/03/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	2,100	50
Surrogate	%REC	Limits
Hexacosane	96	61-133

Field ID:	MW-3	Sampled:	12/28/07
Type:	SAMPLE	Prepared:	01/02/08
Lab ID:	200249-014	Analyzed:	01/03/08
Batch#:	133355		

Analyte	Result	RL
Diesel C10-C24	960 Y	50
Surrogate	%REC	Limits
Hexacosane	120	61-133

Field ID:	MW-17	Sampled:	12/28/07
Type:	SAMPLE	Prepared:	01/02/08
Lab ID:	200249-015	Analyzed:	01/03/08
Batch#:	133355		

Analyte	Result	RL
Diesel C10-C24	2,900 Y	50
Surrogate	%REC	Limits
Hexacosane	122	61-133

Field ID:	MW-10	Sampled:	12/28/07
Type:	SAMPLE	Prepared:	01/02/08
Lab ID:	200249-016	Analyzed:	01/03/08
Batch#:	133355		

Analyte	Result	RL
Diesel C10-C24	4,700 Y	50
Surrogate	%REC	Limits
Hexacosane	110	61-133

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

**Total Extractable Hydrocarbons**

Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Received:	12/28/07

Field ID:	MW-14	Sampled:	12/28/07
Type:	SAMPLE	Prepared:	01/02/08
Lab ID:	200249-018	Analyzed:	01/03/08
Batch#:	133355		

Analyte	Result	RL
Diesel C10-C24	2,600 Y	50

Surrogate	%REC	Limits
Hexacosane	90	61-133

Type:	BLANK	Prepared:	12/30/07
Lab ID:	QC422202	Analyzed:	01/02/08
Batch#:	133307		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	78	61-133

Type:	BLANK	Prepared:	01/02/08
Lab ID:	QC422400	Analyzed:	01/03/08
Batch#:	133355		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	113	61-133

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

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	133307
Units:	ug/L	Prepared:	12/30/07
Diln Fac:	1.000	Analyzed:	01/01/08

Type: BS Cleanup Method: EPA 3630C  
 Lab ID: QC422203

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,062	82	58-128

Surrogate	%REC	Limits
Hexacosane	89	61-133

Type: BSD Cleanup Method: EPA 3630C  
 Lab ID: QC422204

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,962	78	58-128	5	29

Surrogate	%REC	Limits
Hexacosane	87	61-133

RPD= Relative Percent Difference

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200249	Location:	Bay Center Apts.
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	133355
Units:	ug/L	Prepared:	01/02/08
Diln Fac:	1.000	Analyzed:	01/03/08

Type: BS Cleanup Method: EPA 3630C  
 Lab ID: QC422401

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,570	103	58-128

Surrogate	%REC	Limits
Hexacosane	122	61-133

Type: BSD Cleanup Method: EPA 3630C  
 Lab ID: QC422402

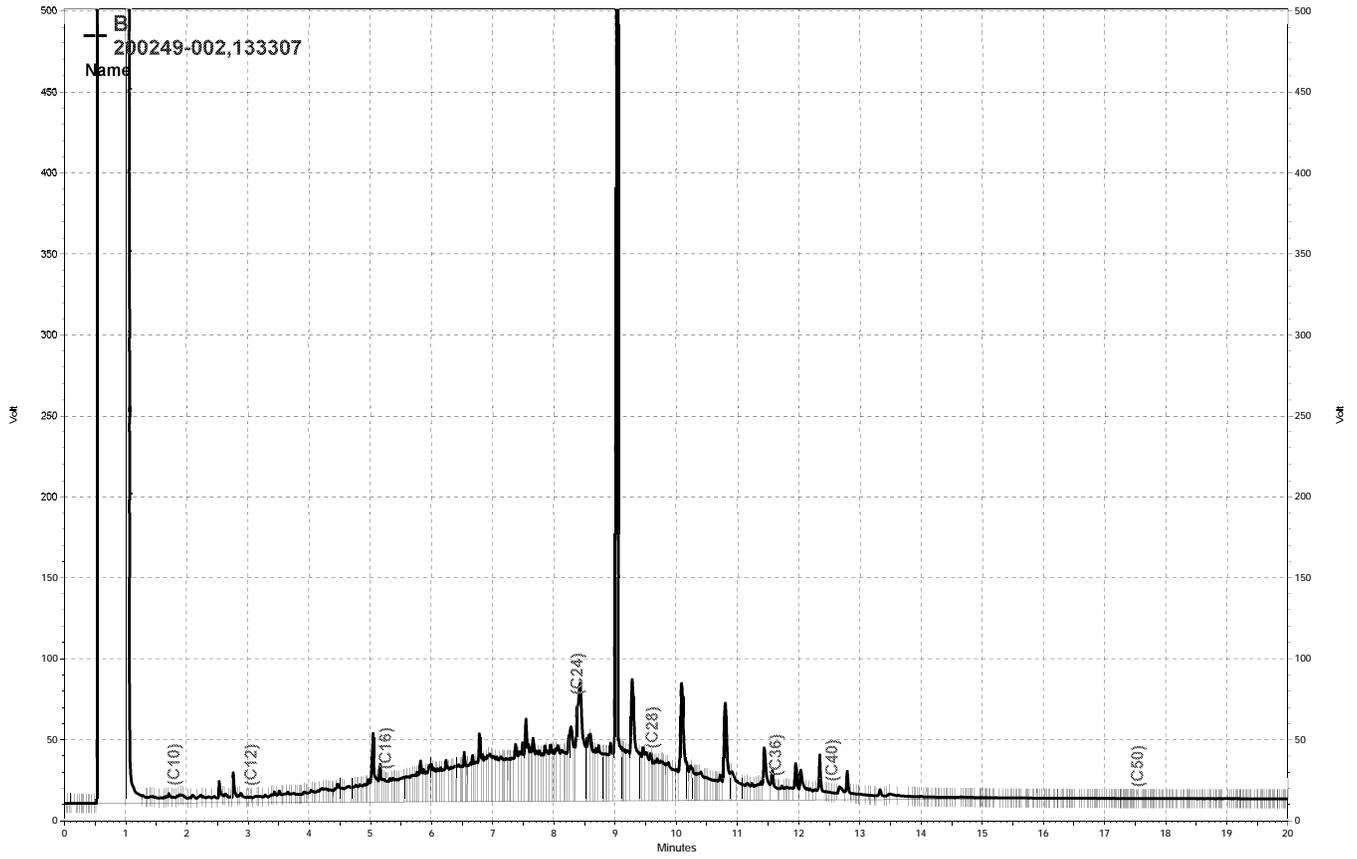
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
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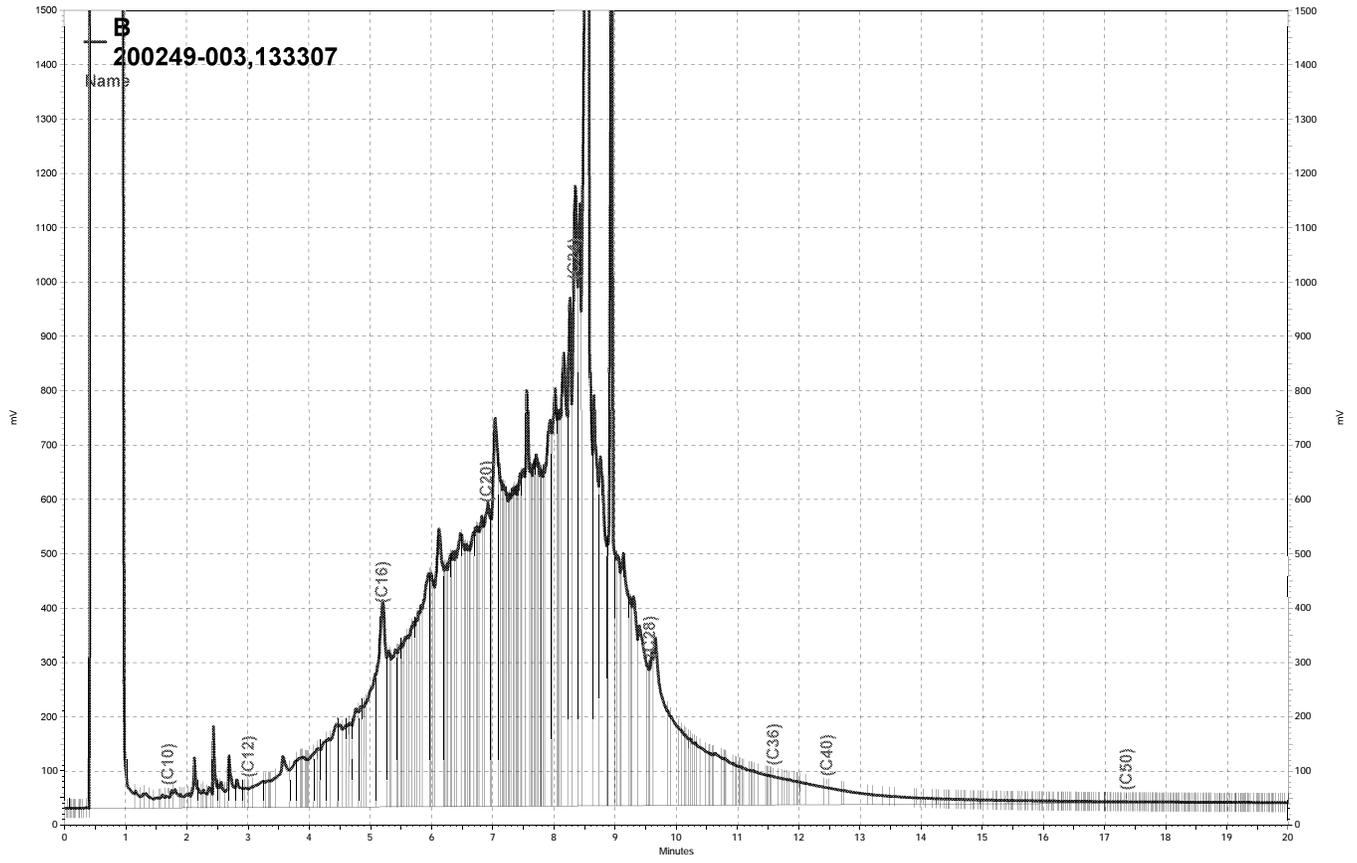
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Hexacosane	112	61-133

