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**THIRD QUARTER 2008  
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**

**October 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**

**October 15, 2008**

Project No. 2007-65

October 15, 2008

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

Subject: Third Quarter 2008 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 site activities conducted between July 2008 and September 2008 (specifically, two product extraction events and the Third Quarter 2008 groundwater monitoring event). 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; by PES Environmental, Inc. in 2004 and 2006; and by SES in 2007 and 2008.

There is no agreement currently in place with the regulatory agency, Alameda County Department of Environmental Health, regarding the frequency of groundwater sampling. However, a new case officer, Barbara Jakub, has been assigned to the site and is reviewing the historical information.

This report summarizes the ninth sampling event conducted at the site since 1988. In accordance with State Water Resources Control Board requirements, a copy of this report, in pdf format, has been 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



Teal Glass, R.E.A.  
Project Manager



cc: Ms. Barbara Jakub, Alameda County Department of Environmental Health

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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 an open ground-floor parking area and apartment complex known as the Emery Bay Phase I Condos and parking garage. The area of monitoring and product extraction is primarily located in the northeastern portion of the parking garage. Figure 2 is a site plan. The site is bordered to the east by the Emery Bay Phase II Condos and parking garage, to the north by 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 Garrett Motor Freight Station, associated with Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day Emery Bay Phase I Condo complex and parking garage. The building remained on the property until 1986, when it was demolished to build the present-day structures. Twelve underground fuel storage tanks (UFSTs) containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels in 1987, at which time soil and groundwater contamination was discovered.



Image courtesy of the U.S. Geological Survey



**SITE LOCATION ON AERIAL PHOTO**

**6400 Christie Ave.  
Emeryville, CA**

By: MJC

JANUARY 2008

**Figure 1**



2007-565-01





**LEGEND**

--- Subject property boundary

Image © 2008 TerraMetrics

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**SITE PLAN AND ADJACENT LAND USE**

6400 Christie Ave.  
Emeryville, CA

By: MJC

JANUARY 2008

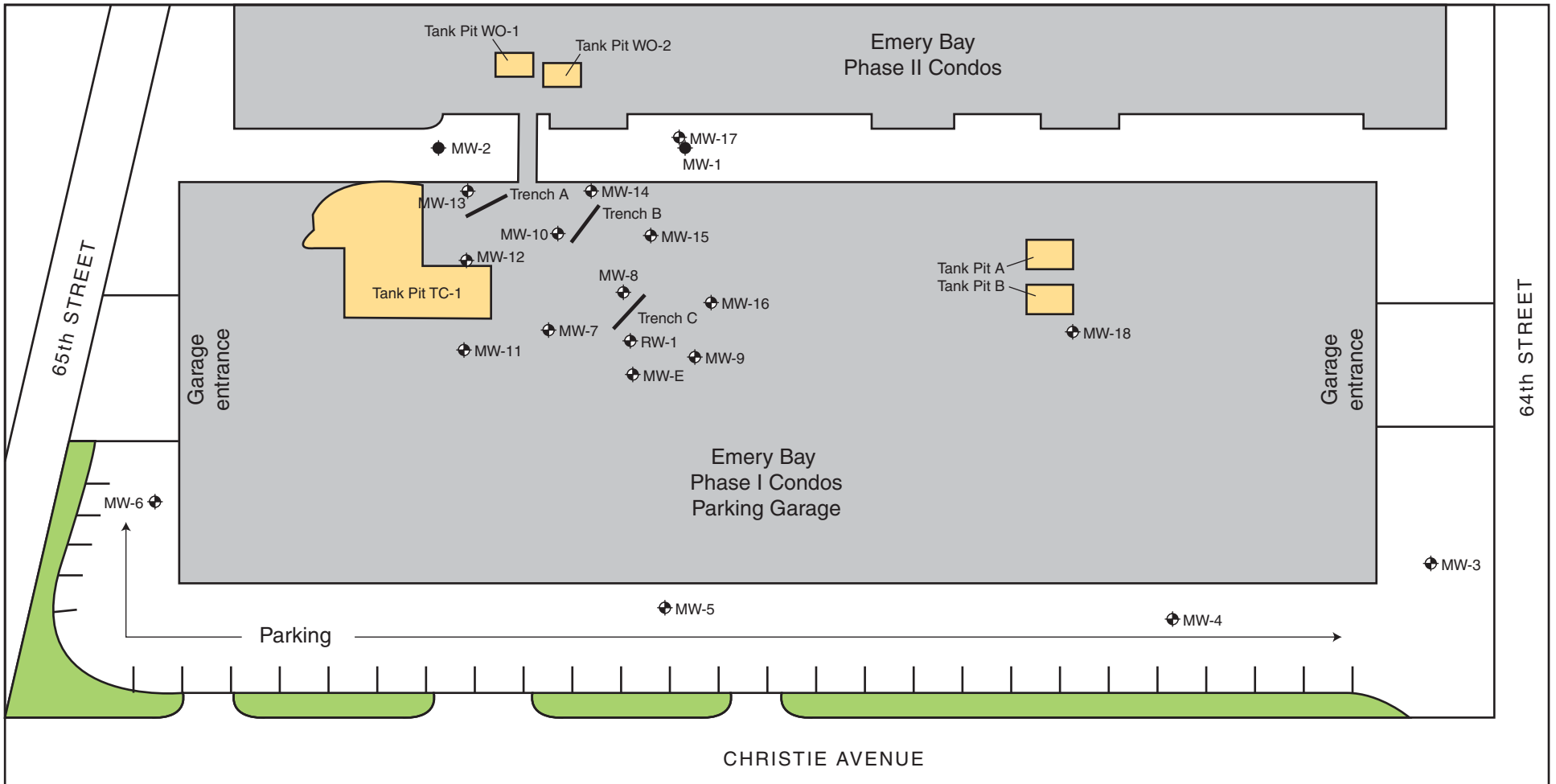
**Figure 2**



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 located beneath the current footprint of the Emery Bay Phase I Condo complex, while three were beneath the Emery Bay Phase II Condo complex. Figure 2 shows the historical locations where the tanks were removed.

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

No groundwater monitoring events had occurred at the site between 1991 and 2004, when PES was retained to evaluate and implement remediation of the residual contamination at the TC-1 (former location of seven UFSTs) Emery Bay Phase I Condo complex area. (Note: Harding Lawson Associates conducted soil and groundwater sampling on the Phase II Apartment complex area during this time, but not for the purpose of product extraction or remediation.) In 2004, PES installed an additional 10 groundwater monitoring wells (monitoring wells MW-1 and MW-2 were either abandoned or paved over with asphalt during construction), bringing the current total to 17 monitoring wells and 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) fully discusses previous site remediation and investigations, site geology and hydrogeology, and residual site contamination. Tabular summaries of historical groundwater well water elevations and analytical results are included in 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 passive product extraction from Trenches A and C, and active product extraction on the groundwater monitoring wells, trench sump wells, and recovery well RW-1

## **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 sewer system. The original regulatory agencies overseeing the site were the BAAQMD and EBMUD. Sampling of the monitoring wells for 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, little to no regulatory oversight of the hydrocarbon plume occurred between 1991 and 2004.

Currently, the Alameda County Department of Environmental Health (ACEH) is the Local Oversight Program (LOP) agency providing oversight of Leaking Underground Storage Tank (LUST) sites in the city of Emeryville. SES met with the previous case officer Barney Chan (who was then transferred to another section of 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 to the previous owner and consultant (PES) requested the uploading of historical documents and GeoTracker-compliant monitoring well survey data.

SES is still in the process of arranging a meeting with the new ACEH case officer, Ms. Barbara Jakub, to discuss the recommended actions for achieving site closure. SES has uploaded all historical documents to the ACEH ftp website and the State Water Board GeoTracker website. Historically, the site was included in the Garret Freight Lines Spills, Leaks, Investigations, and Cleanups (SLIC) site under the Regional Water Quality Control Board (Water Board) global ID SLT2O05561 and ACEH case number RO0002799. Therefore, all site documents were uploaded under these ID numbers. However, this site encompasses adjacent properties, such as the Bay Center Offices and a recently developed apartment complex south of 64<sup>th</sup> Street. In addition, the SLIC listing is based on metals contamination discovered in soils on the Bay Center site, and does not reflect the leaking UFST 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.

This SES report follows previous groundwater sampling events conducted by GTI in 1988, 1989, and 1991; two groundwater monitoring events conducted by PES in 2004 and 2006; and work by SES in 2007 and 2008. 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 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 and 2008.

### **TOPOGRAPHY AND DRAINAGE**

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

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

Storm drains from the roof collect storm runoff for discharge onto the asphalt-paved parking lots. Storm sewers collect drainage from the parking lot, as well as from Christie, 64<sup>th</sup>, and 65<sup>th</sup> Streets, which 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 revealed that the upper 15 to 20 feet of soil consisted 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 was 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, 1988). The closest major fault, the Hayward Fault, is located about 3 miles east of the property. While the site is located in a seismically active area, it is not

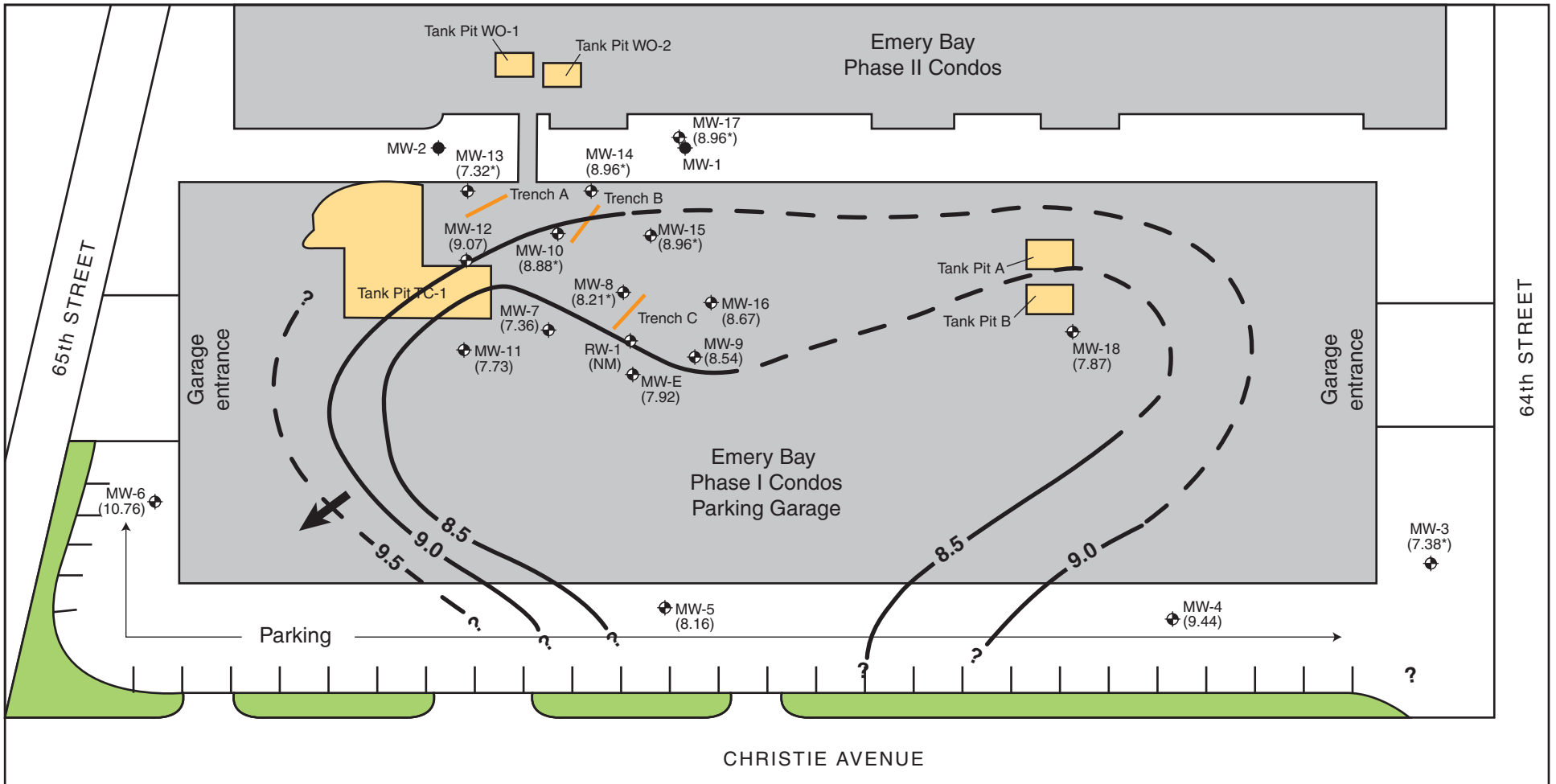
within an Alquist-Priolo Special Studies active fault zone, the legislatively defined zone of restricted land use 200 feet around an active fault due to the high probability of ground rupture.

## **GROUNDWATER HYDROLOGY**

Regulatory agency records indicate that the direction of shallow groundwater flow in the site vicinity is to the west-northwest, toward San Francisco Bay. Water levels in this area are influenced by tidal patterns. According to current and historical water level data obtained from onsite monitoring wells, the depth to groundwater ranges from approximately 6 to 11 feet below ground surface (bgs). The average groundwater gradient is approximately 0.004 feet per foot; however, the gradient was 0.001 feet per foot during the current June 2008 sampling event.

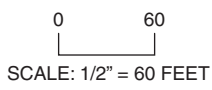
While historical groundwater elevation data at the site has not been consistently collected, and the sporadic annual monitoring event did not track season fluctuation in groundwater elevations, the past two seasonal cycles in the Bay Area involved significantly less rainfall than normal, with resultant lower-than-normal water level elevations.

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
- Extrapolated groundwater elevation contour
- \* Groundwater elevation not used in determining contour due to the presence of free product
- NM = Depth to groundwater could not be measured due to the presence of tar



**GROUNDWATER ELEVATION MAP — September 22, 2008**  
**6400 Christie Ave., Emeryville, CA**

**Figure 4**

by: MJC      OCTOBER 2008

2007-65-16





### **3.0 SEPTEMBER 2008 GROUNDWATER MONITORING AND SAMPLING ACTIVITIES**

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

#### **SAMPLING METHODS AND ACTIVITIES**

Activities for this event include:

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

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

#### **CURRENT MONITORING EVENT**

Groundwater monitoring well water level measurements, purging, sampling, and field analyses were conducted on September 22 and 23, 2008 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 using an electric water level indicator. The depth of free product was recorded, and the water level was adjusted to reflect the groundwater elevation.

**Table 1**  
**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 (TOC)	Thickness of Free Product (feet)	Groundwater Elevation (September 22, 2008)
MW-3	25	5 to 20	16.65	7.95	1.32	7.38
MW-4	25	5 to 20	16.29	NA	NA	9.44
MW-5	25	5 to 20	16.72	NA	NA	8.16
MW-6	25	5 to 20	16.82	NA	NA	10.76
MW-7	20	5 to 20	17.73	NA	NA	7.36
MW-8	16	5 to 16	17.84	8.89	0.74	8.21
MW-9	20	5 to 20	17.84	NA	NA	8.54
MW-10	20	5 to 20	17.83	8.84	0.11	8.88
MW-11	20	5 to 20	17.76	NA	NA	7.73
MW-12	20	5 to 20	17.83	NA	NA	9.07
MW-13	20	5 to 20	17.66	9.54	0.80	7.32
MW-14	20	5 to 20	17.60	8.64	NM	8.96 <sup>(b)</sup>
MW-15	20	5 to 20	17.80	8.84	NM	8.96 <sup>(b)</sup>
MW-16	20	5 to 20	17.74	NA	NA	8.67
MW-17	20	5 to 20	18.17	7.92	1.29	8.96
MW-18	20	5 to 20	16.35	NA	NA	7.87
MW-E	47	7 to 40	17.47	NA	NA	7.92
RW-1	30	unknown	16.70	NM	NM	NM
TA-E	11-13	6-8 to 11-13	17.20	8.27	NM	8.93 <sup>(b)</sup>
TA-M	11-13	6-8 to 11-13	17.21	8.28	NM	8.93 <sup>(b)</sup>
TA-W	11-13	6-8 to 11-13	17.28	8.29	NM	8.99 <sup>(b)</sup>
TB-E	11-13	6-8 to 11-13	17.24	8.25	NM	8.99 <sup>(b)</sup>
TB-M	11-13	6-8 to 11-13	17.30	8.32	NM	8.98 <sup>(b)</sup>
TB-W	11-13	6-8 to 11-13	17.33	8.36	NM	8.97 <sup>(b)</sup>
TC-E	11-13	6-8 to 11-13	17.07	8.41	NM	8.66 <sup>(b)</sup>
TC-M	11-13	6-8 to 11-13	17.37	8.72	NM	8.65 <sup>(b)</sup>
TC-W	11-13	6-8 to 11-13	17.32	8.67	NM	8.65 <sup>(b)</sup>

Notes:

- (a) Relative to mean sea level.
- (b) Depth to groundwater could not be determined because free product density would not allow a clear delineation. Elevation is based on depth to free product.
- (c) The quantity of free product may be an overestimation due to the presence of tar.

bgs = below ground surface

TOC = below top of casing

NA = not applicable (no free product in well)

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

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

Approximately 45 gallons of purge water and equipment decontamination rinse water from the current groundwater sampling event was containerized onsite in a labeled 55-gallon drum. All groundwater purged during active and passive product removals was containerized in a 1,100-gallon onsite aboveground storage tank (AST). Both the 1,100-gallon AST and 55-gallon drums were emptied, and purge water was recycled offsite by Evergreen Environmental, Inc. Appendix F contains the manifest and certificate of recycling.