RPD= Relative Percent Difference

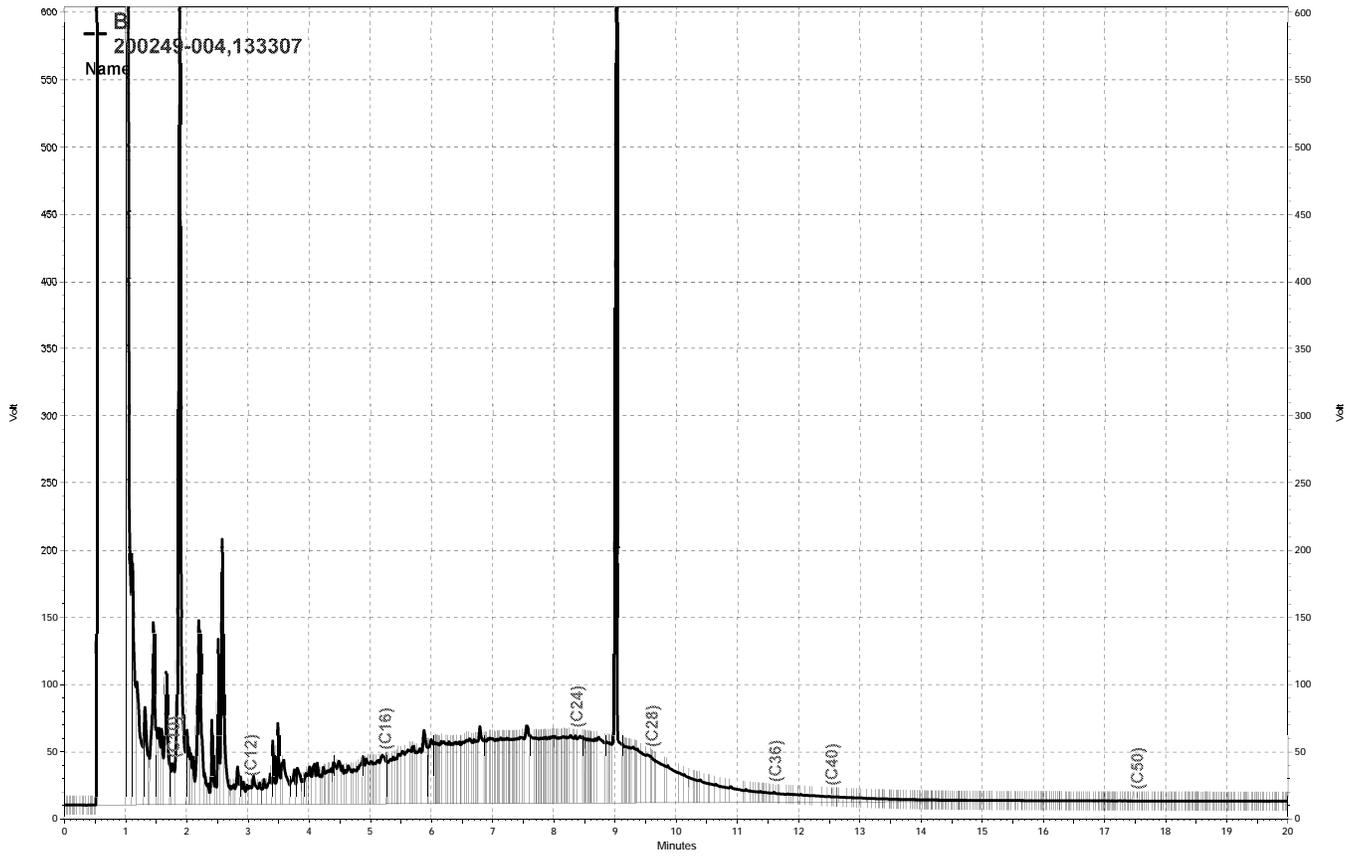




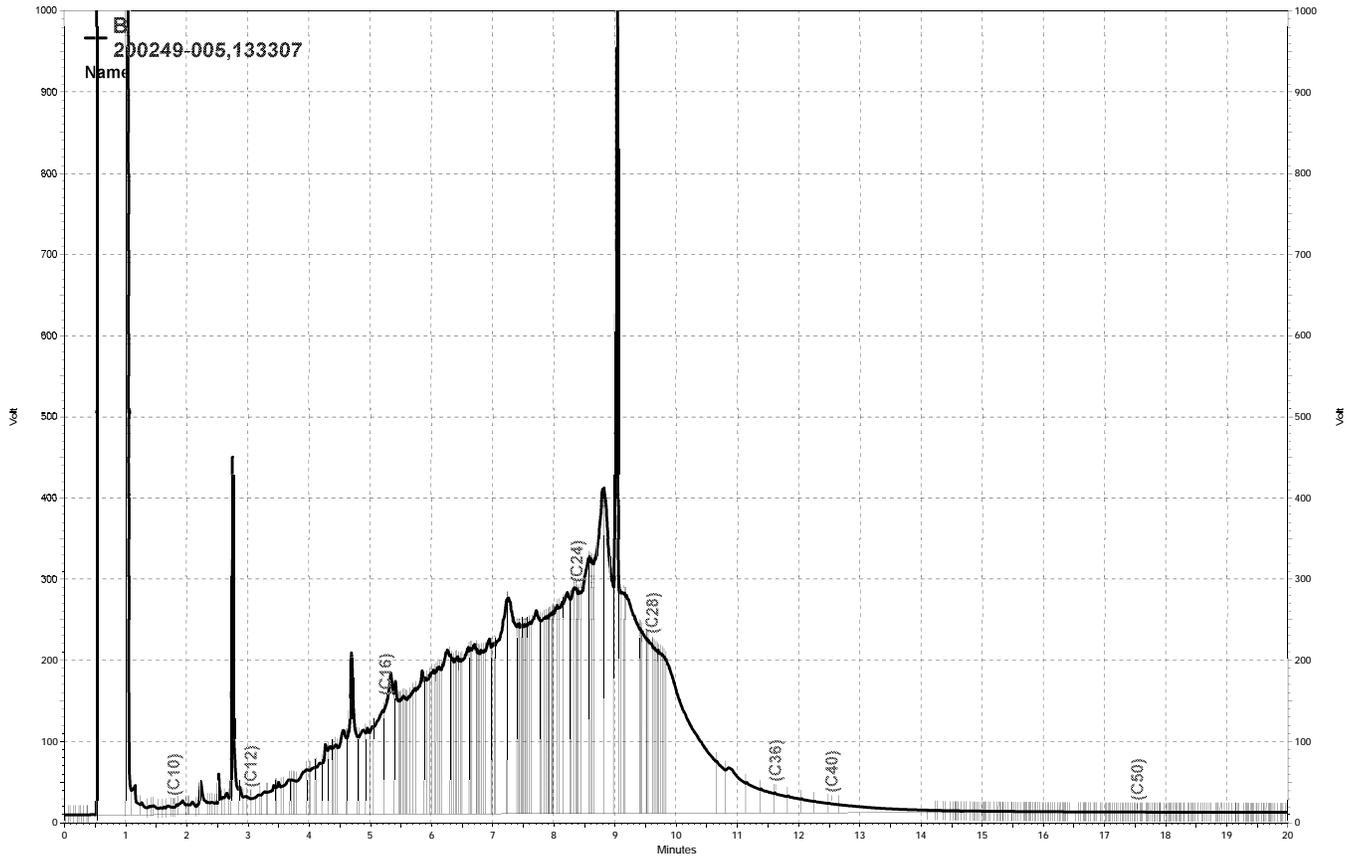
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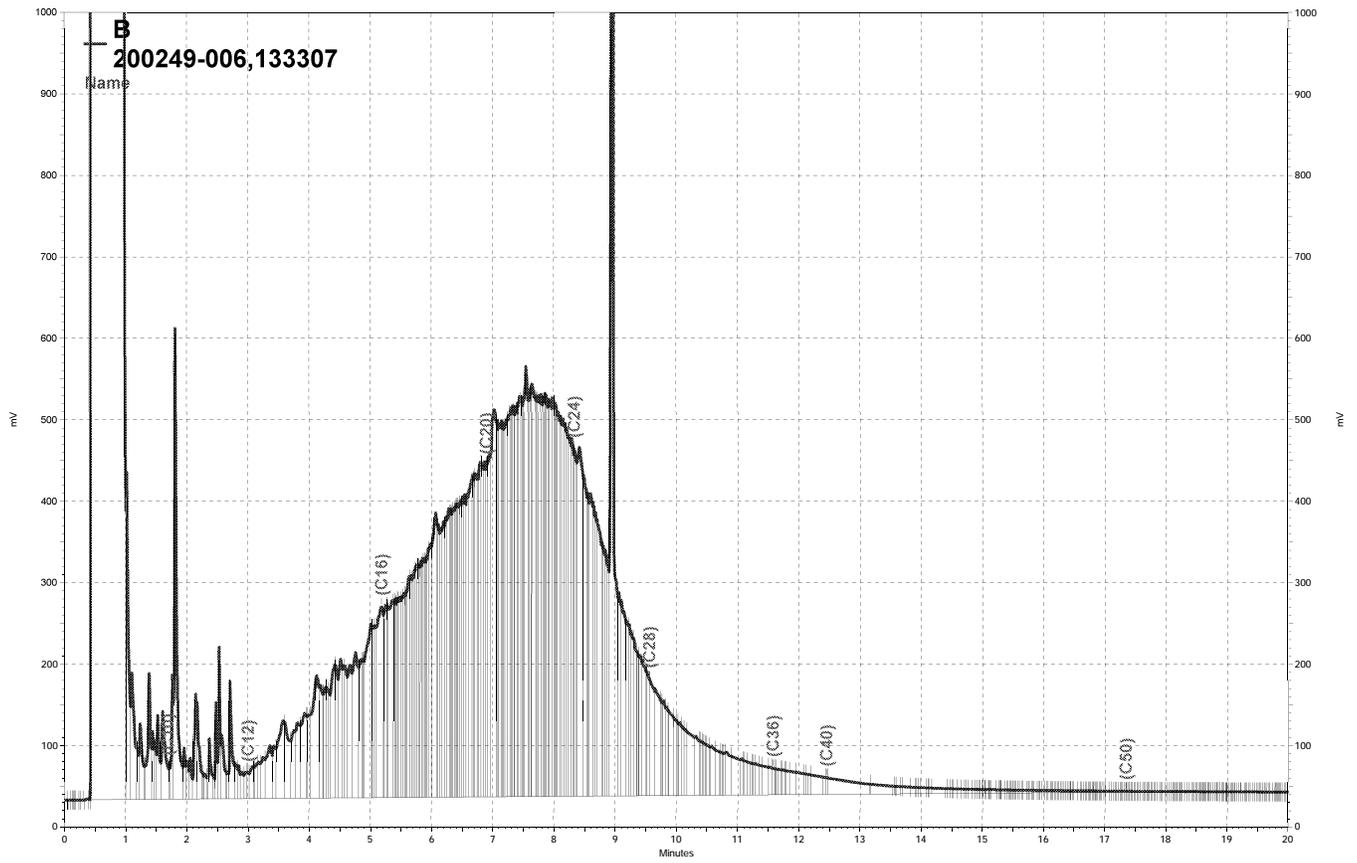
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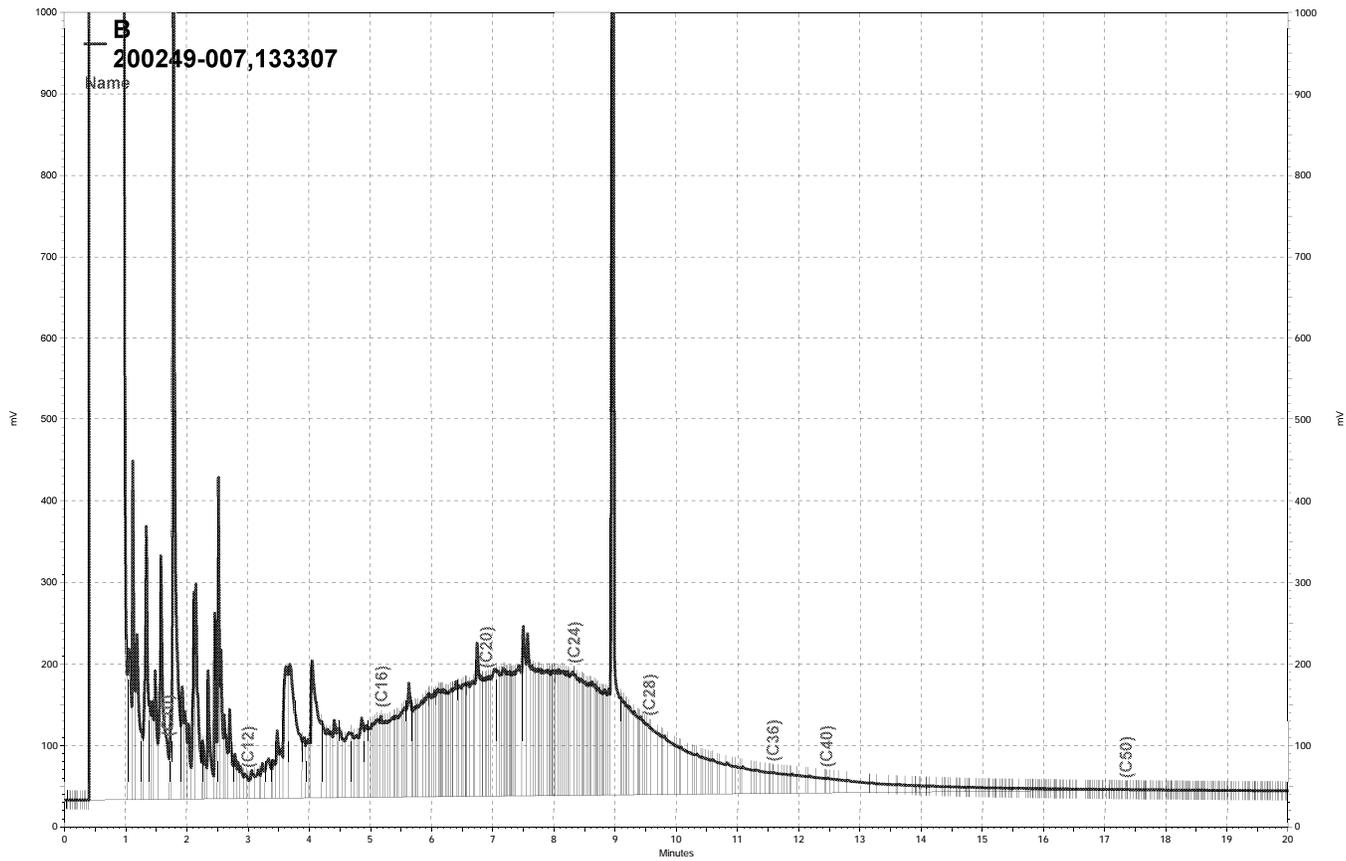
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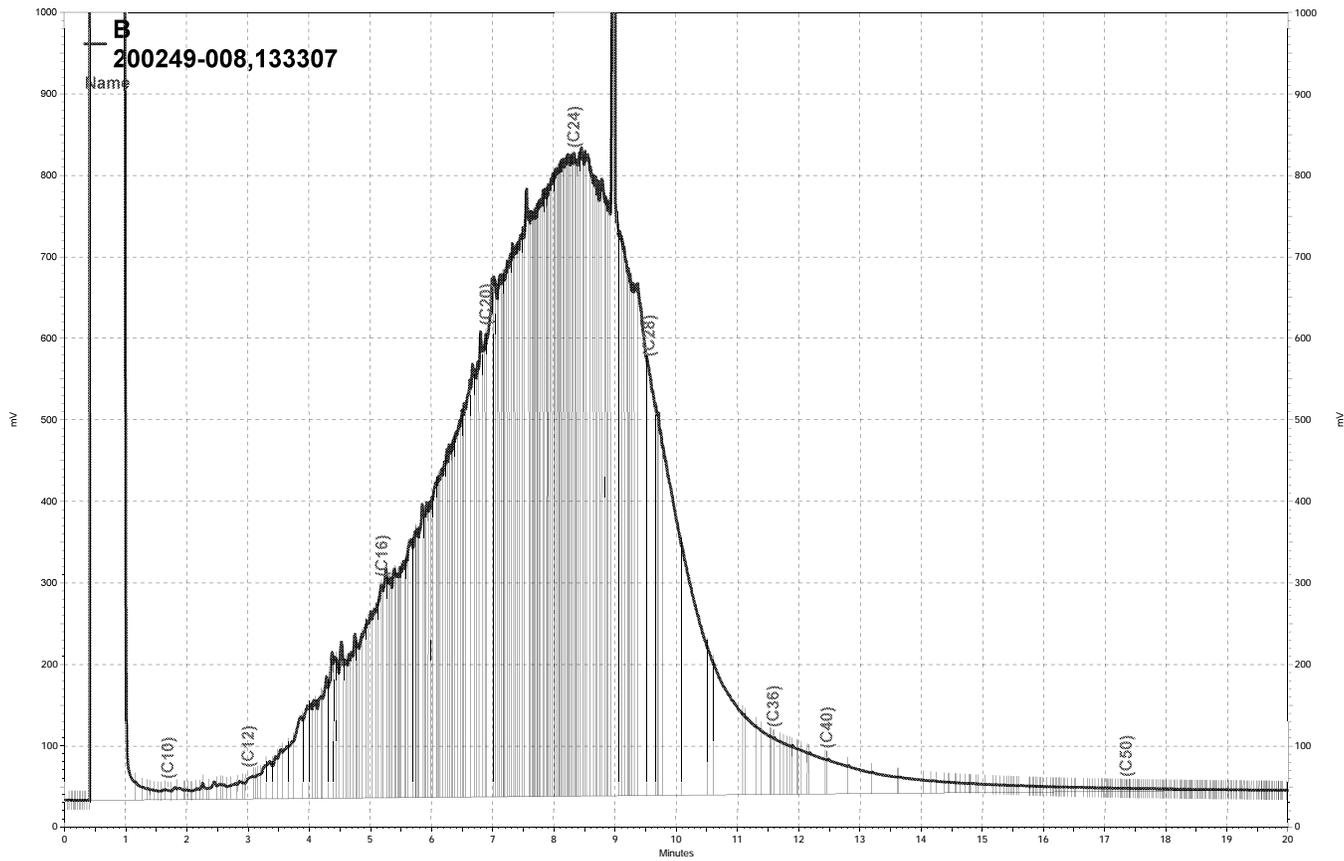
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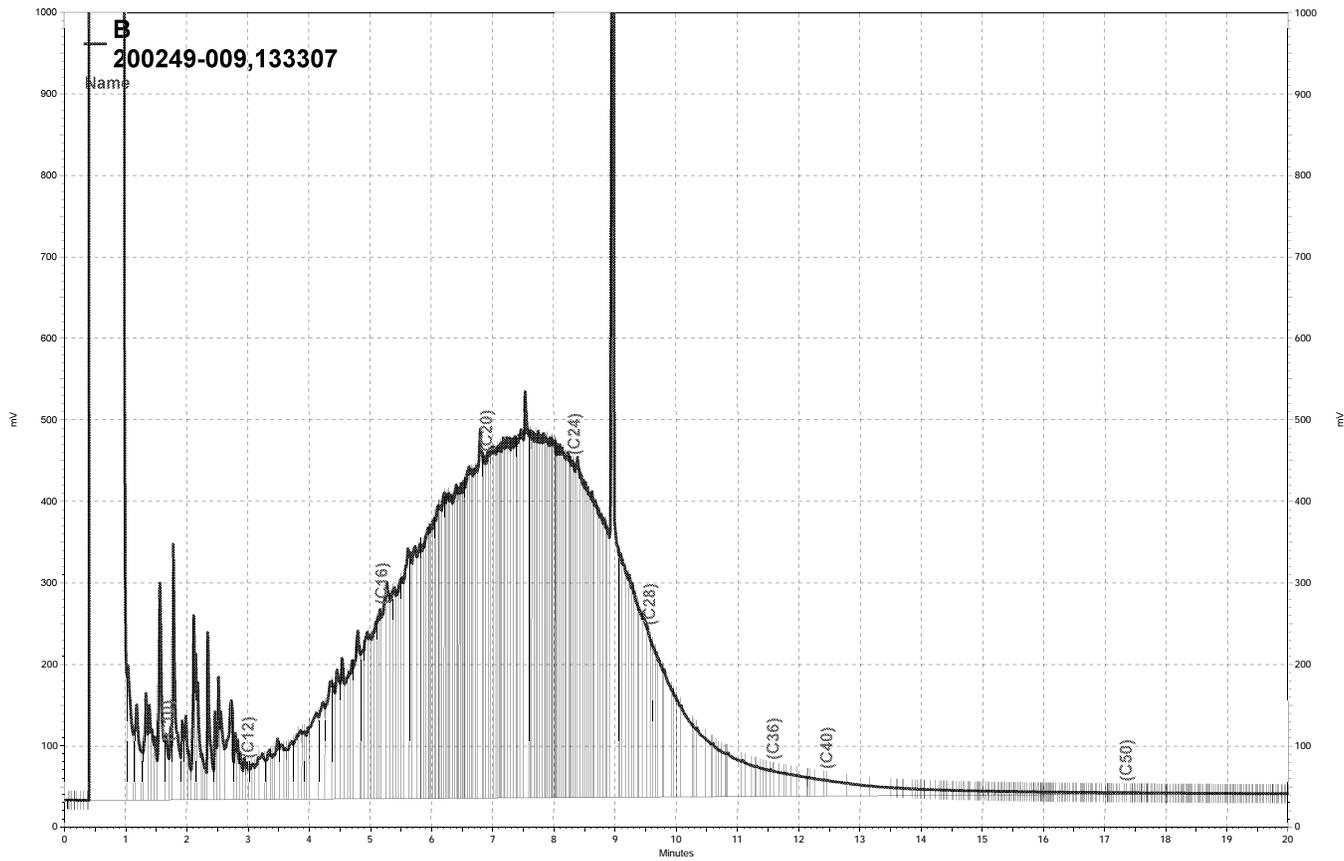