## 4.0 CURRENT MONITORING EVENT ANALYTICAL RESULTS AND FINDINGS

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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

Hydrocarbon concentrations in numerous wells have reported concentrations significantly in excess of the Water Board Environmental Screening Level (ESL) in this third consecutive quarterly sampling event.

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 (210 micrograms per liter [ $\mu\text{g/L}$ ]). Gasoline was also detected in MW-9 and MW-16, but at concentrations below the ESL (note: MW-9 was above the ESL where groundwater is a drinking water resource). The highest concentration (52,000  $\mu\text{g/L}$ ) was observed in MW-13. This concentration is higher than the 44,000  $\mu\text{g/L}$  detected during the Q2-2008 sampling event. Overall gasoline concentrations significantly decreased compared to the previous May 2008 sampling event, as demonstrated by wells MW-3, MW-6, MW-7, MW-10, MW-12, MW-14, MW-16, and MW-17.

Figure 6 shows an isoconcentration contour map of TPHg concentrations in groundwater based on the September 2008 monitoring well analytical results. Slight increases in gasoline concentrations were observed in monitoring wells MW-8, MW-9, MW-11, MW-13, MW-15, MW-E, and RW-1. Concentrations remained the same in wells MW-4, MW-5, and MW-18.

Diesel was detected in all site wells above the ESL of 210  $\mu\text{g/L}$  (where groundwater is not a drinking water resource). The highest concentration (440,000  $\mu\text{g/L}$ ) was observed in MW-13. This is a significant increase from the previous sampling event in which the diesel concentration was measured at 71,000  $\mu\text{g/L}$ , but below the historic high of 1,100,000  $\mu\text{g/L}$  observed during the March

**Table 2**  
**Groundwater Sample Analytical Results – September 22 and 23, 2008**  
**6400 Christie Avenue, Emeryville, California**

Well ID	Analytical Results						
	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-3	<b>280</b>	<b>1,700</b>	<0.5	<0.5	1.0	<0.5	<2.0
MW-4	<50	<b>440</b>	<0.5	<0.5	<0.5	<0.5	<2.0
MW-5	<50	<b>4,200</b>	<0.5	<0.5	<0.5	<0.5	<2.0
MW-6	<50	<b>1,000</b>	0.91	<0.5	<0.5	<0.5	<2.0
MW-7	<b>1,200</b>	<b>9,400</b>	<b>330</b>	12	21	88	<2.0
MW-8	<b>35,000</b>	<b>13,000</b>	<b>11,000</b>	<b>190</b>	<b>900</b>	<b>402</b>	<100
MW-9	130	<b>9,300</b>	4.6	<0.5	<0.5	<0.5	<50
MW-10	<b>1,200</b>	<b>4,700</b>	<b>350</b>	11	3.4	11	<2.0
MW-11	<b>2,200</b>	<b>5,600</b>	<b>260</b>	20	34	60	<2.0
MW-12	<b>14,000</b>	<b>3,100</b>	<b>6,200</b>	79	18	83	<10
MW-13	<b>52,000</b>	<b>440,000</b>	<100	<b>500</b>	<b>1,600</b>	<b>1,500</b>	<100
MW-14	<b>4,100</b>	<b>2,500</b>	<b>1,300</b>	50	<b>80</b>	61	<10
MW-15	<b>18,000</b>	<b>3,400</b>	<b>7,800</b>	73	<b>270</b>	59.9	<10
MW-16	64	<b>8,200</b>	9.9	1.9	<0.5	<0.5	<2.0
MW-17	<b>5,500</b>	<b>3,300</b>	<b>900</b>	63	<b>69</b>	69	<10
MW-18	<50	<b>8,600</b>	<0.5	<0.5	<0.5	<0.5	<2.0
MW-E	<b>11,000</b>	<b>7,800</b>	<b>3,800</b>	<b>170</b>	<b>130</b>	<b>257</b>	<50
RW-1	<b>1,400</b>	<b>1,900</b>	<b>280</b>	9.8	10	6.7	<2.0
ESLs <sup>(a)</sup>	<b>100 / 210</b>	<b>100 / 210</b>	<b>1.0 / 46</b>	<b>40 / 130</b>	<b>30 / 43</b>	<b>20 / 100</b>	<b>5.0 / 1,800</b>

Notes:

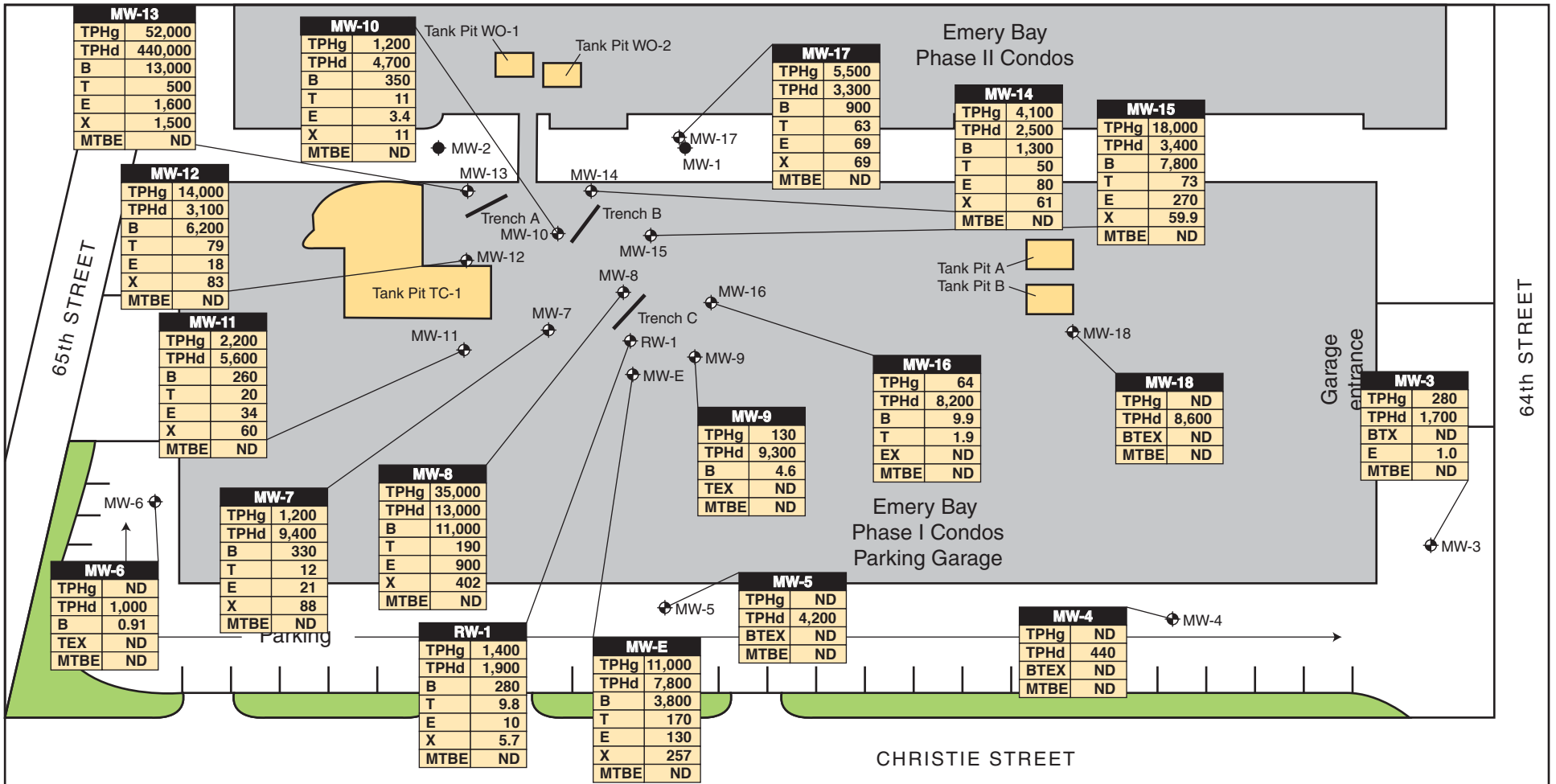
<sup>(a)</sup> Water Board Environmental Screening Levels for residential sites where groundwater is/is not a drinking water resource (Water Board, 2008).

MTBE = methyl tertiary-butyl ether

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

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

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



**LEGEND**

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



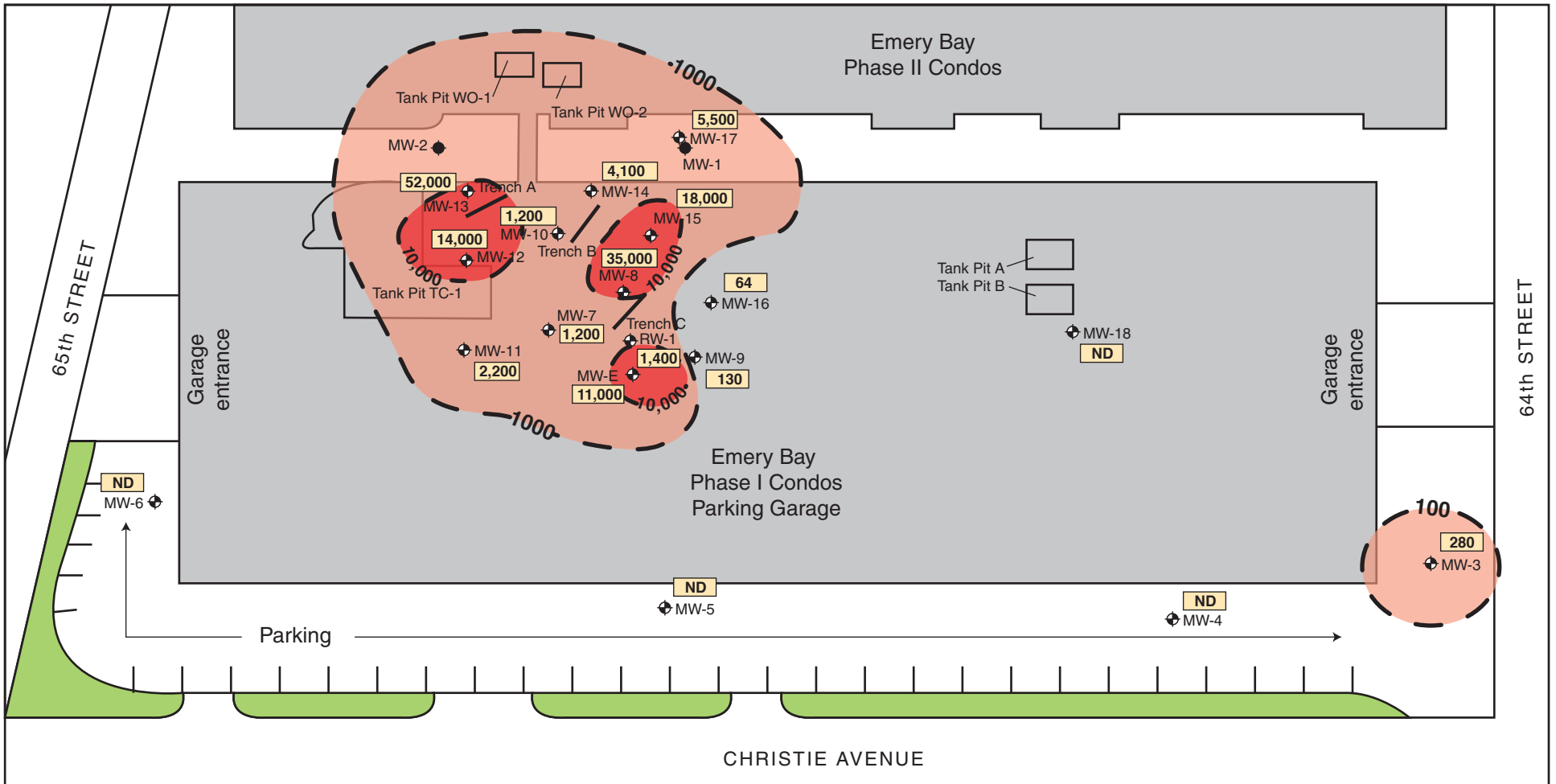
**GROUNDWATER MONITORING WELL ANALYTICAL RESULTS**

**6400 Christie Ave., Emeryville, CA**

**Figure 5**

by: MJC

OCTOBER 2008



**LEGEND**

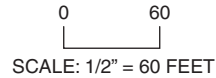
- ⊕ Monitoring well
- Monitoring well (presumed abandoned)
- Trench location

**84** Total petroleum hydrocarbons as gasoline concentration in micrograms per liter (µg/L)

□ Historical tank pit area

▬ Landscaping

-100- Gasoline isoconcentration contour



2007-65-13



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

**Figure 6**

by: MJC

OCTOBER 2008

2008 event. Decreases in diesel concentrations were observed in wells MW-3, MW-4, MW-6, MW-10, MW-14, MW-16, and MW-18. Increases were observed in monitoring wells MW-5, MW-8, MW-11, MW-12, MW-13, MW-15, MW-17, MW-E, and RW-1.

Figure 7 is an isoconcentration contour map of TPHd concentrations in groundwater based on the September 2008 monitoring well analytical results. Figure 8 plots the change in diesel concentrations in the two downgradient wells (MW-5 and MW-6) from February 1991 (the terminus of the pump-and-treat system) to the September 2008 sampling event. Figure 9 plots the change in diesel concentrations in source area wells MW-11 and MW-12 from their first sampling event in December 2006 to the September 2008 sampling event. Figure 10 plots the change in crossgradient wells MW-18 and MW-3 from December 2006 to date.

In MW-7, MW-8, MW-10, MW-11, MW-12, MW-14, MW-15, MW-17, MW-E, and RW-1, concentrations of benzene exceeded the ESL of 46 µg/L where groundwater is not a drinking water resource. Benzene was also found in MW-6, MW-9, and MW-16, but at concentrations below the ESL (the concentrations in MW-9 and MW-16 were above the ESL of 1.0 µg/L where groundwater is a drinking water resource).

Toluene was detected above the ESL of 130 µg/L in monitoring wells in MW-8, MW-13, and MW-E. Ethylbenzene was detected above the 43-µg/L ESL (where groundwater is not a drinking water resource) in monitoring wells MW-8, MW-10, MW-13, MW-14, MW-15, and MW-E. Total xylene concentrations in monitoring wells MW-8, MW-13, and MW-E were above the 100-µg/L ESL where groundwater is not a drinking water resource. MTBE was not detected above the laboratory detection limit in any of the monitoring wells.

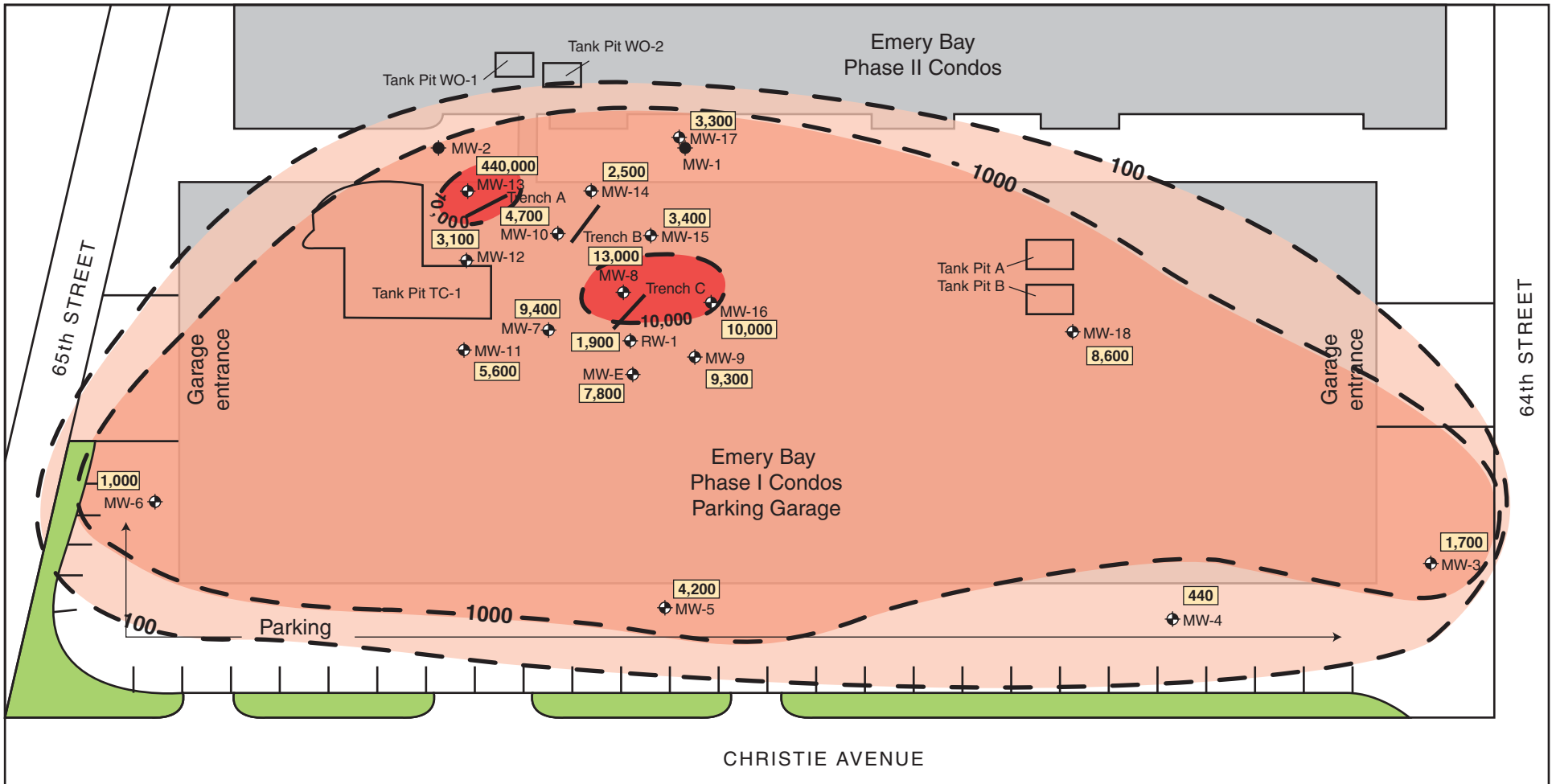
### **Quality Control Sample Analytical Results**

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





**LEGEND**

- ⊕ Monitoring well
- Monitoring well (presumed abandoned)
- Trench location
- 1,100 Total petroleum hydrocarbons as diesel concentration in micrograms per liter (µg/L)
- Historical tank pit area
- ▭ Landscaping
- 100- Diesel isoconcentration contour

0 60  
SCALE: 1/2" = 60 FEET



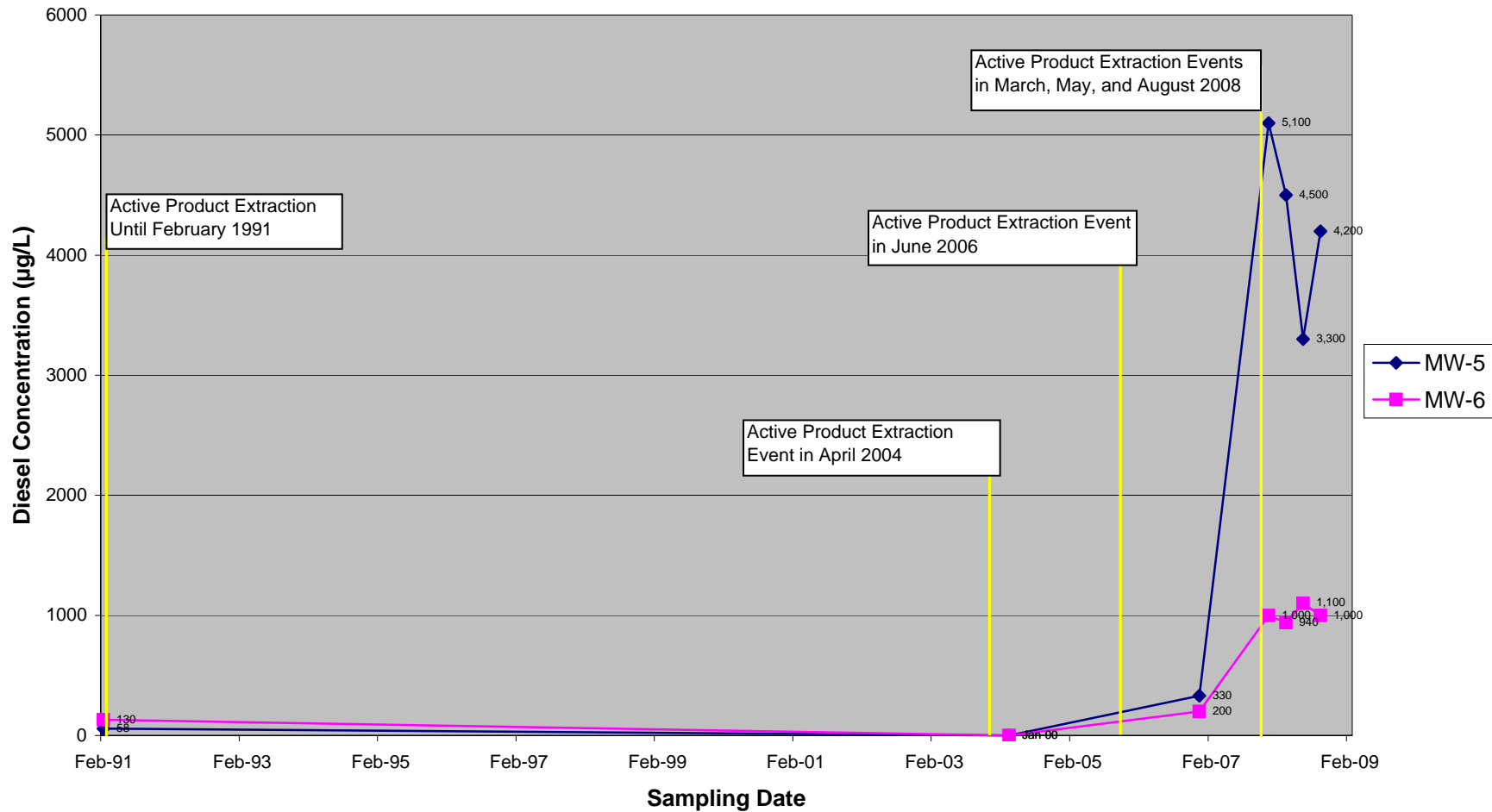
**TOTAL PETROLEUM HYDROCARBON PLUME AS DIESEL**  
**6400 Christie Ave., Emeryville, CA**

**Figure 7**

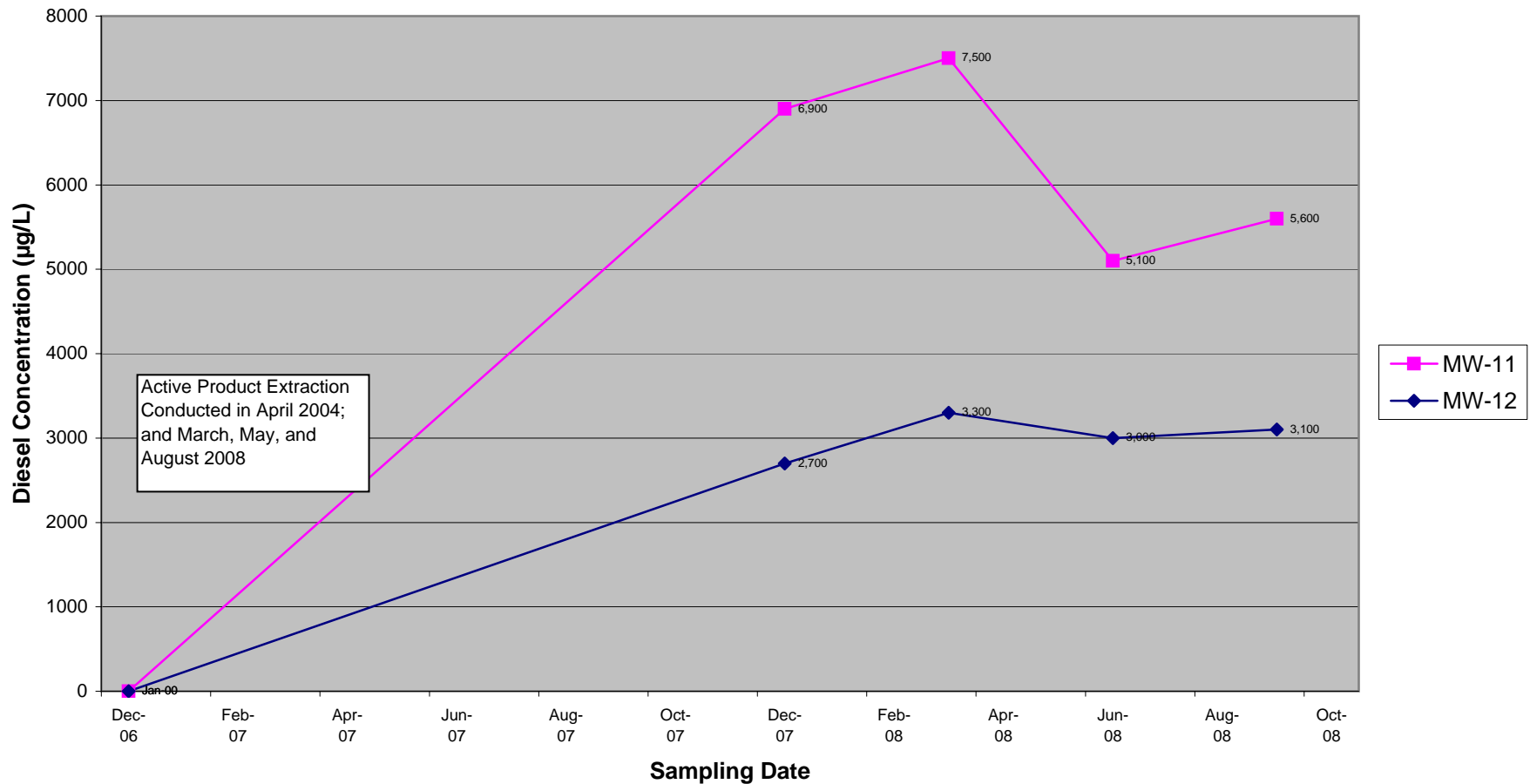
by: MJC

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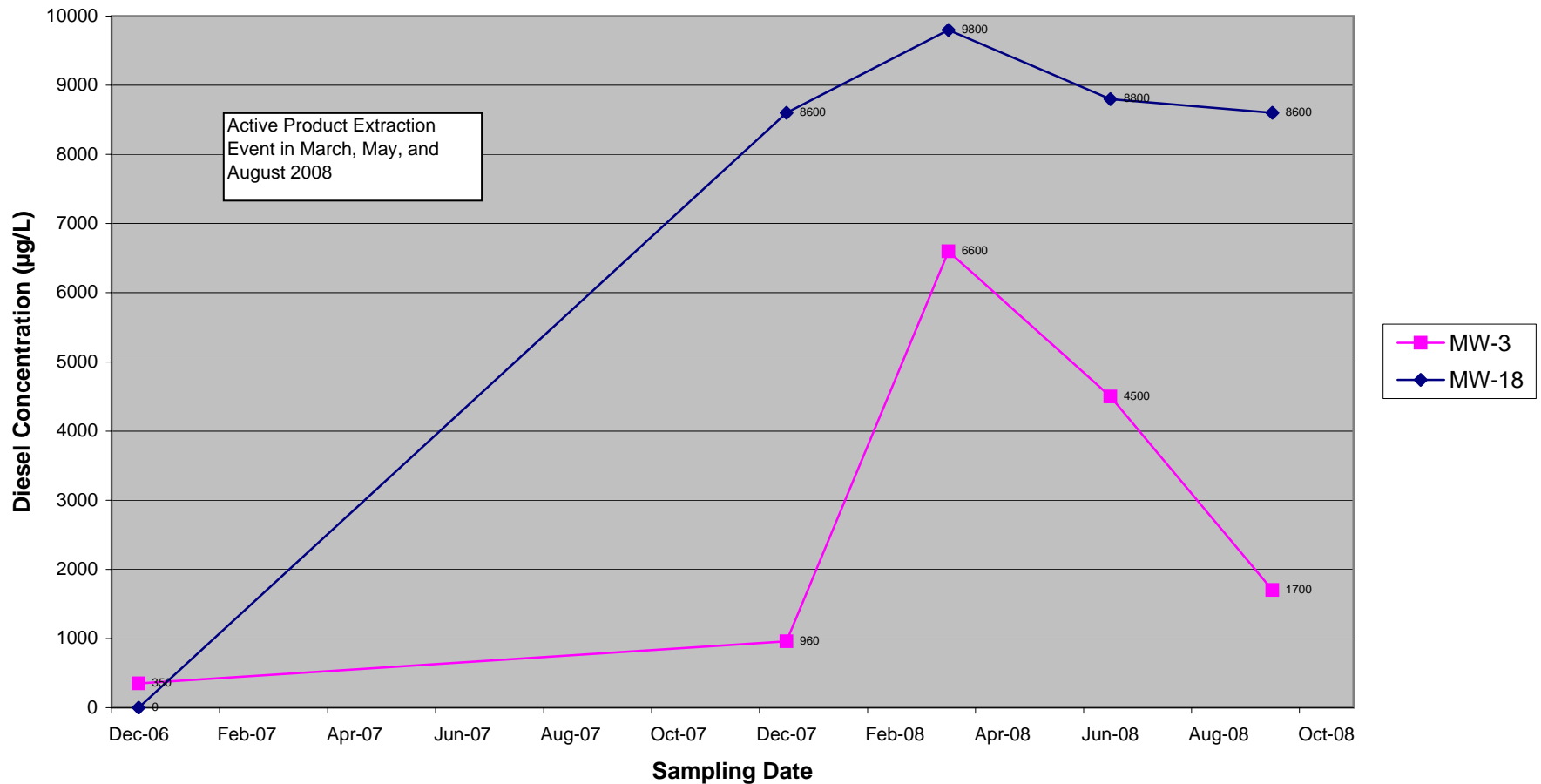
**Figure 8**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Downgradient Wells MW-5 and MW-6**  
**February 1991 - September 2008**



**Figure 9**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Source Wells MW-11 and MW-12**  
**December 2006 - September 2008**



**Figure 10**  
**Historical Groundwater Analytical Results**  
**Total Petroleum Hydrocarbons as Diesel (TPHd)**  
**Crossgradient Well MW-3 and MW-18**  
**December 2006 - September 2008**



property 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 of less than 300 feet. Groundwater in this area is used for backyard irrigation, industrial supply, and commercial irrigation. There is a low likelihood that this water will be used as a public water supply in the near future.

The Water Board publishes 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, 2008), ESLs are not cleanup criteria; rather, they are conservative screening-level criteria designed to be protective of both drinking water resources and aquatic environments in general. The groundwater ESLs are composed of one or more components—including ceiling value, human toxicity, indoor air impacts, and aquatic life protection. Exceedance of ESLs suggests that additional remediation and/or investigation 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. Because 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. In general, concentrations of gasoline have decreased in the majority of the wells from the last sampling event; however, concentrations of diesel have remained the same overall, with concentrations increasing in some wells and decreasing in others.

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

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This section describes the extraction of the historical free product 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 product removal activities conducted in August and September 2008. Table 3 summarizes the product removed from the skimmers during these events. Appendix E summarizes 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, in the northeastern area of the Emery Bay Phase I Condo parking garage. Historically, this area has had the highest concentrations of contamination and accumulation of free product. The trenches (TA, TB, and TC) extend to depths of approximately 12.5 to 13 feet bgs, while the collection sumps (TA-W, TA-M, TA-E, TB-W, TB-M, TB-E, TC-W, TC-M, and TC-E) extend to approximately 11 to 13 feet bgs. The sumps were constructed using 10-inch-diameter schedule 40 polyvinyl chloride (PVC) casing. Blank casing was used from approximately 0.5 feet bgs to between 6 and 8 feet bgs. Slotted 0.06-inch PVC was used from between 6 and 8 feet bgs to 6 inches from the total depth of the trench. The trenches were then backfilled with high-porosity, high-permeability gravel designed to promote LNAPL migration (PES, 2007). 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 and in one of the sumps (TC-E) in Trench C.

The skimmers operate by floating on the surface of the water. Water and free product collect in a filtration reservoir, which allows water to pass through. A tube connected to the reservoir then filters the 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.