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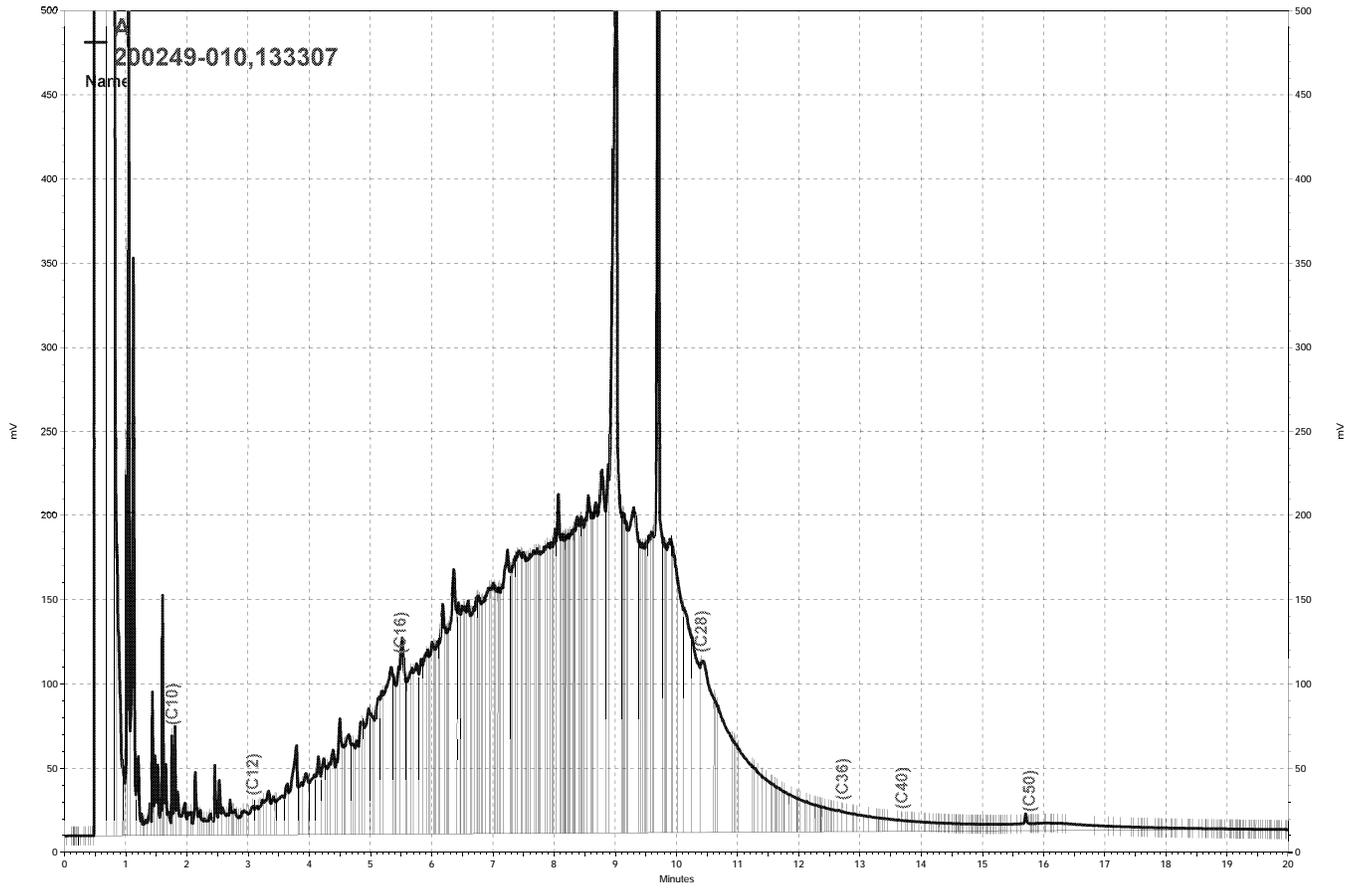
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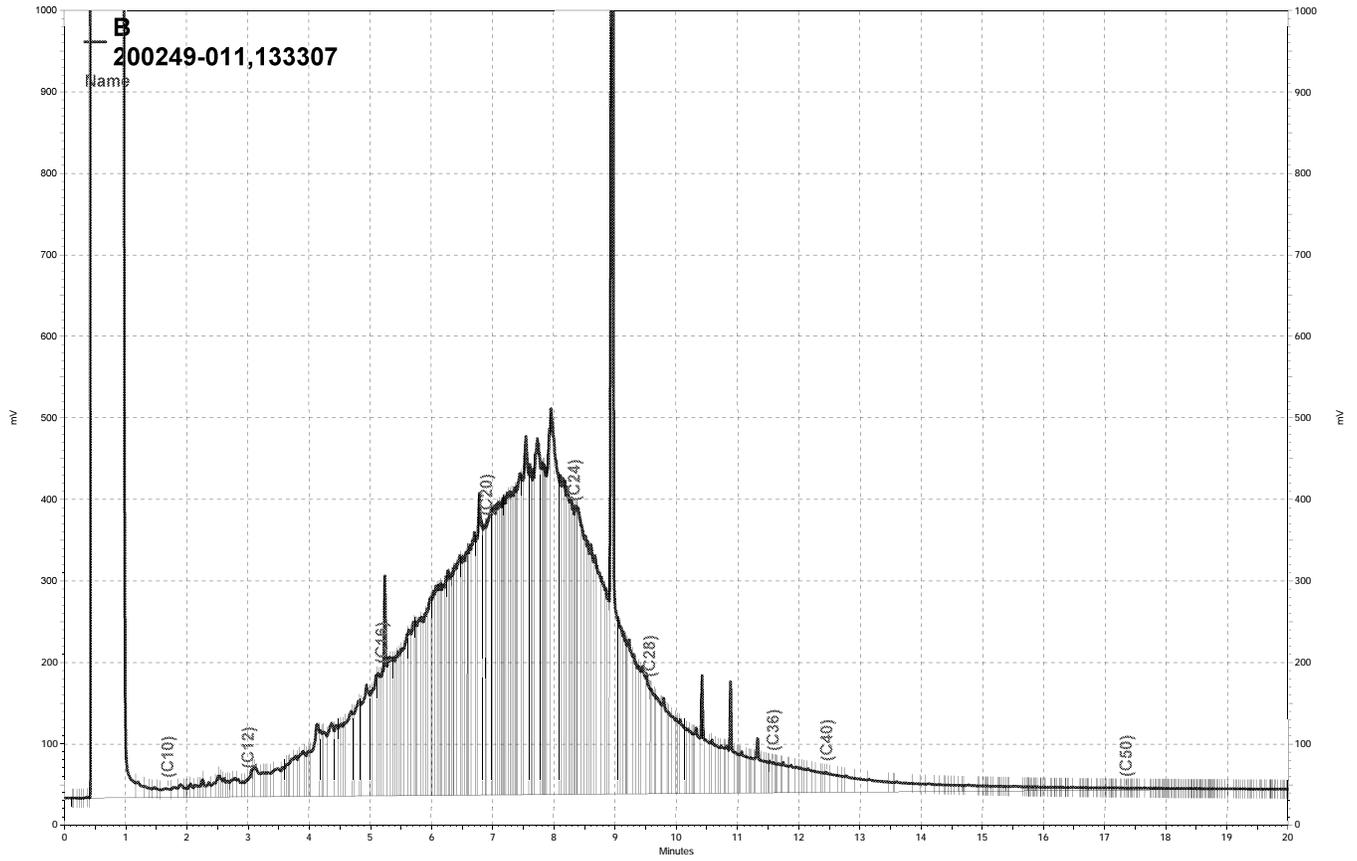