**Table 3**  
**Trench Product Extraction**  
**August and September 2008**

Trench ID	Number of Skimmers in Well	Total Product Removed (gallons)		
		August 15	September 22	Total
TA-E	2	0.3	0.03	0.33
TA-M	2	1.0	0.09	1.09
TA-W	2	0.1	0.048	0.148
TB-E	0	NA	NA	NA
TB-M	0	NA	NA	NA
TB-W	0	NA	NA	NA
TC-E	1	NA	NA	NA
TC-M	0	NA	NA	NA
TC-W	0	NA	NA	NA
<b>Total Product Removed</b>		<b>1.4</b>	<b>0.17</b>	<b>1.57</b>

Note:

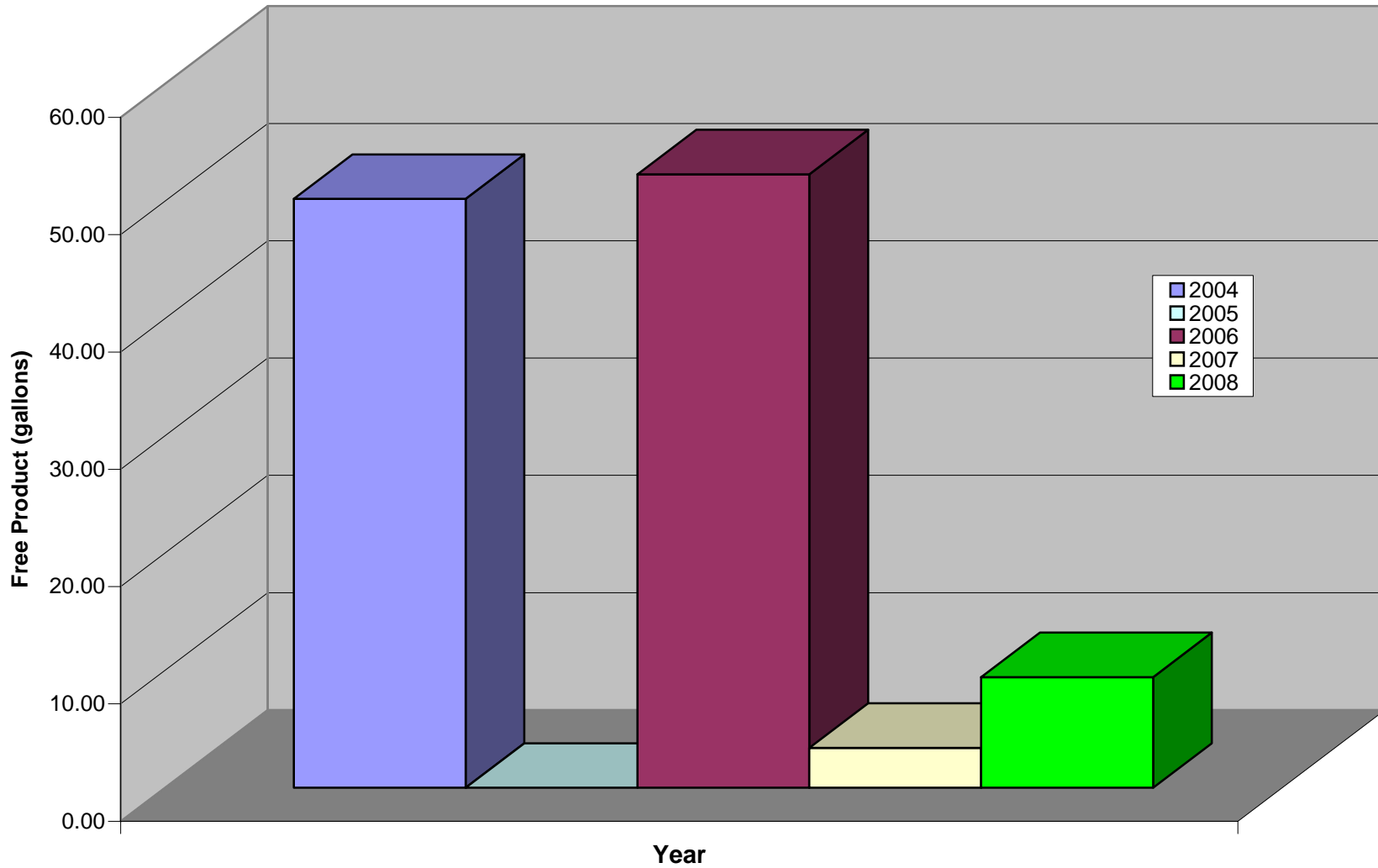
NA = No skimmer was located in the well, or no product was present.

## HISTORICAL FREE PRODUCT EXTRACTION

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

In 2004, PES began manual extraction on RW-1, and was reported to have removed approximately 48 gallons of LNAPL (PES, 2004a)—although it is unclear whether the removed material was pure product or product mixed with water. To accelerate free product removal, PES constructed a new LNAPL hydrocarbon remediation system (described below) between April and May 2004 (PES, 2007). Several extraction events were conducted by PES from May 2004 through March 2007; the extraction events yielded a total of approximately 51 gallons of LNAPL. No extraction events were conducted by PES in 2005; approximately 50 gallons of hydrocarbons was removed in 2006; and

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





approximately 0.6 gallon of hydrocarbons was 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. Figure 11 graphs the comparison of free product extraction on a yearly basis.

It should be noted that no historical product extraction reports were provided to SES by the previous owner or by PES. Therefore, there is little to no information on how active product extraction occurred during 2004 and 2006. The amount of free product removed during 2004 and 2006 appears to have been high, as only 100 gallons of free product was obtained from actively pumping over 1 million gallons of water continuously between 1989 and 1991.

### **AUGUST 2008 PRODUCT REMOVAL EVENT**

Historical yield from the trench recovery system has been unproductive, with the 1-liter passive skimmer collection reservoirs not filling up completely, or filling up with water rather than product. The highest hydrocarbon product yield has occurred from active pumping on recovery well RW-1 or at various other wells. SES conducted passive skimmer product removal on the trench wells in August and September 2008, and active pumping on the trench wells, recovery well RW-1, and select monitoring wells during the August 2008 removal event. A total of approximately 575.5 gallons of groundwater, yielding 3.45 gallons of free product, was removed during the August 2008 active product removal event, as well as 1.4 gallons removed passively from the skimmers. An additional 0.17 gallon was removed passively from the skimmers in September 2008. Table 3 shows the allocation of free product removed from the collection skimmers in Trenches A and C. Table 4 shows the total amount of product actively removed by pumping based on the total amount of groundwater/product removed for the August 2008 extraction event. The removal activities occurred as follows:

- On August 15, 2008, SES removed a total of 1.4 gallons of LNAPL from the skimmers in the three sump wells in Trench A. Approximately 100 gallons of free product/groundwater was removed from trench wells TA-W, TA-M and TA-E. SES removed 50 gallons from each of the trench wells TB-M and TB-E, 25 gallons from TC-E, and 125 gallons of free product/groundwater on recovery well RW-1. Active pumping was also conducted on select monitoring wells—yielding 20 gallons from MW-3, 1.5 gallons from MW-13, 4 gallons from MW-12, and 8 gallons from MW-10.
- All of the purge water and free product extracted during these events was containerized onsite in the aboveground 1,100-gallon AST located in the northeastern gated area of the garage. This material was pumped and recycled offsite by Evergreen Environmental Inc. on August 19, 2008.

**Table 4**  
**Active Product Extraction**  
**August 2008**

Well	Total Gallons of Product Removed During August 2008 Event	Well	Total Gallons of Product Removed During August 2008 Event
MW-3	0.12	MW-17	NP
MW-5	NP	MW-18	NP
MW-6	NP	MW-E	NP
MW-7	NP	RW-1	0.75
MW-8	NP	TA-E	0.60
MW-9	NP	TA-M	0.60
MW-10	0.048	TA-W	0.60
MW-11	NP	TB-E	0.30
MW-12	0.024	TB-M	0.30
MW-13	0.009	TB-W	NP
MW-14	NP	TC-E	0.15
MW-15	NP	TC-M	NP
MW-16	NP	TC-W	NP
<b>Total</b>			<b>3.5</b>

Notes:

NP = not purged

Product removal estimates are based on the total amount of free product measured in the purge tank (3.45 gallons) rather than on the total amount of groundwater purged (575.5 gallons), which yields 0.006 gallon of product per 1 gallon of purge water.

**DISCUSSION**

As mentioned under the “Historical Free Product Extraction” subsection of this chapter, no product extraction was conducted by PES in 2005. “Product” removal in 2006 was reported at a significant 52 gallons by PES; however, it was not achieved through collection from the trench hydrocarbon skimmers, but rather through active pumping; in addition, the “product” referred to by PES appears to actually have been a mixture of petroleum product and water. The PES report provides no documentation (e.g., manifests) of the removal of actual recovered petroleum product. The recovery by PES from the start of 2007 through October 2007 (when SES assumed environmental consulting activities) was limited to 0.6 gallon collected from the skimmers. In addition, there had been no removal of free product from well RW-1 since 2004, at which time approximately 50 gallons of free-floating product was apparently removed by active pumping. The majority of this petroleum product apparently was removed by active pumping and removal activities rather than from the trench well skimmers. Much of this may also have been a mixture of water and hydrocarbons. Thus, we

conclude that the trench recovery system has never been particularly effective. In 2007, passive extraction of free product through trench well skimmers removed only 3.41 gallons. SES has removed 5.41 gallons of free product from these passive skimmers during the 2008 removal events to date.

As demonstrated by the September 2008 analytical data, active pumping on certain wells has generally reduced gasoline concentrations; however, wells not included in the pumping schedule showed a lower or no decrease. Diesel concentrations seemed to be less affected by active pumping, even in wells that were included in the pumping schedule, such as RW-1. More active remediation will likely be required on this site to reduce the concentrations to levels acceptable to the regulatory community and to achieve eventual regulatory closure. However, with the exception of the current program of LNAPL removal from the skimmers and wells, no additional active remedies are proposed until the four consecutive quarterly sampling events are completed. This will ensure that hydrochemical and hydrologic variability can be factored into the development of an appropriate remedy.

## 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 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.
- The site currently contains 17 monitoring wells, 1 recovery well, and 9 product extraction trench wells. This is the ninth sampling event conducted since 1988.
- Site geological conditions consist of a combination of fill and soft bay sediment to between 15 and 20 feet bgs, covered by approximately 1 to 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 June 2008 monitoring event ranged from 7.32 to 10.76 feet above mean sea level, and the groundwater gradient is approximately 0.001 feet per foot.
- Current contaminants of concern include TPHg, TPHd, and BTEX. Current groundwater concentrations exceeded the ESLs for these contaminants in groundwater. No MTBE was detected above the laboratory detection limit during this event.
- 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 ESLs where groundwater is not a drinking water resource (210 µg/L). Gasoline was also detected in MW-9 and MW-16, but at concentrations below the ESL.

- Diesel was detected in all site wells above the ESL of 210 µg/L (where groundwater is not a drinking water resource). The highest concentration (440,000 µg/L) was observed in MW-13. This is a significant increase from the previous sampling event in which the diesel concentration was measured at 71,000 µg/L, but below the historic high of 1,100,000 µg/L observed during the March 2008 event.
- In MW-7, MW-8, MW-10, MW-11, MW-12, MW-14, MW-15, MW-17, MW-E, and RW-1, concentrations of benzene exceeded the ESL of 46 µg/L where groundwater is not a drinking water resource. Benzene was also found in MW-6, MW-9, and MW-16, but at concentrations below the ESL.
- Toluene was detected above the ESL of 130 µg/L in monitoring wells in MW-8, MW-13, and MW E. Ethylbenzene was detected above the 43-µg/L ESL (where groundwater is not a drinking water resource) in monitoring wells MW-8, MW-10, MW-13, MW-14, MW-15, and MW-E. Total xylene concentrations were above the 100-µg/L ESL where groundwater is not a drinking water resource in monitoring wells MW-8, MW-13, and MW-E. MTBE was not detected above the laboratory detection limit in any of the monitoring wells.
- SES conducted passive skimmer product removal on the trench wells in August and September 2008, and active pumping on the trench wells, recovery well RW-1, and select monitoring wells during the August 2008 removal event. A total of 1.57 gallons was removed from the sump well skimmers in Trench A during the August and September 2008 events. A total of approximately 575.5 gallons of groundwater, yielding 3.45 gallons of free product, was removed during the August 2008 active product removal event.
- Compared to the previous sampling event, decreases in gasoline concentrations in the majority of the wells could be due to active product extraction events. However, concentrations of diesel have remained the same overall from the last sampling event, with concentrations increasing in some wells and decreasing in others, even in wells included in the sampling program. Further sampling is needed to obtain a full range of seasonal data over the course of at least 1 year to determine if this method is effective.
- The trench recovery system, where free product is designed to collect in 1-liter skimmers, is not 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 should be continued on a quarterly basis to establish the baseline for meeting site closure criteria. This will also aid in better understanding the dynamic equilibrium of the plume, and in determining the measures needed to stabilize and

reduce the plume to ultimately achieve site closure. Quarterly monitoring will allow for an evaluation of seasonal hydrocarbon plume trends and groundwater directional flow.

- Both active and passive free product removal events should be continued to ascertain their effectiveness in reducing the plume size over time.
- Now that a new ACEH case officer has been identified, a meeting should be requested with ACEH to discuss the steps to regulatory closure.
- Electronic uploads to ACEH's ftp system and the State Water Board's GeoTracker system should be continued.
- In our professional opinion, the current program of quarterly groundwater monitoring, as well as both active and passive free product removal, are the appropriate actions to further evaluate the magnitude and stability of the contaminant plume over a 1-year period.
- Following the completion of the four consecutive quarterly sampling events designed to discern hydrochemical and hydrologic variability, an appropriate additional active remediation should be evaluated and developed.

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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
7	Mar-08	6,600	450	NA	<0.5	<0.5	1.8	2.0	4.3
8	Jun-08	4,500	440	NA	<0.5	<0.5	4.0	2.0	9.5
9	Sep-08	1,700	280	NA	<0.5	<0.5	1.0	<0.5	<2.0

MW-4									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	100	NA	2.0	1.0	<0.5	2.0	NA
2	May-89	60	18	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	<10	<10	NA	<0.3	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	50	<200	<0.5	<0.5	<0.5	<0.5	<1.0
6	Dec-07	710	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
7	Mar-08	680	57	NA	<0.5	<0.5	<0.5	<0.5	<2.0
8	Jun-08	620	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0
9	Sep-08	440	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-5									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	530	890	NA	<1.0	<1.0	1.0	3.0	NA
2	May-89	90	5.0	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	58	<10	NA	0.6	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	330	<25	<200	0.6	<0.5	<0.5	<0.5	<1.0
6	Dec-07	5,100	1.3	NA	1.3	<0.5	<0.5	1.23	<2.0
7	Mar-08	4,500	<50	NA	0.53	<0.5	<0.5	<0.5	<2.0
8	Jun-08	3,300	<50	NA	0.64	<0.5	<0.5	<0.5	<2.0
9	Sep-08	4,200	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-6									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	<10	52	NA	1.0	<0.5	<0.5	<0.5	NA
2	May-89	140	31	NA	1.0	<0.5	<0.5	<0.5	NA
3	Feb-91	130	40	NA	0.8	<0.3	<0.3	<0.6	NA
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	200	43	<200	1.1	<0.5	<0.5	<0.5	<1.0
6	Dec-07	1,000	<50	NA	0.98	0.81	<0.5	0.5	<2.0
7	Mar-08	940	<50	NA	0.87	1.0	<0.5	<0.5	<2.0
8	Jun-08	1,100	56	NA	0.92	<0.5	<0.5	<0.5	2.9
9	Sep-08	1,000	<50	NA	0.91	<0.5	<0.5	<0.5	<2.0

MW-7									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,600	490	1,900	240	100	14	56	<2.5
2	Dec-06	420	<25	470	<0.5	<0.5	<0.5	<0.5	<1.0
3	Dec-07	6,300	3,100	NA	640	28	48	231	<10
4	Mar-08	7,000	360	NA	140	5.8	11	58	<2.0
5	Jun-08	5,400	1,700	NA	480	15	28	139	<2.0
6	Sep-08	9,400	1,200	NA	330	12	21	88	<2.0

MW-8									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	140,000	51,000	56,000	19,000	720	2,400	3,300	<50
2	Dec-06	2,400	29,000	<380	13,000	<100	640	500	<200
3	Dec-07	5,900	30,000	NA	11,000	180	650	561	<100
4	Mar-08	21,000	47,000	NA	10,000	260	1,200	458	<2.0
5	Jun-08	7,300	27,000	NA	9,300	140	790	290	<2.0
6	Sep-08	13,000	35,000	NA	11,000	190	900	402	<100

MW-9									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	1,300	95	1,500	4.7	0.68	<0.5	<1.0	<0.5
2	Dec-06	<50	92	<200	2.8	<0.5	<0.5	<0.5	<1.0
3	Dec-07	8,400	84	NA	4.7	1.1	<0.5	1.9	<2.0
4	Mar-08	8,600	100	NA	4.1	1.1	<0.5	<0.5	2.0
5	Jun-08	5,900	98	NA	4.9	<0.5	<0.5	<0.5	2.3
6	Sep-08	9,300	130	NA	4.6	<0.5	<0.5	<0.5	<50

MW-10									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in March 2004									
1	Mar-04	840,000	14,000	<100,000	4,000	77	200	120	<50
2	Dec-06	19,000	12,000	<4,000	4,600	42	90	52	<50
3	Dec-07	4,700	13,000	NA	5,300	96	42	86	<50
4	Mar-08	280,000	10,000	NA	2,600	50	37	58.7	22
5	Jun-08	4,800	10,000	NA	3,800	62	24	61	<2.0
6	Sep-08	4,700	1,200	NA	350	11	3.4	11	<2.0