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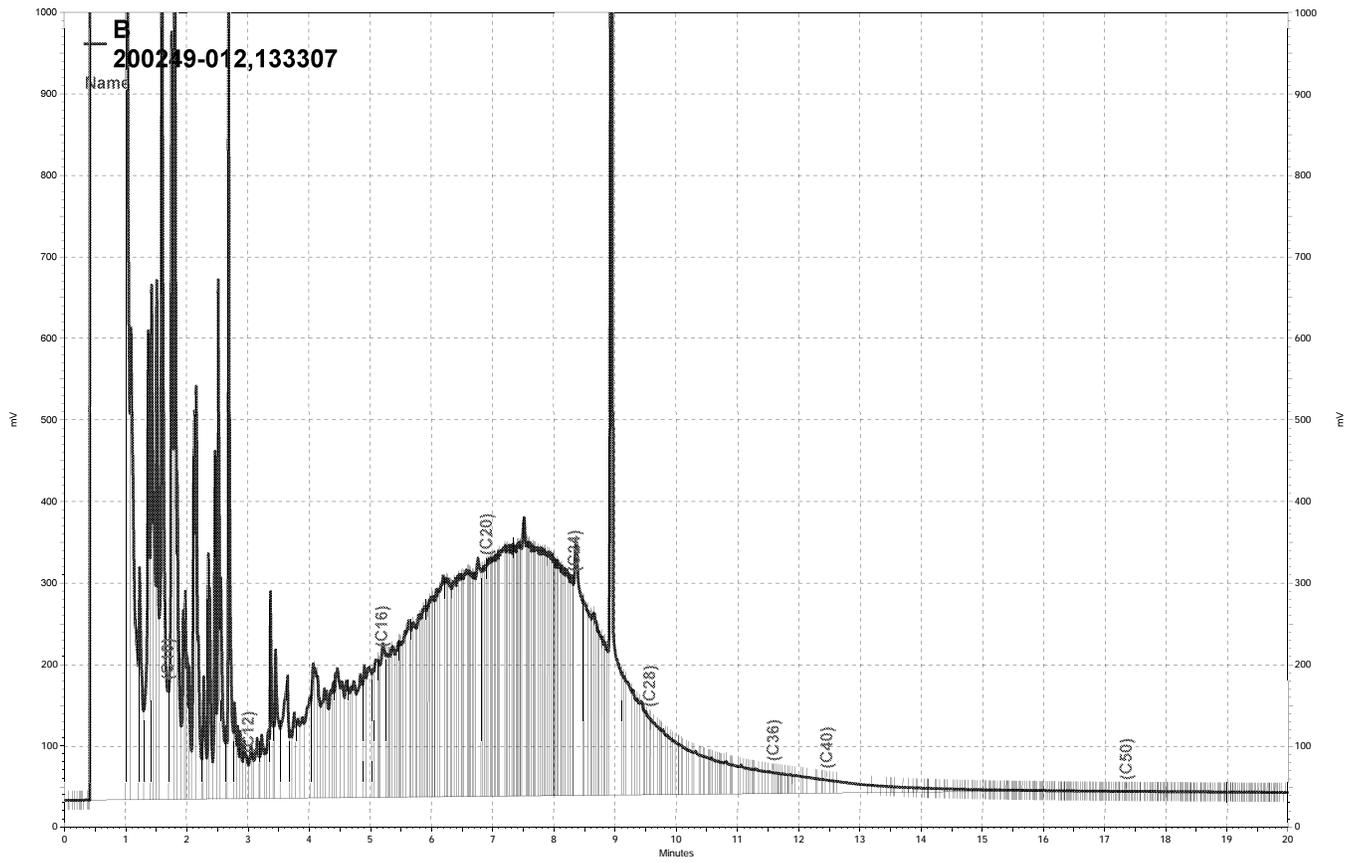
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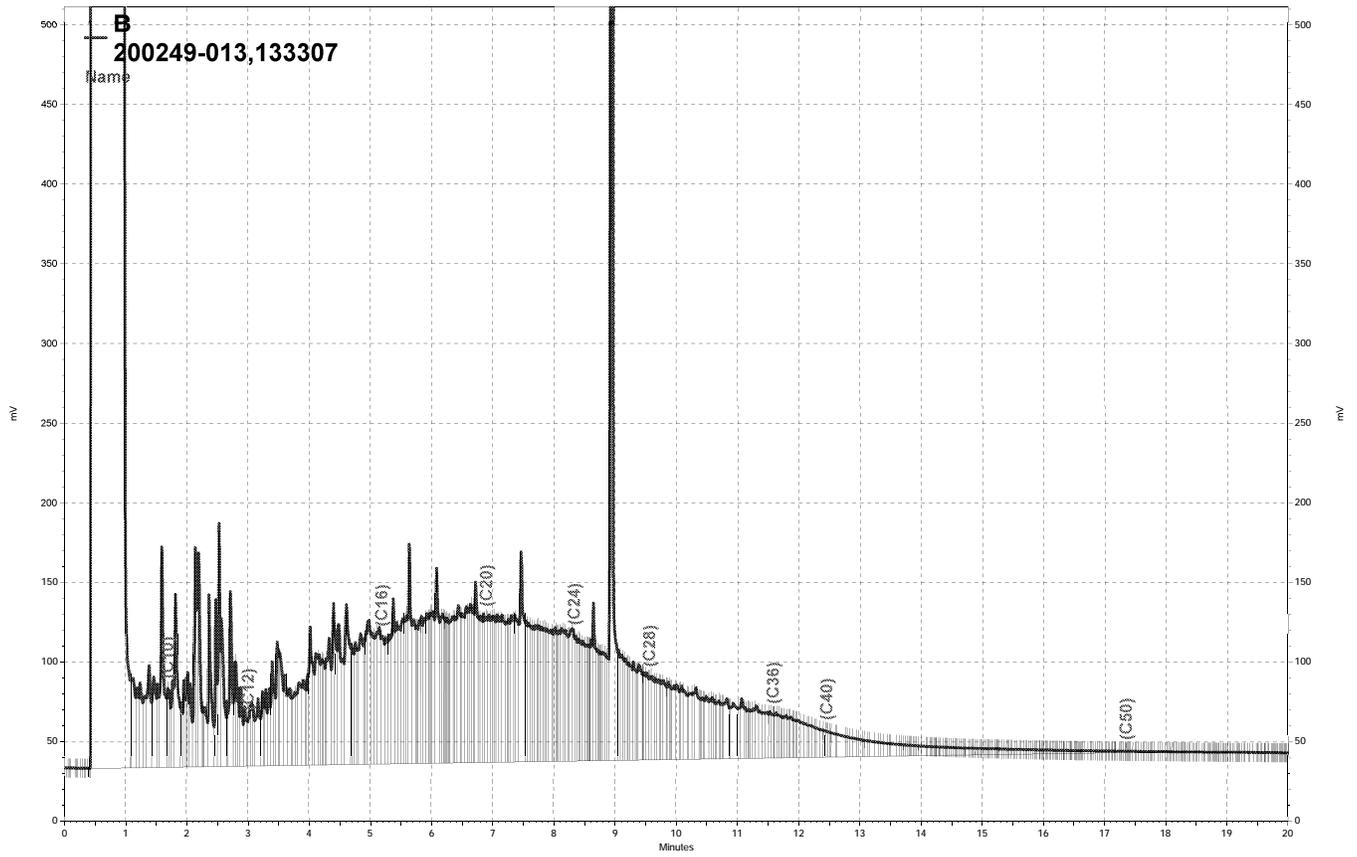
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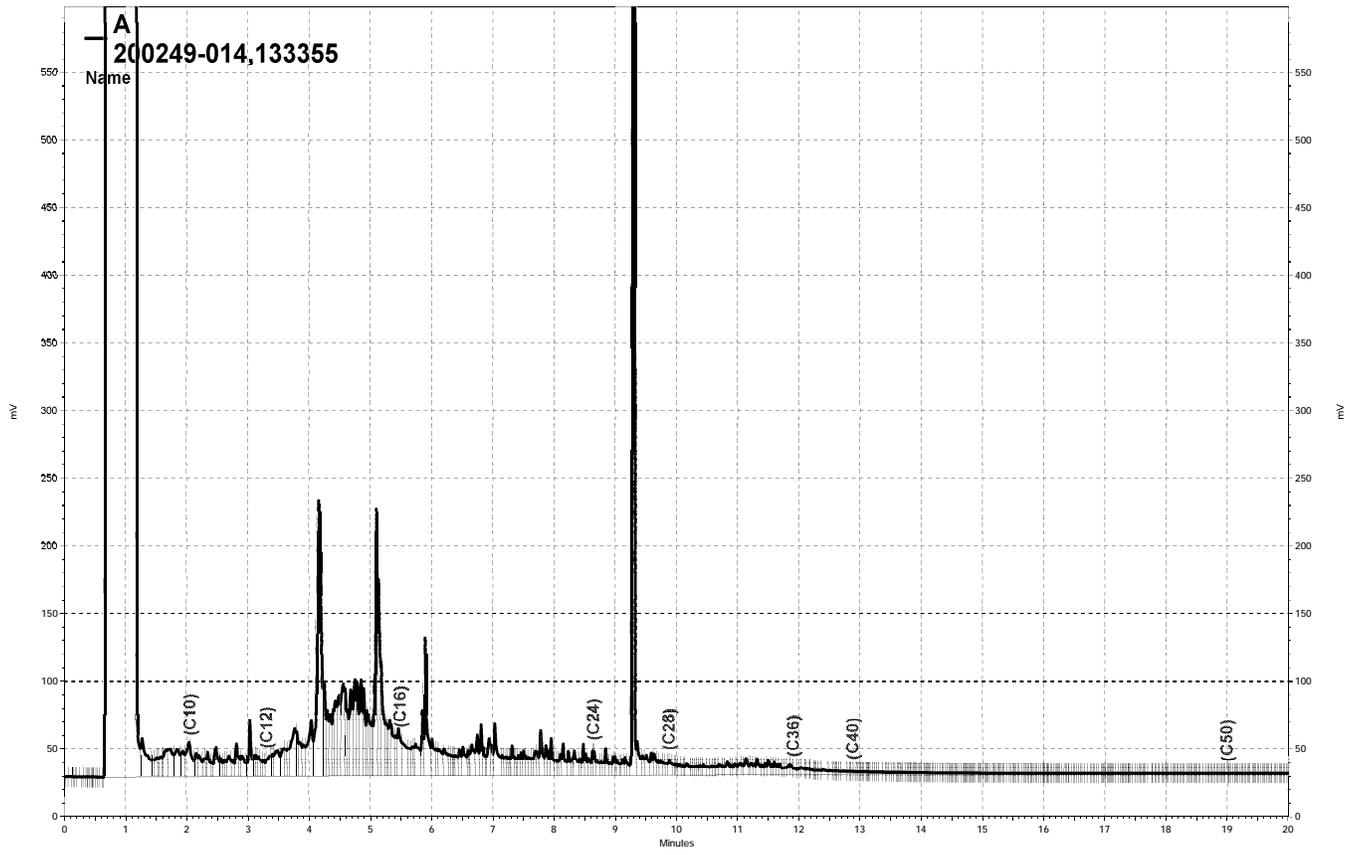
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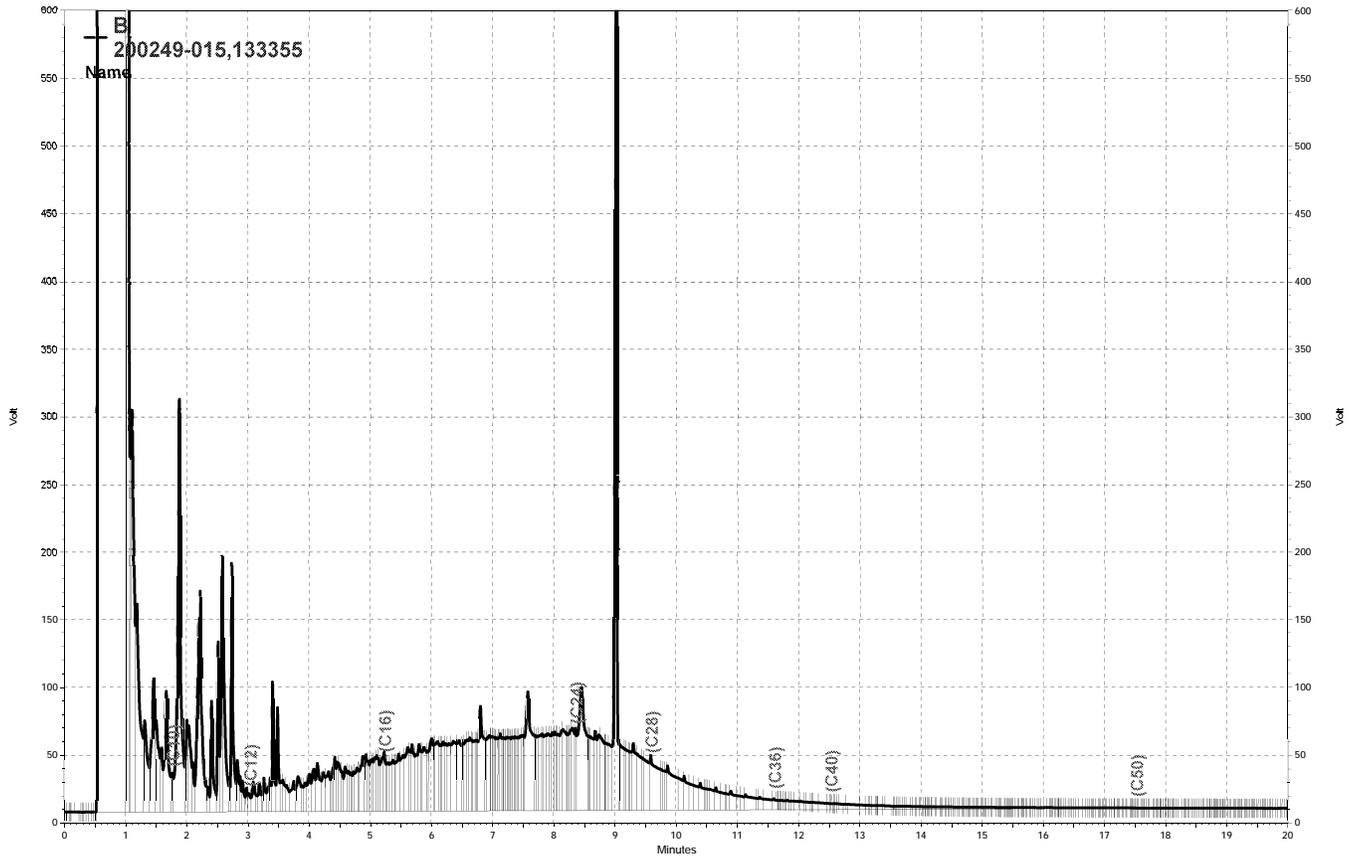
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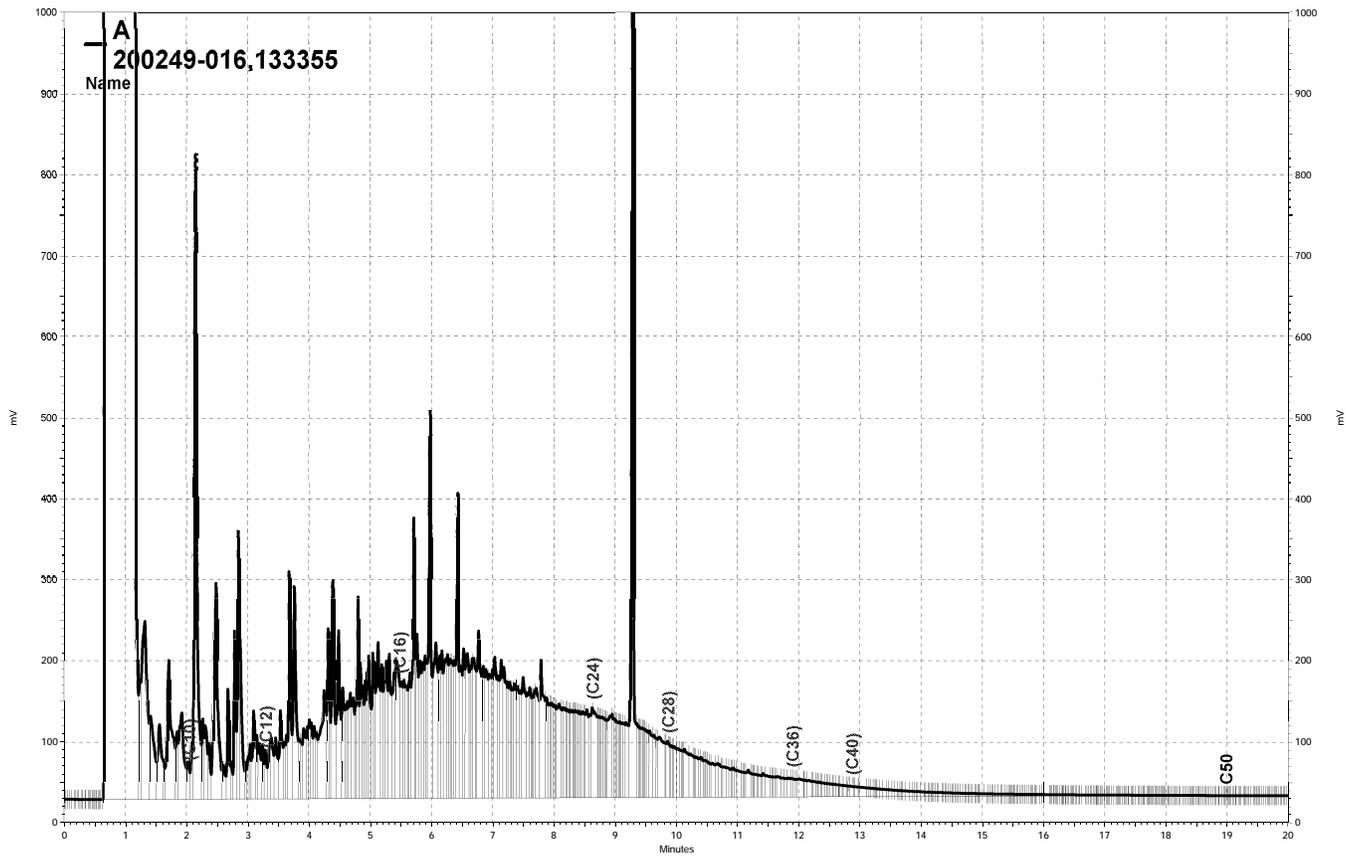