MW-11									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	920	<200	26	4.5	1.8	5.4	<1.0
2	Dec-07	6,900	1,500	NA	320	44	53	140	<2.0
3	Mar-08	7,500	1,200	NA	120	7.6	10	24.9	3.0
4	Jun-08	5,100	2,000	NA	190	11	7.7	16.3	<2.0
5	Sep-08	5,600	2,200	NA	260	20	34	60	<2.0

MW-12									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	19,000	<200	9,100	51	<50	110	<100
2	Dec-07	2,700	17,000	NA	8,000	110	25	115	<40
3	Mar-08	3,300	33,000	NA	9,200	140	85	116	<2.0
4	Jun-08	3,000	17,000	NA	6,600	95	50	110	<2.0
5	Sep-08	3,100	14,000	NA	6,200	79	18	83	<10

MW-13									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	12,000	87,000	2,100	18,000	470	2,400	3,500	<400
2	Dec-07	NA	68,000	NA	19,000	650	1,700	2,440	<100
3	Mar-08	1,100,000	98,000	NA	19,000	820	2,300	3,190	<100
4	Jun-08	71,000	44,000	NA	12,000	510	1,600	1,950	<2.0
5	Sep-08	440,000	52,000	NA	<100	500	1,600	1,500	<100

MW-14									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	8,300	<200	3,700	240	230	260	<50
2	Dec-07	2,600	6,800	NA	3,100	150	220	168	<20
3	Mar-08	4,400	18,000	NA	4,400	330	340	245	<2.0
4	Jun-08	2,600	7,700	NA	2,600	180	200	141	<2.0
5	Sep-08	2,500	4,100	NA	1,300	50	80	61	<10

MW-15									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	9,200	<200	3,700	<25	60	57	<50
2	Dec-07	3,300	8,100	NA	3,000	48	28	44.5	<20
3	Mar-08	3,000	13,000	NA	3,600	66	210	59.5	64
4	Jun-08	2,900	15,000	NA	5,800	61	230	56.4	<2.0
5	Sep-08	3,400	18,000	NA	7,800	73	270	59.9	<10

MW-16									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	190	<200	11.0	1.4	<0.5	<0.5	<1.0
2	Dec-07	8,500	71	NA	13	2.6	<0.5	1.46	<2.0
3	Mar-08	12,000	60	NA	11	0.73	<0.5	<0.5	<2.0
4	Jun-08	10,000	120	NA	13	2.2	<0.5	<0.5	2
5	Sep-08	8,200	64	NA	9.9	1.9	<0.5	<0.5	<2.0

MW-17									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in April 2004									
1	Dec-06	<50	14,000	<200	3,400	1,100	480	<0.5	<1.0
2	Dec-07	2,900	5,000	NA	1,100	260	110	206	<10
3	Mar-08	3,100	6,800	NA	1,200	110	91	94	21
4	Jun-08	2,900	7,200	NA	1,100	45	75	66	<2.0
5	Sep-08	3,300	5,500	NA	900	63	69	69	<10

MW-18									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Installed in May 2004									
1	Dec-06	<50	120	<200	22	6.2	3.2	6.2	<2.0
2	Dec-07	8,600	<50	NA	0.98	<0.5	<0.5	<0.5	<2.0
3	Mar-08	9,800	<50	NA	0.52	<0.5	<0.5	<0.5	2.0
4	Jun-08	8,800	<50	NA	<0.5	<0.5	<0.5	<0.5	3.1
5	Sep-08	8,600	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.0

MW-E									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	100	5,400	NA	3,200	690	97	330	NA
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	470	810	<500	340	6.1	2.2	7.7	<1.0
5	Dec-06	280	1,900	<200	910	<10	10	<10	<20
6	Dec-07	6,900	7,000	NA	3,300	50	51	80	<20
7	Mar-08	6,300	2,700	NA	780	17	20	20.9	12
8	Jun-08	5,200	7,400	NA	2,900	43	85	50	<2.0
9	Sep-08	7,800	11,000	NA	3,800	170	130	257	<50

RW-1									
Sampling Event No.	Date Sampled	TEH-d	TVH-g	TEH-mo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
1	Dec-88	NS	NS	NS	NS	NS	NS	NS	NS
2	May-89	NS	NS	NS	NS	NS	NS	NS	NS
3	Feb-91	NS	NS	NS	NS	NS	NS	NS	NS
4	Mar-04	NS	NS	NS	NS	NS	NS	NS	NS
5	Dec-06	<50	640	<200	100	1.3	2	1.6	<1.0
6	Dec-07	2,100	770	NA	110	<0.5	3.8	1.96	<2.0
7	Mar-08	11,000	890	NA	100	4.2	4.4	2.0	<2.0
8	Jun-08	1,500	1,200	NA	290	4.8	10	4.8	<2.0
9	Sep-08	1,900	1,400	NA	280	9.8	10	6.7	<2.0

Notes:

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

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

NS = Not sampled

NA = Not analyzed for this constituent

All concentrations shown in µg/L



## **APPENDIX B**

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



## WELL GAUGING DATA

Project # 080922AK1 Date 9.22.08 Client STELLAR

Site BAY CENTER APTS, 65th & BAY ST, EMERYVILLE

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or <u>TOC</u>	Notes
MW.2	UNABLE		TO	LOCATE						
P MW.3	937	2		7.95	UNABLE TO READ		9.27	—		
MW.4	944	2					6.85	24.90		
MW.5	947	2					8.56	24.86		
MW.6	951	2					6.06	23.37		
MW.7	1030	3/4					10.37	19.85		
P MW.8	1139	3/4		<del>8.89</del> 8.84			<del>9.63</del> 8.95			
MW.9	1039	3/4					9.30	19.66		
P MW.10	1115	3/4		8.84			8.95			
MW.11	1027	3/4					10.03	19.70		
MW.12	1021	3/4					8.76	19.00		
P MW.13	1107	3/4		9.54			10.34			
P MW.14	1123	3/4					8.64	19.50		
P MW.15	1130	3/4		8.84			UNABLE TO READ			
MW.16	1044	3/4					9.07	19.07		
P MW.17	1000	3/4		7.92			9.21	19.50		
MW.18	1049						8.48	19.55		

## WELL GAUGING DATA

Project # 090922AK1 Date 9.22.09 Client STELLAR

Site BAY CENTER APTS, 65th & BAY ST, EMERYVILLE

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 TOG	PRODUCT REMOVED Notes	
MW.E	1055	2					9.55	44.96			
P RW.1	1102	10		UNABLE TO READ			—				
TA.W	1415	12/10				8.29	—			160 mL	
TA.M	1420	12/10				8.28	—			300 mL	
TA.E	1425	12/10				8.27	—			100 mL	
TB.W	1435	12/10				8.36	—			—	
TB.M	1440	12/10	ALL WELLS HAVE PRODUCT, DTW: IS DEPTH TO PRODUCT				8.32	—			—
TB.E	1445	12/10				8.25	—			—	
TC.W	1455	12/10				8.67	—			—	
TC.M	1500	12/10				8.72	—			—	
TC.E	1505	12/10				8.41	—			225 mL	

# WELLHEAD INSPECTION CHECKLIST

Date 9.22.08 Client STELLAR

Site Address 65TH & BAY ST, EMERYVILLE

Job Number 090922AK1 Technician J KRESS

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.2	UNABLE TO	LOCATE	WELL					
MW.3	✓							
MW.4	✓							
MW.5	✓							
MW.6	✓							
MW.7							1/2 BOLTS MISSING	
MW.8	✓							
MW.9							2/2 BOLTS MISSING	
MW.10	✓							
MW.11							1/2 BOLTS MISSING	
MW.12	✓							
MW.13	✓							
MW.14	✓							
MW.15	✓							
MW.16	✓							
MW.17							1/2 BOLTS MISSING	

NOTES: RN.1 IS VAULT W/ SPRING HINGES -  
MW.8 - CASING BENT - ONLY CHECK VALVE + NEW  
TUBING

# WELLHEAD INSPECTION CHECKLIST

Date 9.22.09 Client STELLAR

Site Address 65th & BAY ST, EMERYVILLE

Job Number 090922AK1 Technician JKRESS

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. 18	✓							
MW. 19 E							2/2 BUBS MISSING	
MW. 19							1/2 BUBS MISSING	
RW. 1							2/4 b. to MISSING	
MW. 2								
TA. W								
TA. M	/							
TA. E	✓							
TB. W	✓							
TB. M	✓							
TB. E	✓							
TC. W	✓							
TC. M	✓							
TC. E	✓							

NOTES: \_\_\_\_\_

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## WELL MONITORING DATA SHEET

Project #: <b>08922AC1</b>	Client: <b>STELLAR</b>
Sampler: <b>JKPRS</b>	Date: <b>9.27.08</b>
Well I.D.: <b>Mw.2</b>	Well Diameter: 2 3 4 6 8 _____
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

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

Sampling Date: \_\_\_\_\_                      Sampling Time: \_\_\_\_\_                      Depth to Water: \_\_\_\_\_

Sample I.D.: \_\_\_\_\_                      Laboratory:    Kiff    CalScience    Other \_\_\_\_\_

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

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

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

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

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.3</b>	Well Diameter: <b>(2)</b> 3 4 6 8 _____
Total Well Depth (TD): <b>PRODUCT IN WELL</b> <del>7.95</del> <b>(AP)</b>	Depth to Water (DTW): <b>7.95</b>
Depth to Free Product:	Thickness of Free Product (feet):
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 <u>Peristaltic</u> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>NEW TUBING</u>
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_____ (Gals.) X _____ = _____ Gals.   Case Volume      Specified Volumes      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> <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> </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
<b>PRODUCT IN WELL, PURGED FOR 6 MIN.</b>						
<b>PRICE TO PURGE</b>						
9:07	_____	_____	_____	_____	<del>1200ML</del> <b>400</b>	DTW: 7.90
9:10	_____	_____	_____	_____	<b>2400ML</b>	DTW: 8.79
						DTW: 8.81

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <b>2400ML</b>
Sampling Date: <b>9.23</b> Sampling Time: <b>9:10</b> Depth to Water: <b>8.81</b>	
Sample I.D.: <b>MW.3</b> Laboratory: Kiff CalScience Other: <b>C&amp;T</b>	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:	
EB I.D. (if applicable): @ _____ Time      Duplicate I.D. (if applicable):	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:	
D.O. (if req'd): Pre-purge: _____ mg/L      Post-purge: _____ mg/L	
O.R.P. (if req'd): Pre-purge: _____ mV      Post-purge: _____ mV	



# WELL MONITORING DATA SHEET

Project #: <b>0200922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.4</b>	Well Diameter: <b>2</b> 3 4 6 8
Total Well Depth (TD): <b>24.90</b>	Depth to Water (DTW): <b>6.85</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>10.46</b>	

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: \_\_\_\_\_

**19.05**  

$$\frac{2.8}{1 \text{ Case Volume}} \times \frac{3}{\text{Specified Volumes}} = \frac{8.6}{\text{Calculated Volume}} \text{ Gals.}$$

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
749	64.7	7.5	1505	40	3.0	
750	65.7	7.2	1469	12	6.0	
751	65.8	7.2	1452	5	9.0	

Did well dewater? Yes  No  Gallons actually evacuated: **9.0**

Sampling Date: **9.23** Sampling Time: **755** Depth to Water: **7.04**

Sample I.D.: **MW.4** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

## WELL MONITORING DATA SHEET

Project #: <b>090922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.5</b>	Well Diameter: <b>2</b> 3 4 6 8
Total Well Depth (TD): <b>24.86</b>	Depth to Water (DTW): <b>8.56</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>11.82</b>	

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

**16.30**

<b>2.6</b>	(Gals.) X	<b>3</b>	=	<b>7.8</b>	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 ( <b>A</b> or °C)	pH	Cond. (mS or <b>AS</b> )	Turbidity (NTUs)	Gals. Removed	Observations
807	64.9	7.6	2715	800	3.0	
<b>DEWATERED</b>	<b>@</b>	3.5	<b>GALLONS</b>			<b>DTW: 20.21</b>
840	65.7	7.7	2738	327	—	

Did well dewater? <b>Yes</b> No	Gallons actually evacuated: <b>3.5</b>	
Sampling Date: <b>9.23</b>	Sampling Time: <b>840</b>	Depth to Water: <b>11.16</b>
Sample I.D.: <b>MW.5</b>	Laboratory: Kiff CalScience Other <b>C&amp;T</b>	
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:		
EB I.D. (if applicable): <b>@</b> 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>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.6</b>	Well Diameter: <b>(2)</b> 3 4 6 8 _____
Total Well Depth (TD): <b>23.37</b>	Depth to Water (DTW): <b>6.06</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>(EVO)</b> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>9.52</b>	

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

**17.31**

<b>2.7</b> (Gals.) X	<b>3</b>	<b>= 8.3</b> 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 ( $\oplus$ or °C)	pH	Cond. (mS or $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
<b>822</b>	<b>64.3</b>	<b>10.4</b>	<b>1712</b>	<b>90</b>	<b>3.0</b>	
<b>823</b>	<b>65.1</b>	<b>10.3</b>	<b>1784</b>	<b>25</b>	<b>6.0</b>	
<b>824</b>	<b>65.2</b>	<b>10.4</b>	<b>1795</b>	<b>14</b>	<b>9.0</b>	

Did well dewater? Yes  No  Gallons actually evacuated: **9.0**

Sampling Date: **9.23** Sampling Time: **825** Depth to Water: **6.97**

Sample I.D.: **MW.6** Laboratory: Kiff CalScience Other: **C&T**

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

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

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

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

Project #: <u>060922AK1</u>	Client: <u>STELLAR</u>
Sampler: <u>AK</u>	Date: <u>9.22.08</u>
Well I.D.: <u>MW. 7</u>	Well Diameter: 2 3 4 6 8 <u>(3/4)</u>
Total Well Depth (TD): <u>19.85</u>	Depth to Water (DTW): <u>10.37</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVE</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>12.26</u>	

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

9.48

0.19 (Gals.) X 3 = 0.56 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

0.02

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<u>OUT OF ORDER</u>						<u>DEDICATED / NEW TUBING</u>
<u>1239</u>	<u>61.4</u>	<u>8.1</u>	<u>11.96</u>	<u>374</u>	<u>0.25</u>	
<u>1243</u>	<u>60.8</u>	<u>8.1</u>	<u>12.79</u>	<u>376</u>	<u>0.50</u>	
<u>1248</u>	<u>60.9</u>	<u>8.0</u>	<u>12.80</u>	<u>142</u>	<u>0.75</u>	
<u>BRIEFLY WAITED</u>			<u>FOR 80%</u>			

Did well dewater? Yes NO Gallons actually evacuated: 0.75

Sampling Date: 9.22 Sampling Time: 1255 Depth to Water: 11.51

Sample I.D.: MW. 7 Laboratory: Kiff CalScience Other C&T

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

## WELL MONITORING DATA SHEET

Project #: <b>080922AK</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW-8</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <del>8.89</del> <b>(AK)</b>	Depth to Water (DTW): <b>8.89</b>
Depth to Free Product:	Thickness of Free Product (feet):
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  Water  **Peristaltic**  Sampling Method: Bailer  Disposable Bailer  **Peristaltic**  Extraction Pump  Dedicated Tubing  **NEW TUBING**   
 Positive Air Displacement  Other \_\_\_\_\_  
 Electric Submersible  Other \_\_\_\_\_

\_\_\_\_\_ (Gals.) X \_\_\_\_\_ = \_\_\_\_\_ Gals.  
 I 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
<b>PRODUCT IN WELL, PURGED FOR 6 MIN</b>						
<b>1447</b>	<b>63.9</b>	<b>7.3</b>	<b>1968</b>	<b>13</b>	<b>900 ML</b>	
<b>1450</b>	<b>63.6</b>	<b>7.2</b>	<b>1970</b>	<b>12</b>	<b>1800 ML</b>	

Did well dewater? Yes  Gallons actually evacuated: **1800 ML**

Sampling Date: **9.23** Sampling Time: **1450** Depth to Water: **9.89**

Sample I.D.: **MW-8** Laboratory: Kiff CalScience Other **C & T**

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

V. WELL MONITORING DATA SHEET

Project #: 080922AK1	Client: STELLAR
Sampler: AIC	Date: 9-22-09
Well I.D.: MW-9	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): 19.66	Depth to Water (DTW): 9.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 11.37	

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: NEW TUBING ✓

10.36  
 $0.2 \text{ (Gals.)} \times 3 = 0.6 \text{ Gals.}$   
 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
1324	61.9	9.3	2130	442	0.25	
1328	61.5	9.4	2024	332	0.50	
1331	61.4	9.4	2020	170	0.75	
OUT OF ORDER - NEW TUBING						

Did well dewater? Yes  No  Gallons actually evacuated: 0.75

Sampling Date: 9-22      Sampling Time: 1335      Depth to Water: 11.24

Sample I.D.: MW-9      Laboratory: Kiff CalScience      Other: C&T

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV      Post-purge: \_\_\_\_\_ mV

## WELL MONITORING DATA SHEET

Project #: <b>J00922A01</b>	Client: <b>STELLAR</b>
Sampler: <b>MC</b>	Date: <b>9.23.09</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): <b>8.84</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>(ve)</b> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>—</b>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Watterra <u>Peristaltic</u> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <b>NEW TUBING</b>
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$\frac{\text{Case Volume (Gals.)} \times \text{Specified Volumes}}{\text{Calculated Volume}} = \text{Gals.}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>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
<b>PRODUCT IN WELL, PURGED FOR 6 MIN.</b>						
1419	62.6	7.4	1563	13	900 mL	
1421	62.5	7.4	1575	8	1800 mL	

Did well dewater? Yes  No  Gallons actually evacuated: **1800 mL**

Sampling Date: **9.23** Sampling Time: **1425** Depth to Water: **10.19**

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

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

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

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

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

Project #: <u>080922AC1</u>	Client: <u>STELLAR</u>
Sampler: <u>AK</u>	Date: <u>9.22.09</u>
Well I.D.: <u>MW-11</u>	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): <u>19.70</u>	Depth to Water (DTW): <u>10.03</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>11.96</u>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <del>Peristaltic</del> Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <u>NEW TUBING</u>
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9.07

<u>0.19</u> (Gals.) X	<u>3</u> =	<u>0.58</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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1357	61.1	7.6	2690	119	0.25	
1401	60.7	7.6	2694	69	0.50	
1405	60.6	7.6	2680	52	0.75	
<u>OUT OF ORDER - NEW TUBING</u>						

Did well dewater? Yes  No  Gallons actually evacuated: 0.75

Sampling Date: 9.22 Sampling Time: 1410 Depth to Water: 10.53

Sample I.D.: MW-11 Laboratory: Kiff CalScience Other: C&T

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

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

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

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

Project #: <b>080922 AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW. 12</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <b>19.00</b>	Depth to Water (DTW): <b>8.76</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>10.80</b>	

Purge Method: Bailer	Watterra	Sampling Method: Bailer
Disposable Bailer	<u>Peristaltic</u>	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <b>NEW TUBING</b>

**10.24**

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1220	60.9	7.5	1769	887	0.25	
1223	60.2	7.3	1594	106	0.50	
1226	60.1	7.3	1576	46	0.75	

Did well dewater? Yes  No  Gallons actually evacuated: **0.75**

Sampling Date: **9.23** Sampling Time: **1230** Depth to Water: **9.04**

Sample I.D.: **MW.12** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

Project #: <b>080922AKI</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.13</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <b>—</b>	Depth to Water (DTW): <b>9.54</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>—</b>	

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: **NEW TUBING**

$\frac{\text{Case Volume}}{\text{Specified Volumes}} \times \text{Gals.} = \text{Calculated Volume}$	<table border="1"> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> <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> </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
<b>PRODUCT IN WELL, PURGED FOR 10 MIN.</b>						
<b>1242</b>					<b>1600 ML</b>	
<b>1245</b>					<b>3200ML</b>	

Did well dewater? Yes **No** Gallons actually evacuated: **3200 ML**

Sampling Date: **9.23** Sampling Time: **1245** Depth to Water: **10.32**

Sample I.D.: **MW.13** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

WELL MONITORING DATA SHEET

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW-14</b>	Well Diameter: 2 3 4 6 8 <b>3/4</b>
Total Well Depth (TD): <b>19.50</b>	Depth to Water (DTW): <b>8.64</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>10.81</b>	

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

**10.86**  
 $0.21 \text{ (Gals.)} \times 3 = 0.63 \text{ Gals.}$   
 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
1335	61.6	8.1	1690	80	0.25	
1338	61.3	7.9	1673	43	0.50	
1342	61.4	8.0	1680	31	0.75	

Did well dewater? Yes **No** Gallons actually evacuated: **0.75**

Sampling Date: **9.23** Sampling Time: **1345** Depth to Water: **9.09**

Sample I.D.: **MW-14** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

WELL MONITORING DATA SHEET

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW-15</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <b>—</b>	Depth to Water (DTW): <b>8.84</b>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>(PVE)</b> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <b>—</b>	

Purge Method: Bailer Water Sampling Method: Bailer  
 Disposable Bailer Peristaltic Disposable Bailer  
 Positive Air Displacement Extraction Pump Extraction Port  
 Electric Submersible Other \_\_\_\_\_ Dedicated Tubing  
 Other: **(NEW TUBING)**

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
<b>PRODUCT IN WELL, PURGED FOR 6 MIN.</b>						
<b>1359</b>	<b>62.0</b>	<b>7.1</b>	<b>1413</b>	<b>8</b>	<b>900 ML</b>	
<b>1402</b>	<b>61.6</b>	<b>7.1</b>	<b>1422</b>	<b>5</b>	<b>1800 ML</b>	

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

Sampling Date: **9.23** Sampling Time: **1405** Depth to Water: **10.57**

Sample I.D.: **MW-15** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

## WELL MONITORING DATA SHEET

Project #: <b>090922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW-16</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <b>19.07</b>	Depth to Water (DTW): <b>9.07</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>11.07</b>	

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible	Waterra <u>Peristaltic</u> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <b>(NEW TUBING)</b>
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**10.00**  
 $0.2 \text{ (Gals.)} \times 3 = 0.6 \text{ Gals.}$   
 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
1310	61.7	10.2	10.3373	821	0.25	
1312	61.1	9.9	3.494	524	0.50	
1314	61.1	9.8	3.511	221	0.75	

Did well dewater? Yes  No  Gallons actually evacuated: **0.75**

Sampling Date: **9.23** Sampling Time: **1315** Depth to Water: **9.21**

Sample I.D.: **MW-16** Laboratory: Kiff CalScience Other: **C&T**

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

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

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

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

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW. 17</b>	Well Diameter: 2 3 4 6 8 <b>(3/4)</b>
Total Well Depth (TD): <b>19.50</b>	Depth to Water (DTW): <b>7.92</b>
Depth to Free Product:	Thickness of Free Product (feet):
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 <del>Peristaltic</del> Extraction Pump Other _____	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: <b>NEW TUBING</b>
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<del>_____ (Gals.) X</del>	<del>_____ =</del>	<del>_____ Gals.</del>
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 $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
<b>PRODUCT IN WELL, PURGED WELL FOR 6 MIN.</b>						
1005	63.5	7.5	1274	234	1200 ML	
1008	63.6	7.5	1335	63	2400 ML	

Did well dewater? Yes  No  Gallons actually evacuated: **2400 ML**

Sampling Date: **9.23** Sampling Time: **1010** Depth to Water: **8.45**

Sample I.D.: **MW. 17** Laboratory: Kiff CalScience Other **C&T**

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

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

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

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

Project #: 080922AK1	Client: STELLAR
Sampler: AK	Date: 9.23.08
Well I.D.: MW-18	Well Diameter: 2 3 4 6 8 <u>3/4</u>
Total Well Depth (TD): 19.55	Depth to Water (DTW): 8.48
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]: 10.69	

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: NEW TUBING

11.07

0.22 (Gals.) X 3 = 0.66 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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
<del>OUT OF ORDER</del> NEW TUBING						
1149	61.5	7.0	7556	425	0.25	
1152	60.9	7.0	7272	867	0.50	
1154	60.8	7.0	7275	725	0.75	
* ALL VOLS HAVE BUBBLES - UNABLE TO REMOVE						

Did well dewater? Yes No Gallons actually evacuated: 0.75

Sampling Date: 9.23 Sampling Time: 1155 Depth to Water: 9.01

Sample I.D.: MW-18 Laboratory: Kiff CalScience Other C&T

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

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

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

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

O.R.P. (if req'd): Pre-purge: \_\_\_\_\_ mV Post-purge: \_\_\_\_\_ mV

WELL MONITORING DATA SHEET

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>MW.E</b>	Well Diameter: <b>②</b> 3 4 6 8 ____
Total Well Depth (TD): <b>44.96</b>	Depth to Water (DTW): <b>9.55</b>
Depth to Free Product:	Thickness of Free Product (feet):
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]: <b>16.63</b>	

Purge Method: Bailer	Waters	Sampling Method: Bailer
Disposable Bailer	Peristaltic	<del>Disposable Bailer</del>
Positive Air Displacement	Extraction Pump	Extraction Port
<del>Electric Submersible</del>	Other: <b>CHECK VALUE</b>	Dedicated Tubing
	<b>+ NEW TUBING</b>	Other: <b>NEW TUBING</b>

**35.41**

5.6 (Gals.) X	3	= 16.9 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
<b>PURGED &amp; SAMPLED OUT OF ORDER</b>						
1038	62.0	7.6	3578	734	6.0	
1048	62.0	7.5	3966	807	12.0	
1059	62.1	7.5	3977	799	18.0	
<b>* CASING BENT - DO</b>						

Did well dewater? Yes  No  Gallons actually evacuated: **18.0**

Sampling Date: **9.23** Sampling Time: **1100** Depth to Water: **15.55**

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

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

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

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

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



**WELL MONITORING DATA SHEET**

Project #: <b>080922AK1</b>	Client: <b>STELLAR</b>
Sampler: <b>AK</b>	Date: <b>9.23.08</b>
Well I.D.: <b>RW-1</b>	Well Diameter: 2 3 4 6 8 <b>(10")</b>
Total Well Depth (TD): <b>—</b>	Depth to Water (DTW): <sup>8.29</sup> <b>UNABLE TO READ</b>
Depth to Free Product:	Thickness of Free Product (feet):
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	Waters	Sampling Method: Bailer
Disposable Bailer	<u>Peristaltic</u>	Disposable Bailer
Positive Air Displacement	Extraction Pump	Extraction Port
Electric Submersible	Other _____	Dedicated Tubing
		Other: <b>NEW TUBING</b>

_____ (Gals.) X _____ = _____ Gals.   Case Volume                      Specified Volumes                      Calculated Volume	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> <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> </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
<b>PRODUCT IN WELL, PURGED FOR 60 MIN</b>						
1107	—	—	—	—	1500 ML	DTW: 8.31
1110	—	—	—	—	3000 ML	DTW: 8.33
<b>SAMPLED OUT OF ORDER - NEW TUBING</b>						

Did well dewater? Yes  No  Gallons actually evacuated: **3000 ML**

Sampling Date: **9.23** Sampling Time: **1110** Depth to Water: **8.33**

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

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

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

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

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

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

# Chain of Custody Record

206314

Lab job no. 090922 Acl  
 Date 9.23.09  
 Page 1 of 2

Laboratory CST Method of Shipment \_\_\_\_\_  
 Address 2323 FIFTH ST Shipment No. \_\_\_\_\_  
BERKELEY, CA  
 Airbill No. \_\_\_\_\_  
 Project Owner \_\_\_\_\_ Cooler No. \_\_\_\_\_  
 Site Address 6400 CHARLIE AVE Project Manager TEAL GLASS  
BERKELEY, CA Telephone No. (510) 644-3123  
 Project Name BAY CENTER APARTMENTS Fax No. (510) 644-3859  
 Project Number 2007-65 Samplers: (Signature) \_\_\_\_\_

Filtered	No. of Containers	Analysis Required										Remarks	
		TEH-D (Boil)	TPH-G (Boil)	BTEX (MTR)									
		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-3		9.23	0910	W	4 HELWA/1 NPL MON	✓	
2	MW-4		9.23	755	W		✓	
3	MW-5		9.23	040	W		✓	
4	MW-6		9.23	025	W		✓	
5	MW-7		9.22	1255	W		✓	
6	MW-8		9.23	1450	W		✓	
7	MW-9		9.22	1335	W		✓	
8	MW-10		9.23	1425	W		✓	
9	MW-11		9.22	1410	W		✓	
10	MW-12		9.23	1230	W		✓	
11	MW-13		9.23	1245	W		✓	
12	MW-14		9.23	1345	W		✓	

Relinquished by: Signature: <u>JK</u> Printed: <u>J KRESS</u> Company: <u>BTS</u>	Date: <u>9/24/09</u> Time: <u>1105</u>	Received by: Signature: <u>JK</u> Printed: <u>J KRESS</u> Company: <u>BTS</u>	Date: <u>9/24/09</u> Time: <u>1105</u>	Relinquished by: Signature: <u>Pete Cornish</u> Printed: <u>Pete Cornish</u> Company: <u>BTS</u>	Date: <u>9/24/09</u> Time: <u>1515</u>	Received by: Signature: <u>Ricky Grams</u> Printed: <u>Ricky Grams</u> Company: <u>CST</u>	Date: <u>9/24/09</u> Time: <u>1515</u>
--	---	--	---	---	---	---	---

Turnaround Time: <u>STANDARD</u> Comments: <u>EDF REQUIRED</u> <u>GLOBAL ID # SLT20 05561</u>	Relinquished by: Signature: _____ Printed: _____ Company: _____
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2000-00-01

intact cold RC

# Chain of Custody Record

206314

Lab job no. 080922AK1  
 Date 9-23-08  
 Page 2 of 2

Laboratory C&T Method of Shipment \_\_\_\_\_  
 Address 2323 FIFTH ST Shipment No. \_\_\_\_\_  
BERKELEY, CA  
 Project Owner \_\_\_\_\_ Cooler No. \_\_\_\_\_  
 Site Address 6400 CHRISTIE AVE Project Manager TEAL GLASS  
BERKELEY CA Telephone No. (510) 644-3123  
 Project Name BAY CENTER APARTMENTS Fax No. (510) 644-3859  
 Project Number 2007-65 Samplers: (Signature) \_\_\_\_\_

Filtered	No. of Containers	Analysis Required										Remarks		
		TEH-D (8015u)	TPH 5 (8015u)	BTEX & MTBE										
		X	X	X										
		X	X	X										
		X	X	X										
		X	X	X										
		X	X	X										
		X	X	X										

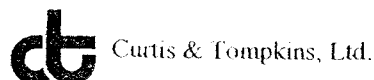
Field Sample Number	Location/Depth	Date	Time	Sample Type	Type/Size of Container	Preservation																						
						Cooler	Chemical																					
13	MW-15	9-23	1405	W	4 HELWA/12 WPA	✓																						
14	MW-16	9-23	1315	W		✓																						
15	MW-17	9-23	1010	W		✓																						
16	MW-18	9-23	1155	W		✓																						
17	MW-E	9-23	1100	W		✓																						
18	RW-1	9-23	1110	W		✓																						

Relinquished by: <u>JK</u> Signature _____ Printed <u>J KRESS</u> Company <u>BTS</u>	Date <u>9/24</u> Time <u>1105</u>	Received by: <u>JK</u> Signature _____ Printed <u>J KRESS</u> Company <u>BTS</u>	Date <u>9/24</u> Time <u>1105</u>	Relinquished by: <u>Pattin</u> Signature _____ Printed <u>Pate Cornish</u> Company <u>BTS</u>	Date <u>9/24</u> Time <u>1515</u>	Received by: <u>Ruby</u> Signature _____ Printed <u>Ruby Evans</u> Company <u>C&amp;T</u>	Date <u>9/24/08</u> Time <u>515</u>		
Turnaround Time: <u>STANDARD</u> Comments: <u>EDF REQUIRED</u> <u>GLOBAL ID # SUT20 05561</u>				Relinquished by: _____ Signature _____ Printed _____ Company _____				Received by: _____ Signature _____ Printed _____ Company _____	

2000-00-01

intact cold RL

COOLER RECEIPT CHECKLIST



Login # 206314 Date Received 9/24/08 Number of coolers 2
Client Stellar Project Bay Center Apts.

Date Opened 9/24 By (print) K Wellbrock (sign) [Signature]
Date Logged in 9-25 By (print) F Nichols (sign) [Signature]

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

2A. Were custody seals present? YES (circle) on cooler on samples NO
How many Name Date

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe)

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

7. Temperature documentation:

Type of ice used: Wet Blue/Gel None Temp(C)

Samples Received on ice & cold without a temperature blank

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

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are samples in the appropriate containers for indicated tests? YES NO

11. Are sample labels present, in good condition and complete? YES NO

12. Do the sample labels agree with custody papers? YES NO

13. Was sufficient amount of sample sent for tests requested? YES NO

14. Are the samples appropriately preserved? YES NO N/A

15. Are bubbles > 6mm absent in VOA samples? YES NO N/A

16. Was the client contacted concerning this sample delivery? YES NO

If YES, Who was called? By Date:

COMMENTS

Blank lines for handwritten comments.



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

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

Laboratory Job Number 206314
ANALYTICAL REPORT

Stellar Environmental Solutions
2198 6th Street
Berkeley, CA 94710

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

Table with 2 columns: Sample ID and Lab ID. Rows include MW-3 through MW-18, MW-E, 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: 10/02/2008

Signature: [Handwritten Signature]
Senior Program Manager

Date: 10/02/2008

### CASE NARRATIVE

Laboratory number: 206314  
Client: Stellar Environmental Solutions  
Project: 2007-65  
Location: Bay Center Apts  
Request Date: 09/24/08  
Samples Received: 09/24/08

This hardcopy data package contains sample and QC results for eighteen water samples, requested for the above referenced project on 09/24/08. The samples were received cold and intact.