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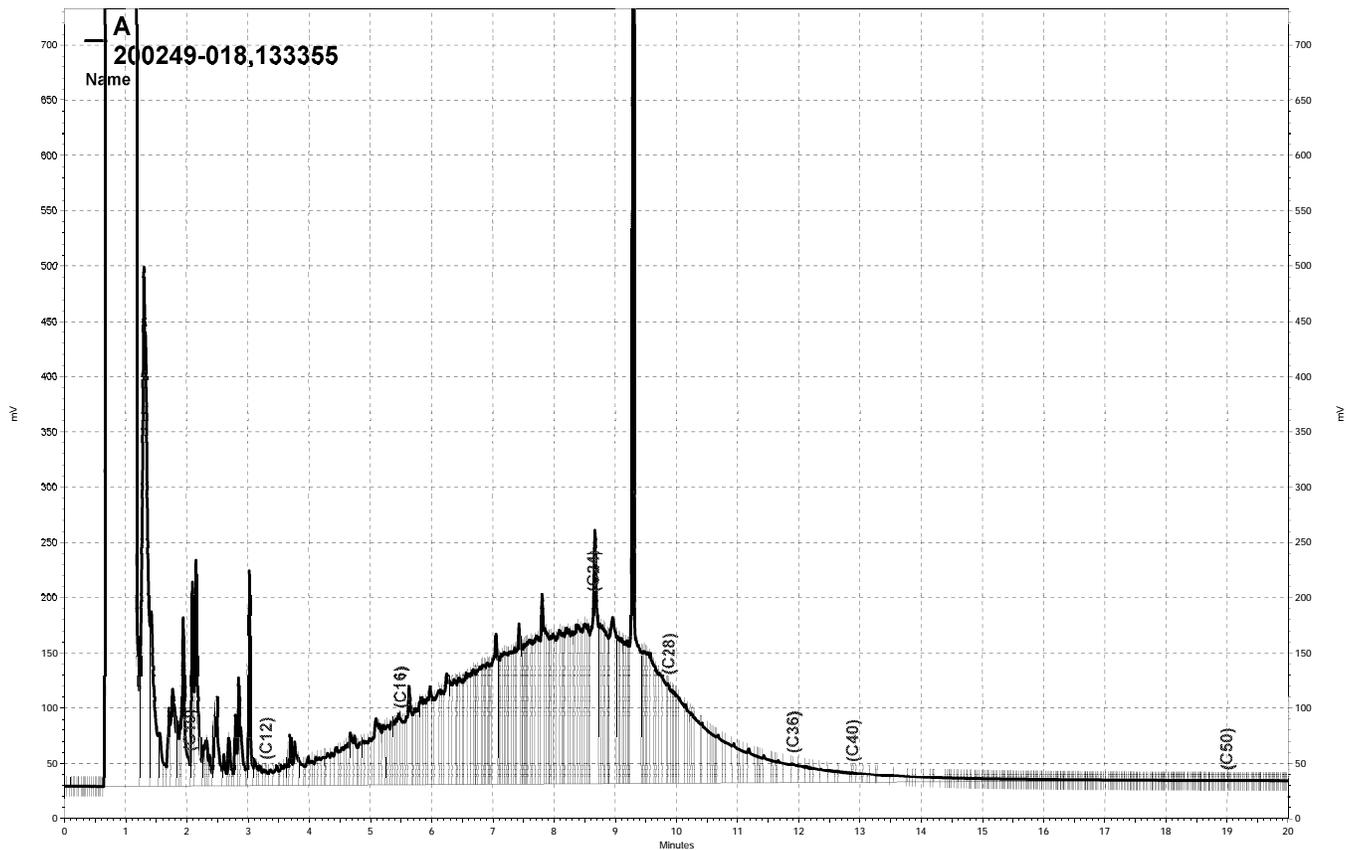
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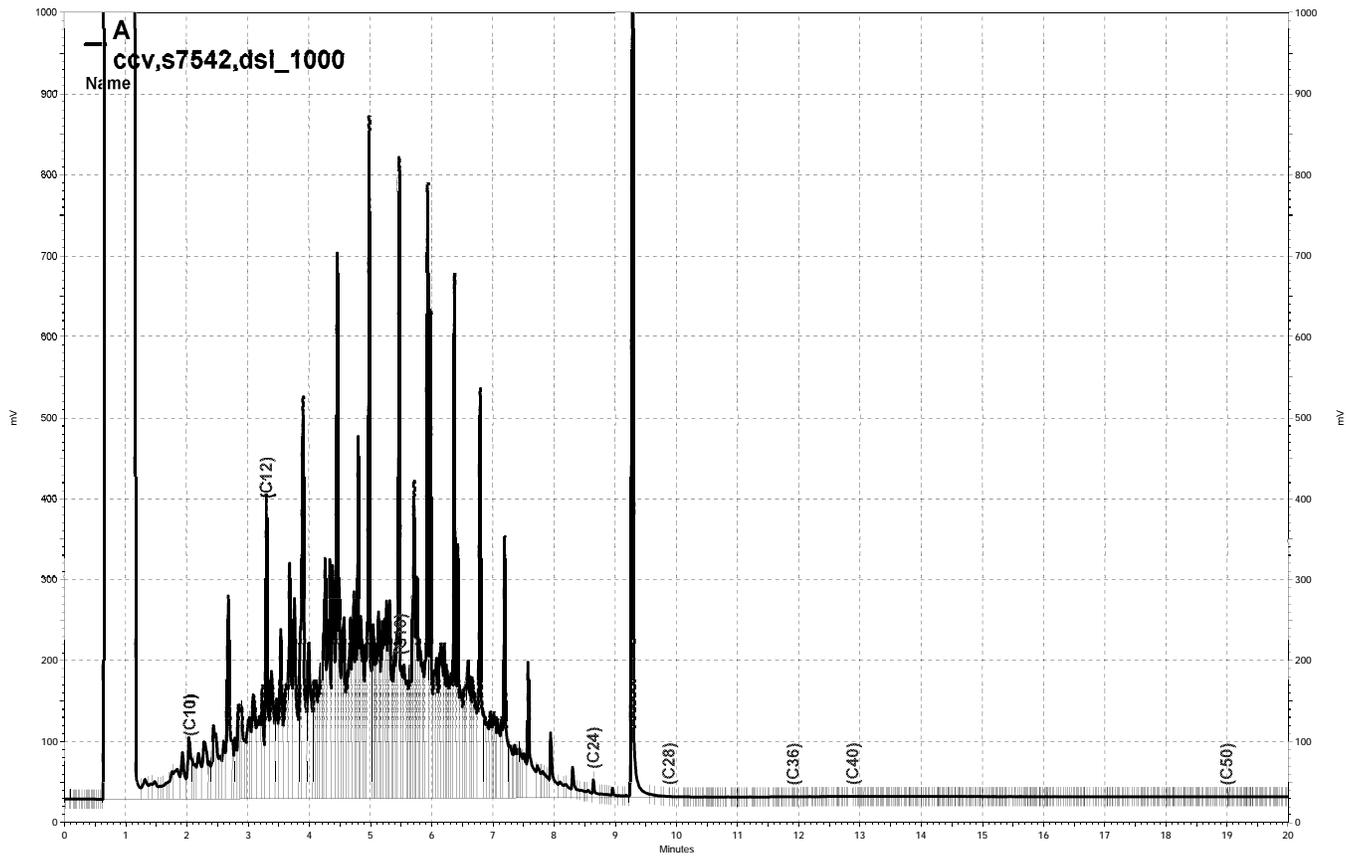
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## **APPENDIX D**