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

High response was observed for ethylbenzene in the CCV analyzed 09/29/08 12:09; affected data was qualified with "b". No other analytical problems were encountered.

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

MW-13 (lab # 206314-011) was diluted due to the dark and viscous nature of the sample extract. No other analytical problems were encountered.

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-3	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-001	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	280 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	1.0 C	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)	110	61-149	EPA 8015B
Bromofluorobenzene (FID)	104	65-146	EPA 8015B
Trifluorotoluene (PID)	76	52-143	EPA 8021B
Bromofluorobenzene (PID)	76	56-141	EPA 8021B

Field ID: MW-4	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-002	Analyzed: 09/28/08
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)	93	61-149	EPA 8015B
Bromofluorobenzene (FID)	92	65-146	EPA 8015B
Trifluorotoluene (PID)	72	52-143	EPA 8021B
Bromofluorobenzene (PID)	72	56-141	EPA 8021B

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



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-5	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-003	Analyzed: 09/27/08
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)	94	61-149	EPA 8015B
Bromofluorobenzene (FID)	91	65-146	EPA 8015B
Trifluorotoluene (PID)	74	52-143	EPA 8021B
Bromofluorobenzene (PID)	72	56-141	EPA 8021B

Field ID: MW-6	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-004	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	0.91 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	94	61-149	EPA 8015B
Bromofluorobenzene (FID)	92	65-146	EPA 8015B
Trifluorotoluene (PID)	74	52-143	EPA 8021B
Bromofluorobenzene (PID)	73	56-141	EPA 8021B

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

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-7	Batch#: 143002
Type: SAMPLE	Sampled: 09/22/08
Lab ID: 206314-005	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,200	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	330 C	0.50	EPA 8021B
Toluene	12 C	0.50	EPA 8021B
Ethylbenzene	21 C	0.50	EPA 8021B
m,p-Xylenes	68 C	0.50	EPA 8021B
o-Xylene	20 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	84	61-149	EPA 8015B
Bromofluorobenzene (FID)	84	65-146	EPA 8015B
Trifluorotoluene (PID)	67	52-143	EPA 8021B
Bromofluorobenzene (PID)	66	56-141	EPA 8021B

Field ID: MW-8	Batch#: 143047
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-006	Analyzed: 09/29/08
Diln Fac: 50.00	

Analyte	Result	RL	Analysis
Gasoline C7-C12	35,000 Y	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	11,000	25	EPA 8021B
Toluene	190	25	EPA 8021B
Ethylbenzene	900	25	EPA 8021B
m,p-Xylenes	360	25	EPA 8021B
o-Xylene	42	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	115	61-149	EPA 8015B
Bromofluorobenzene (FID)	100	65-146	EPA 8015B
Trifluorotoluene (PID)	112	52-143	EPA 8021B
Bromofluorobenzene (PID)	98	56-141	EPA 8021B

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

### Curtis & Tompkins Laboratories Analytical Report

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-9	Batch#: 143002
Type: SAMPLE	Sampled: 09/22/08
Lab ID: 206314-007	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	130 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	4.6 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	93	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	72	52-143	EPA 8021B
Bromofluorobenzene (PID)	71	56-141	EPA 8021B

Field ID: MW-10	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-008	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,200 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	350 C	0.50	EPA 8021B
Toluene	11 C	0.50	EPA 8021B
Ethylbenzene	3.4 C	0.50	EPA 8021B
m,p-Xylenes	8.7 C	0.50	EPA 8021B
o-Xylene	2.3 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	107	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	82	52-143	EPA 8021B
Bromofluorobenzene (PID)	73	56-141	EPA 8021B

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

**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-11	Batch#: 143002
Type: SAMPLE	Sampled: 09/22/08
Lab ID: 206314-009	Analyzed: 09/27/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,200 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	260 C	0.50	EPA 8021B
Toluene	20 C	0.50	EPA 8021B
Ethylbenzene	34 C	0.50	EPA 8021B
m,p-Xylenes	49 C	0.50	EPA 8021B
o-Xylene	11 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	123	61-149	EPA 8015B
Bromofluorobenzene (FID)	90	65-146	EPA 8015B
Trifluorotoluene (PID)	83	52-143	EPA 8021B
Bromofluorobenzene (PID)	72	56-141	EPA 8021B

Field ID: MW-12	Lab ID: 206314-010
Type: SAMPLE	Sampled: 09/23/08

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	14,000 Y	250	5.000	143002	09/28/08	EPA 8015B
MTBE	ND	10	5.000	143002	09/28/08	EPA 8021B
Benzene	6,200	25	50.00	143047	09/30/08	EPA 8021B
Toluene	79 C	2.5	5.000	143002	09/28/08	EPA 8021B
Ethylbenzene	18 C	2.5	5.000	143002	09/28/08	EPA 8021B
m,p-Xylenes	69 C	2.5	5.000	143002	09/28/08	EPA 8021B
o-Xylene	14 C	2.5	5.000	143002	09/28/08	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	110	61-149	5.000	143002	09/28/08	EPA 8015B
Bromofluorobenzene (FID)	94	65-146	5.000	143002	09/28/08	EPA 8015B
Trifluorotoluene (PID)	90	52-143	5.000	143002	09/28/08	EPA 8021B
Bromofluorobenzene (PID)	75	56-141	5.000	143002	09/28/08	EPA 8021B

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

### Curtis & Tompkins Laboratories Analytical Report

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-13	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-011	Analyzed: 09/28/08
Diln Fac: 50.00	

Analyte	Result	RL	Analysis
Gasoline C7-C12	52,000	2,500	EPA 8015B
MTBE	ND	100	EPA 8021B
Benzene	13,000 C	25	EPA 8021B
Toluene	500 C	25	EPA 8021B
Ethylbenzene	1,600 C	25	EPA 8021B
m,p-Xylenes	1,300 C	25	EPA 8021B
o-Xylene	200 C	25	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	103	61-149	EPA 8015B
Bromofluorobenzene (FID)	95	65-146	EPA 8015B
Trifluorotoluene (PID)	80	52-143	EPA 8021B
Bromofluorobenzene (PID)	74	56-141	EPA 8021B

Field ID: MW-14	Batch#: 143047
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-012	Analyzed: 09/30/08
Diln Fac: 5.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,100	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	1,300	2.5	EPA 8021B
Toluene	50	2.5	EPA 8021B
Ethylbenzene	80	2.5	EPA 8021B
m,p-Xylenes	48	2.5	EPA 8021B
o-Xylene	13	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	114	61-149	EPA 8015B
Bromofluorobenzene (FID)	99	65-146	EPA 8015B
Trifluorotoluene (PID)	109	52-143	EPA 8021B
Bromofluorobenzene (PID)	96	56-141	EPA 8021B

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



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-15                      Lab ID: 206314-013  
 Type: SAMPLE                        Sampled: 09/23/08

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Analysis
Gasoline C7-C12	18,000 Y	250	5.000	143002	09/28/08	EPA 8015B
MTBE	ND	10	5.000	143002	09/28/08	EPA 8021B
Benzene	7,800	25	50.00	143047	09/30/08	EPA 8021B
Toluene	73 C	2.5	5.000	143002	09/28/08	EPA 8021B
Ethylbenzene	270 C	2.5	5.000	143002	09/28/08	EPA 8021B
m,p-Xylenes	55 C	2.5	5.000	143002	09/28/08	EPA 8021B
o-Xylene	4.9 C	2.5	5.000	143002	09/28/08	EPA 8021B

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	102	61-149	5.000	143002	09/28/08	EPA 8015B
Bromofluorobenzene (FID)	93	65-146	5.000	143002	09/28/08	EPA 8015B
Trifluorotoluene (PID)	87	52-143	5.000	143002	09/28/08	EPA 8021B
Bromofluorobenzene (PID)	72	56-141	5.000	143002	09/28/08	EPA 8021B

Field ID: MW-16                      Batch#: 143002  
 Type: SAMPLE                        Sampled: 09/23/08  
 Lab ID: 206314-014                Analyzed: 09/27/08  
 Diln Fac: 1.000

Analyte	Result	RL	Analysis
Gasoline C7-C12	64 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	9.9 C	0.50	EPA 8021B
Toluene	1.9 C	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	89	61-149	EPA 8015B
Bromofluorobenzene (FID)	86	65-146	EPA 8015B
Trifluorotoluene (PID)	70	52-143	EPA 8021B
Bromofluorobenzene (PID)	68	56-141	EPA 8021B

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

### Curtis & Tompkins Laboratories Analytical Report

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-17	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-015	Analyzed: 09/28/08
Diln Fac: 5.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,500 Y	250	EPA 8015B
MTBE	ND	10	EPA 8021B
Benzene	900 C	2.5	EPA 8021B
Toluene	63 C	2.5	EPA 8021B
Ethylbenzene	69 C	2.5	EPA 8021B
m,p-Xylenes	53 C	2.5	EPA 8021B
o-Xylene	16 C	2.5	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	116	61-149	EPA 8015B
Bromofluorobenzene (FID)	96	65-146	EPA 8015B
Trifluorotoluene (PID)	84	52-143	EPA 8021B
Bromofluorobenzene (PID)	74	56-141	EPA 8021B

Field ID: MW-18	Batch#: 143002
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-016	Analyzed: 09/28/08
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)	87	61-149	EPA 8015B
Bromofluorobenzene (FID)	86	65-146	EPA 8015B
Trifluorotoluene (PID)	67	52-143	EPA 8021B
Bromofluorobenzene (PID)	66	56-141	EPA 8021B

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

### Curtis & Tompkins Laboratories Analytical Report

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Field ID: MW-E	Batch#: 143047
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-017	Analyzed: 09/30/08
Diln Fac: 25.00	

Analyte	Result	RL	Analysis
Gasoline C7-C12	11,000	1,300	EPA 8015B
MTBE	ND	50	EPA 8021B
Benzene	3,800	13	EPA 8021B
Toluene	170	13	EPA 8021B
Ethylbenzene	130	13	EPA 8021B
m,p-Xylenes	200	13	EPA 8021B
o-Xylene	57	13	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	103	61-149	EPA 8015B
Bromofluorobenzene (FID)	99	65-146	EPA 8015B
Trifluorotoluene (PID)	105	52-143	EPA 8021B
Bromofluorobenzene (PID)	97	56-141	EPA 8021B

Field ID: RW-1	Batch#: 143047
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-018	Analyzed: 09/30/08
Diln Fac: 1.000	

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,400	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	280	0.50	EPA 8021B
Toluene	9.8	0.50	EPA 8021B
Ethylbenzene	10	0.50	EPA 8021B
m,p-Xylenes	4.2	0.50	EPA 8021B
o-Xylene	1.5	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	127	61-149	EPA 8015B
Bromofluorobenzene (FID)	106	65-146	EPA 8015B
Trifluorotoluene (PID)	125	52-143	EPA 8021B
Bromofluorobenzene (PID)	99	56-141	EPA 8021B

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



**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 5030B
Project#: 2007-65	
Matrix: Water	Received: 09/24/08
Units: ug/L	

Type: BLANK	Batch#: 143002
Lab ID: QC462444	Analyzed: 09/27/08
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)	93	61-149	EPA 8015B
Bromofluorobenzene (FID)	89	65-146	EPA 8015B
Trifluorotoluene (PID)	73	52-143	EPA 8021B
Bromofluorobenzene (PID)	72	56-141	EPA 8021B

Type: BLANK	Batch#: 143047
Lab ID: QC462625	Analyzed: 09/29/08
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)	105	61-149	EPA 8015B
Bromofluorobenzene (FID)	106	65-146	EPA 8015B
Trifluorotoluene (PID)	104	52-143	EPA 8021B
Bromofluorobenzene (PID)	105	56-141	EPA 8021B

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

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC462445	Batch#:	143002
Matrix:	Water	Analyzed:	09/27/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.891	89	61-143
Benzene	10.00	9.593	96	80-120
Toluene	10.00	10.13	101	77-120
Ethylbenzene	10.00	10.39	104	79-123
m,p-Xylenes	10.00	10.04	100	78-123
o-Xylene	10.00	10.13	101	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	73	52-143
Bromofluorobenzene (PID)	72	56-141

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC462446	Batch#:	143002
Matrix:	Water	Analyzed:	09/27/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,032	103	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	61-149
Bromofluorobenzene (FID)	93	65-146

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	MW-3	Batch#:	143002
MSS Lab ID:	206314-001	Sampled:	09/23/08
Matrix:	Water	Received:	09/24/08
Units:	ug/L	Analyzed:	09/27/08
Diln Fac:	1.000		

Type: MS Lab ID: QC462447

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	276.2	2,000	2,035	88	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	61-149
Bromofluorobenzene (FID)	108	65-146

Type: MSD Lab ID: QC462448

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,981	85	65-120	3	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	118	61-149
Bromofluorobenzene (FID)	102	65-146

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC462626	Batch#:	143047
Matrix:	Water	Analyzed:	09/29/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	970.4	97	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	61-149
Bromofluorobenzene (FID)	107	65-146

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC462627	Batch#:	143047
Matrix:	Water	Analyzed:	09/29/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.00	100	61-143
Benzene	10.00	11.22	112	80-120
Toluene	10.00	11.05	110	77-120
Ethylbenzene	10.00	11.79 b	118	79-123
m,p-Xylenes	10.00	11.44	114	78-123
o-Xylene	10.00	10.45	105	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	106	52-143
Bromofluorobenzene (PID)	104	56-141

b= See narrative

## Batch QC Report

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2007-65	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	143047
MSS Lab ID:	206385-001	Sampled:	09/25/08
Matrix:	Water	Received:	09/25/08
Units:	ug/L	Analyzed:	09/29/08
Diln Fac:	1.000		

Type: MS Lab ID: QC462632

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	79.71	2,000	1,918	92	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	127	61-149
Bromofluorobenzene (FID)	106	65-146

Type: MSD Lab ID: QC462633

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,946	93	65-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	61-149
Bromofluorobenzene (FID)	105	65-146

RPD= Relative Percent Difference



































Total Extractable Hydrocarbons			
Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/24/08
Units:	ug/L	Prepared:	09/30/08
Batch#:	143086		

Field ID:	MW-3	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-001	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	1,700 Y	50

Surrogate	%REC	Limits
Hexacosane	76	58-127

Field ID:	MW-4	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-002	Analyzed:	10/02/08

Analyte	Result	RL
Diesel C10-C24	440 Y	50

Surrogate	%REC	Limits
Hexacosane	98	58-127

Field ID:	MW-5	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-003	Analyzed:	10/02/08

Analyte	Result	RL
Diesel C10-C24	4,200 Y	50

Surrogate	%REC	Limits
Hexacosane	88	58-127

Field ID:	MW-6	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-004	Analyzed:	10/01/08

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

Surrogate	%REC	Limits
Hexacosane	100	58-127

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

Total Extractable Hydrocarbons			
Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/24/08
Units:	ug/L	Prepared:	09/30/08
Batch#:	143086		

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/22/08
Lab ID:	206314-005	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	9,400 Y	50

Surrogate	%REC	Limits
Hexacosane	97	58-127

Field ID:	MW-8	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-006	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	13,000 Y	50

Surrogate	%REC	Limits
Hexacosane	112	58-127

Field ID:	MW-9	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/22/08
Lab ID:	206314-007	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	9,300 Y	50

Surrogate	%REC	Limits
Hexacosane	101	58-127

Field ID:	MW-10	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-008	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	4,700 Y	50

Surrogate	%REC	Limits
Hexacosane	119	58-127

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



Total Extractable Hydrocarbons			
Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/24/08
Units:	ug/L	Prepared:	09/30/08
Batch#:	143086		

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/22/08
Lab ID:	206314-009	Analyzed:	10/02/08

Analyte	Result	RL
Diesel C10-C24	5,600 Y	50

Surrogate	%REC	Limits
Hexacosane	95	58-127

Field ID:	MW-12	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-010	Analyzed:	10/01/08

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

Surrogate	%REC	Limits
Hexacosane	101	58-127

Field ID:	MW-13	Diln Fac:	50.00
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-011	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	440,000 Y	2,500

Surrogate	%REC	Limits
Hexacosane	DO	58-127

Field ID:	MW-14	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-012	Analyzed:	10/02/08

Analyte	Result	RL
Diesel C10-C24	2,500 Y	50

Surrogate	%REC	Limits
Hexacosane	105	58-127

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

Total Extractable Hydrocarbons			
Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Received:	09/24/08
Units:	ug/L	Prepared:	09/30/08
Batch#:	143086		

Field ID:	MW-15	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-013	Analyzed:	10/01/08

Analyte	Result	RL
Diesel C10-C24	3,400 Y	50

Surrogate	%REC	Limits
Hexacosane	105	58-127

Field ID:	MW-16	Diln Fac:	2.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-014	Analyzed:	10/02/08