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### **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 <sup>(a)</sup>	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 <sup>(a)</sup>	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 <sup>(a)</sup>	8.69	NP	5.74
3	Feb-91	14.43	8.31	NP	6.12
4	Mar-04	16.96 <sup>(b)</sup>	9.47	NP	7.49
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.65 <sup>(c)</sup>	7.76 <sup>(e)</sup>	7.76	8.89

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 <sup>(a)</sup>	7.75	NP	6.37
3	Feb-91	14.12	8.04	NP	6.08
4	Mar-04	16.74 <sup>(b)</sup>	6.90	NP	7.49
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.29 <sup>(c)</sup>	6.61	NP	9.68

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 <sup>(a)</sup>	9.29	NP	5.27
3	Feb-91	14.56	10.04	NP	4.52
4	Mar-04	17.11 <sup>(b)</sup>	9.10	NP	8.01
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.72 <sup>(c)</sup>	9.66	NA	7.06

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 <sup>(a)</sup>	7.58	NP	7.09
3	Feb-91	14.67	7.05	NP	7.62
4	Mar-04	17.22 <sup>(b)</sup>	6.51	NP	10.71
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.82 <sup>(c)</sup>	6.61	NP	10.21

MW-7					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
4	Mar-04	18.09	9.93	NP	8.16
5	Dec-06	NA	NA	NA	NA
6	Dec-07	17.73 <sup>(c)</sup>	10.30	NP	7.43

MW-8					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
4	Mar-04	18.25	9.32	8.15	8.93
5	Nov-06 <sup>(d)</sup>	16.96	10.59	NP	6.37
6	Dec-07	17.84 <sup>(c)</sup>	9.42	NP	8.42

MW-9					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
4	Mar-04	18.27	9.38	NP	8.89
5	Dec-06	NA	NA	NA	NA
6	Dec-07	17.84 <sup>(c)</sup>	9.54	NP	8.30

MW-10					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
4	Mar-04	18.21	9.87	8.24	8.34
5	Dec-06	18.21	9.30	8.86	8.91
6	Dec-07	17.83 <sup>(c)</sup>	8.98 <sup>(e)</sup>	8.98	8.85

MW-11					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed May 2004					
5	Nov-06 <sup>(d)</sup>	17.76 <sup>(c)</sup>	10.33	NP	7.43
6	Dec-07	17.76	10.27	NP	7.49

MW-12					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Nov-06 <sup>(d)</sup>	17.83 <sup>(c)</sup>	9.37	NP	8.46
6	Dec-07	17.83	9.15	NP	8.68

MW-13					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Dec-06	17.66 <sup>(c)</sup>	9.81	9.44	7.85
6	Dec-07	17.66	9.95	9.39	7.71

MW-14					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Nov-06 <sup>(d)</sup>	17.60 <sup>(c)</sup>	9.11	9.11(sheen)	8.49
6	Dec-07	17.60	8.86	8.84	8.74

MW-15					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Dec-06	17.80 <sup>(c)</sup>	9.15	NP	8.65
6	Dec-07	17.80	9.30	NP	8.50

MW-16					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Dec-06	NA	NA	NA	NA
6	Dec-07	17.74 <sup>(c)</sup>	9.36	NP	8.38

MW-17					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Dec-06	NA	NA	NA	NA
6	Dec-07	18.17 <sup>(c)</sup>	9.40	9.32	8.77

MW-18					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
5	Dec-06	NA	NA	NA	NA
6	Dec-07	16.35 <sup>(c)</sup>	8.30	NP	8.05

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 <sup>(d)</sup>	17.80	10.22	NP	7.58
6	Dec-07	17.47 <sup>(c)</sup>	10.03	NP	7.44

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 <sup>(d)</sup>	18.32	9.15	9.11	9.17
6	Dec-07	16.70 <sup>(c)</sup>	9.53 <sup>(e)</sup>	9.53	7.17

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

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

<sup>(a)</sup> Wells resurveyed in May 1989

<sup>(b)</sup> New elevation recorded by PES. Date of survey unclear.

<sup>(c)</sup> Wells resurveyed by PES in April 2007

<sup>(d)</sup> no water level data available for the December 2006 sampling event

<sup>(e)</sup> Thickness of product interfered with determining oil/water interface.

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

## **APPENDIX E**

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### **Production Extraction Field Data Sheets and Historical Data Tables**

**EmeryBay Apartments  
Free Product Extraction System Monitoring  
6400 Christie Ave. - Emeryville, CA 94608  
SES Project # 2007-65**

Date: 11/26/2007

Personnel: Teal Glass and Steve Bittman

Time	Location	Depth to Water (ft. bc)	Depth to Free Product	Product Extracted (gal.)	Sheen?	Well/Reservoir Condition
0945	TA-E	8.67	NP	0	yes	Some sedimentation
0945	TA-M	8.67	NM	0.81	yes	Some sedimentation
0945	TA-W	8.67	NM	0.68	yes	Some sedimentation
0920	TB-E	8.67	NP	0	yes	Some sedimentation
0920	TB-M	8.67	NP	0	yes	Some sedimentation
0920	TB-W	8.67	NP	0	yes	Some sedimentation
0840	TC-E	8.83	NM	0.63	yes	Attachment rope and tubing detached - repaired
0840	TC-M	9.08	NP	0	yes	Good
0840	TC-W	9.00	NP	0	yes	Good
<b>TOTAL GALLONS EXTRACTED</b>				<b>2.12</b>		

\*Note\* Seven total movable reservoirs

Reservoir holds 0.8 gallons

NM = Not measured

NP = No product

ft. bc = feet below top of casing

**EmeryBay Apartments  
Free Product Extraction System Monitoring  
6400 Christie Ave. - Emeryville, CA 94608  
SES Project # 2007-65**

Date: 12/27/2007

Personnel: Blaine Tech

Time	Location	Depth to Water (ft. bc)	Depth to Free Product (ft. bc)	Product Extracted (gal.)	Sheen?	Well/Reservoir Condition
0958	TA-E	8.43	8.41	0.01	yes	good
0942	TA-M	8.44	8.43	0.61	yes	good
0925	TA-W	8.51	8.5	0.07	yes	good
1024	TB-E	8.47	NP	NP	no	good
1018	TB-M	8.52	NP	NP	no	good
1012	TB-W	8.55	NP	NP	no	good
1052	TC-E	8.72	8.71	0.002	yes	good
1044	TC-M	9.00	NP	NP	yes	good
1036	TC-W	9.94	NP	NP	no	good
<b>TOTAL GALLONS EXTRACTED</b>				<b>0.69</b>		

\*Note\* Seven total movable reservoirs  
Reservoir holds 0.8 gallons  
NM = Not measured  
NP = No product  
ft. bc = feet below top of casing

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

Extraction Date	Well or Trench Location													Total Extracted		
	MW-8	MW-10	MW-13	MW-14	MW-15	RW-1	TA-E	TA-M	TA-W	TB-E	TB-M	TB-W	TC-E		TC-M	TC-W
Apr-04	1	1	---	---	---	19.75	---	---	---	---	---	---	---	---	---	21.75
May-04	---	---	---	---	---	22.5	---	---	---	---	---	---	---	---	---	22.50
Sep-04	---	---	---	---	---	0.74	---	---	---	---	---	---	---	---	---	0.74
Oct-04	---	---	---	---	---	5.22	---	---	---	---	---	---	---	---	---	5.22
																50.21
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
																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
																3.41
<b>Total Extracted</b>	1.80	2.60	1.20	0.50	0.20	48.21	14.31	15.82	20.65	0.00	0.00	0.00	0.63	0.00	0.00	105.92

Note:

All free product quantities presented in gallons

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