Analyte	Result	RL
Diesel C10-C24	8,200 Y	100

Surrogate	%REC	Limits
Hexacosane	85	58-127

Field ID:	MW-17	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-015	Analyzed:	10/01/08

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

Surrogate	%REC	Limits
Hexacosane	114	58-127

Field ID:	MW-18	Diln Fac:	1.000
Type:	SAMPLE	Sampled:	09/23/08
Lab ID:	206314-016	Analyzed:	10/02/08

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

Surrogate	%REC	Limits
Hexacosane	109	58-127

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

**Total Extractable Hydrocarbons**

Lab #: 206314	Location: Bay Center Apts
Client: Stellar Environmental Solutions	Prep: EPA 3520C
Project#: 2007-65	Analysis: EPA 8015B
Matrix: Water	Received: 09/24/08
Units: ug/L	Prepared: 09/30/08
Batch#: 143086	

Field ID: MW-E	Diln Fac: 1.000
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-017	Analyzed: 10/02/08

Analyte	Result	RL
Diesel C10-C24	7,800 Y	50

Surrogate	%REC	Limits
Hexacosane	116	58-127

Field ID: RW-1	Diln Fac: 1.000
Type: SAMPLE	Sampled: 09/23/08
Lab ID: 206314-018	Analyzed: 10/01/08

Analyte	Result	RL
Diesel C10-C24	1,900 Y	50

Surrogate	%REC	Limits
Hexacosane	104	58-127

Type: BLANK	Diln Fac: 1.000
Lab ID: QC462833	Analyzed: 10/01/08

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	109	58-127

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

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	206314	Location:	Bay Center Apts
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2007-65	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	143086
Units:	ug/L	Prepared:	09/30/08
Diln Fac:	1.000	Analyzed:	10/01/08

Type: BS Lab ID: QC462834

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,492	100	52-120

Surrogate	%REC	Limits
Hexacosane	106	58-127

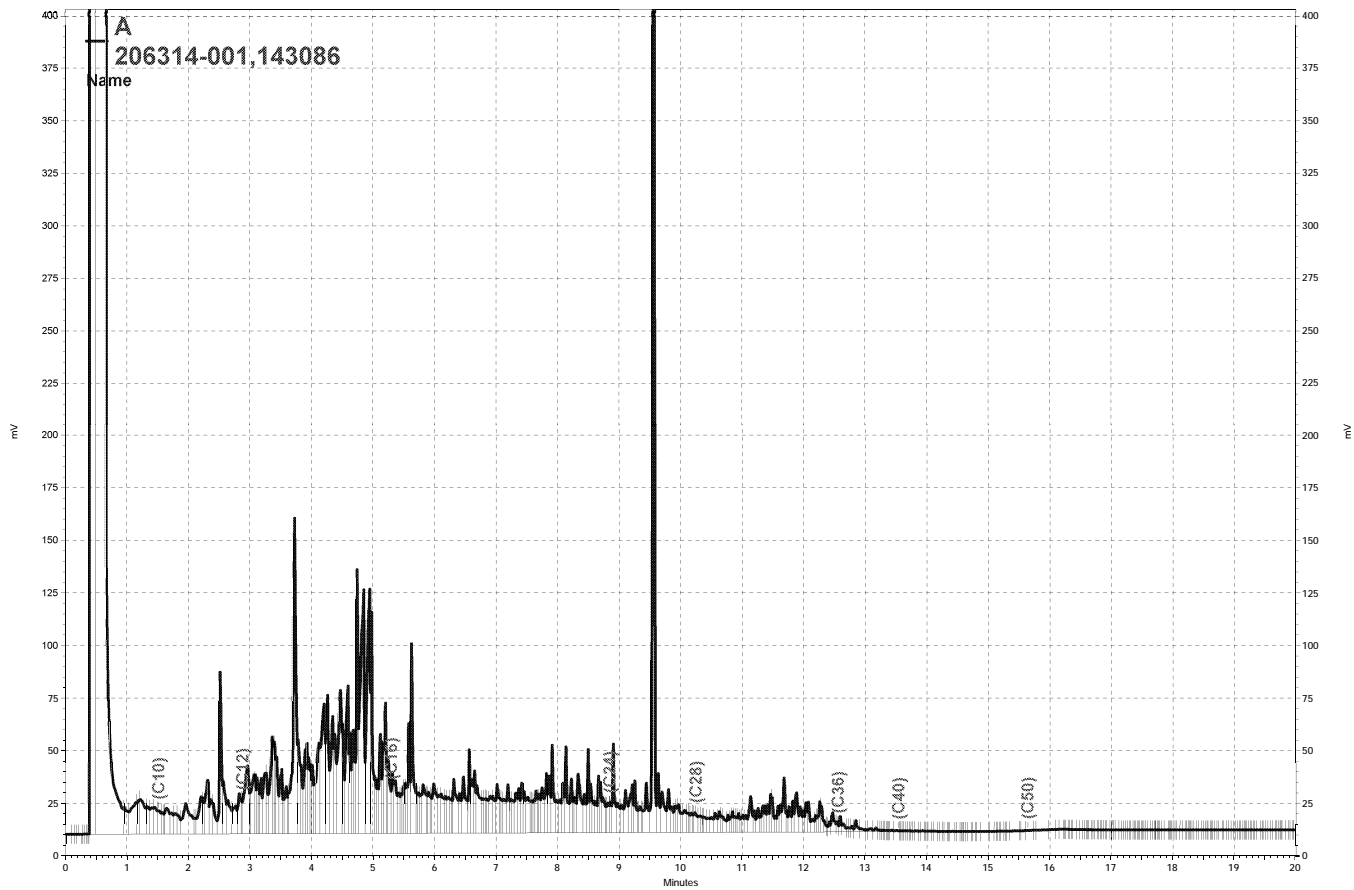
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Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,579	103	52-120	3	30

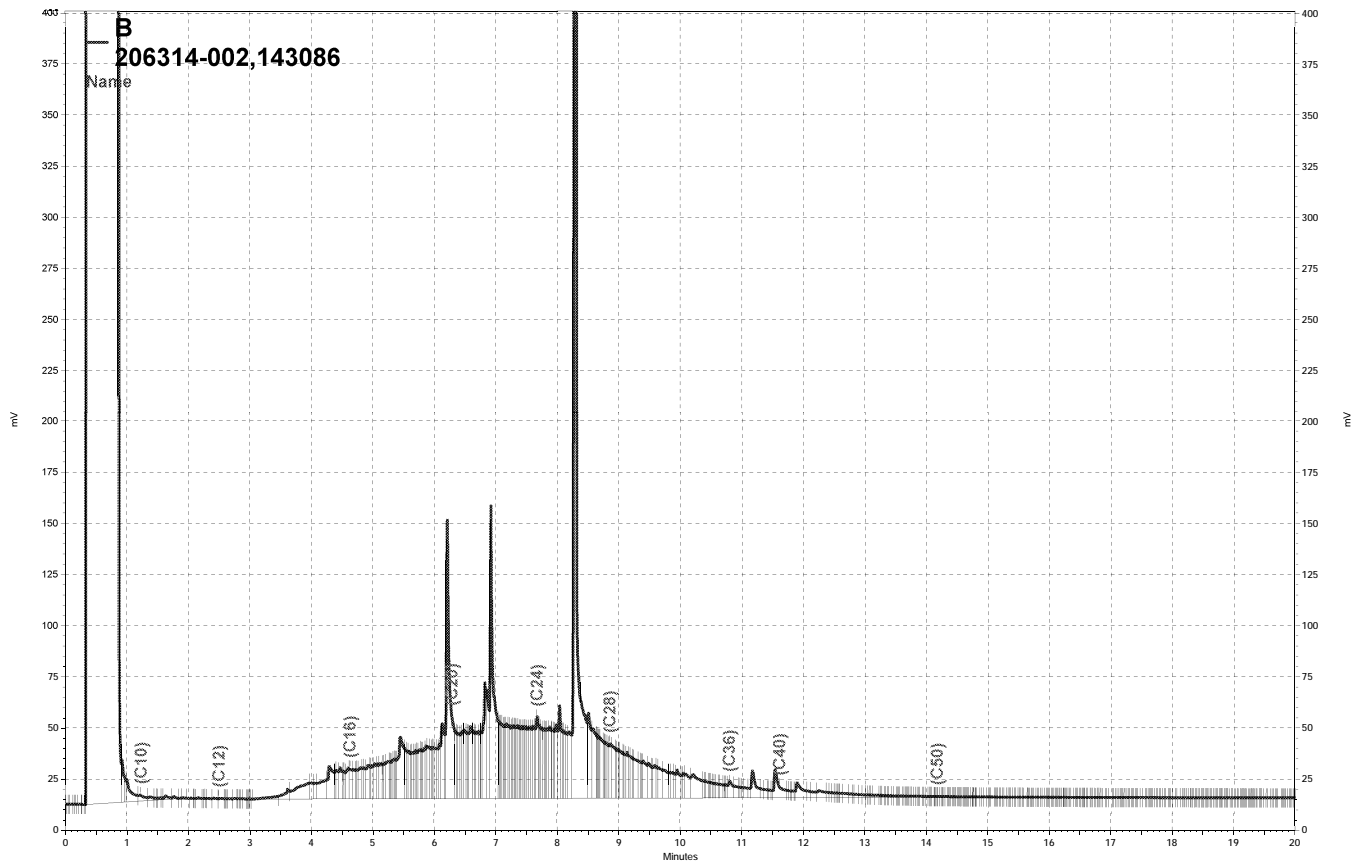
  

Surrogate	%REC	Limits
Hexacosane	111	58-127

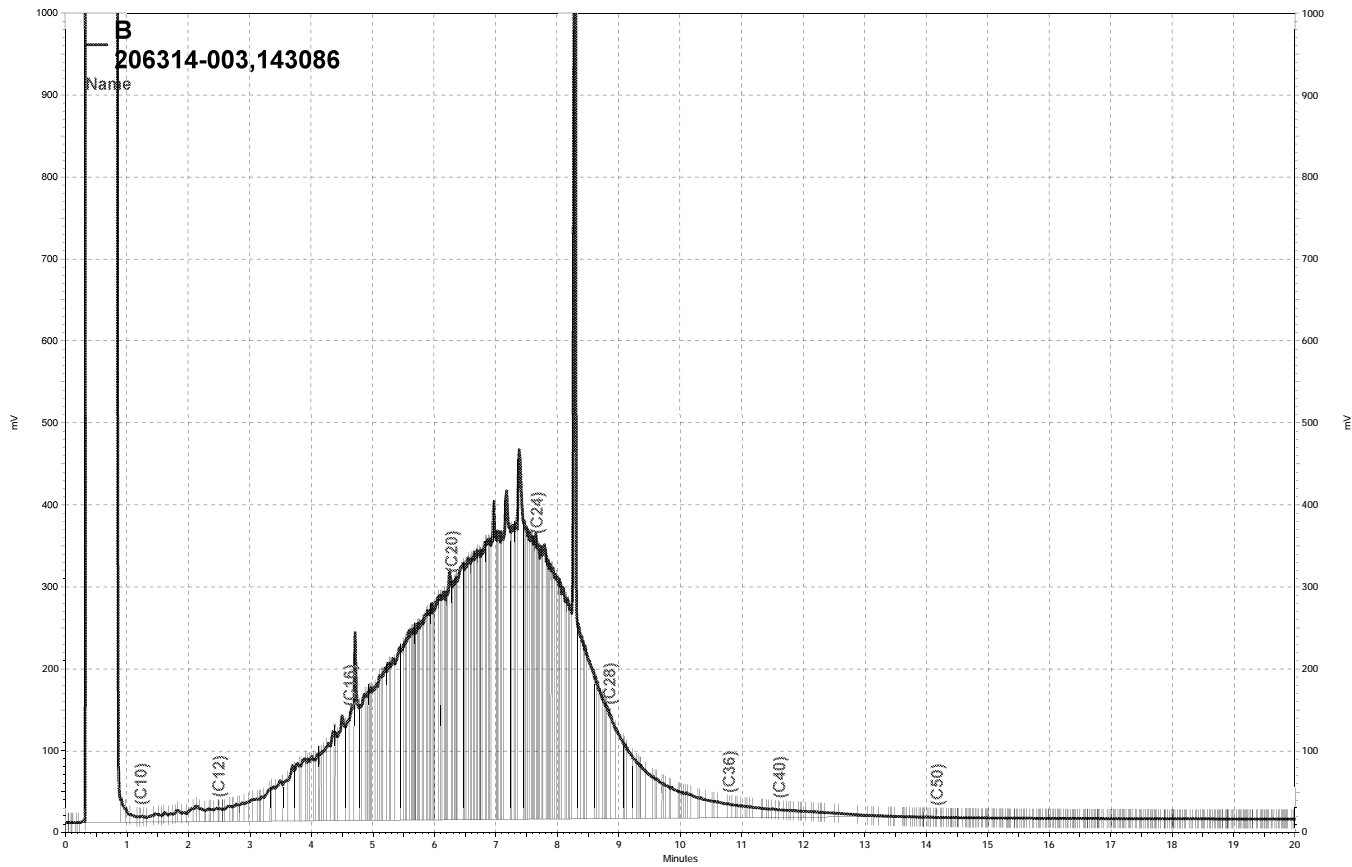
RPD= Relative Percent Difference



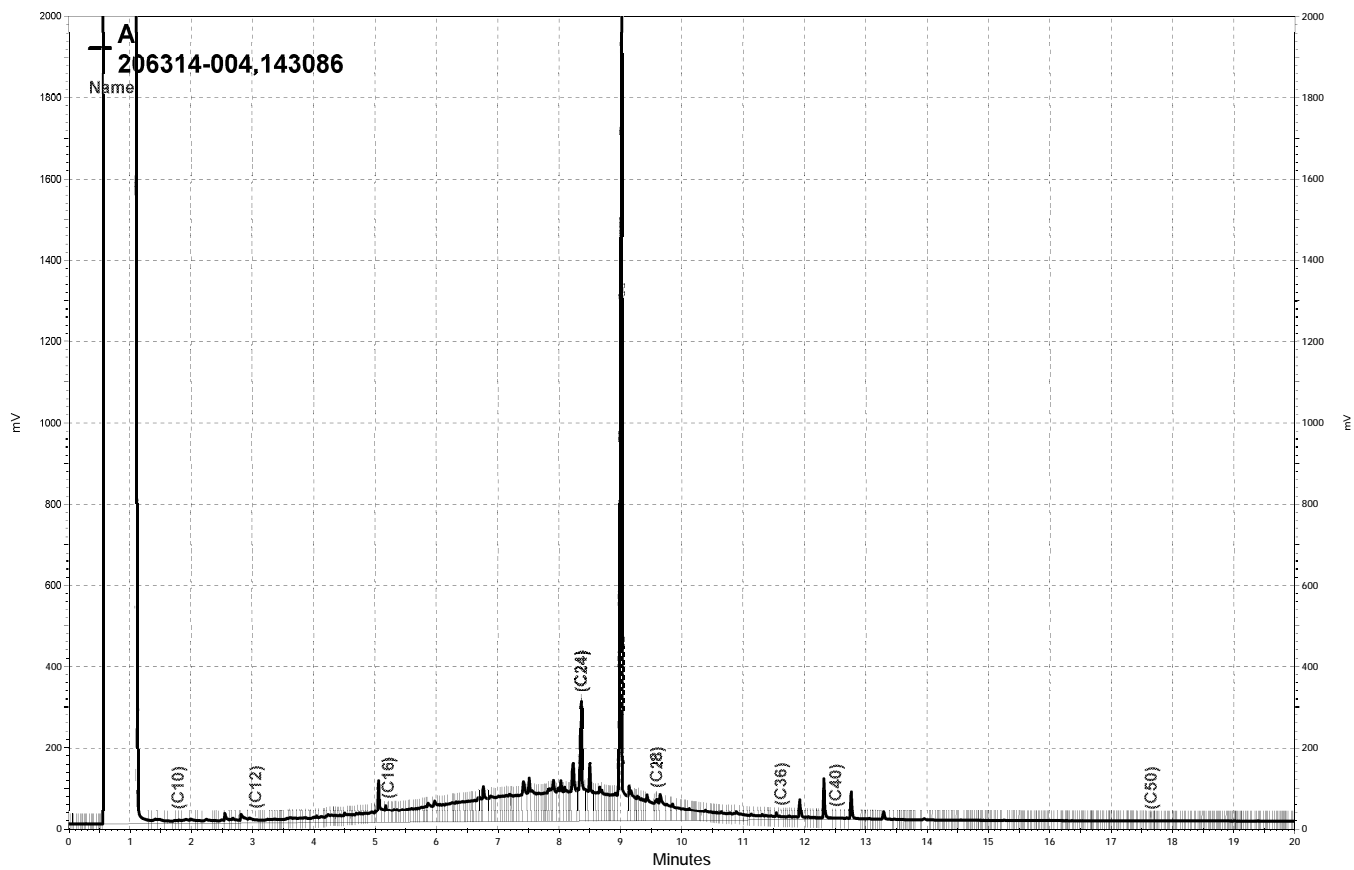
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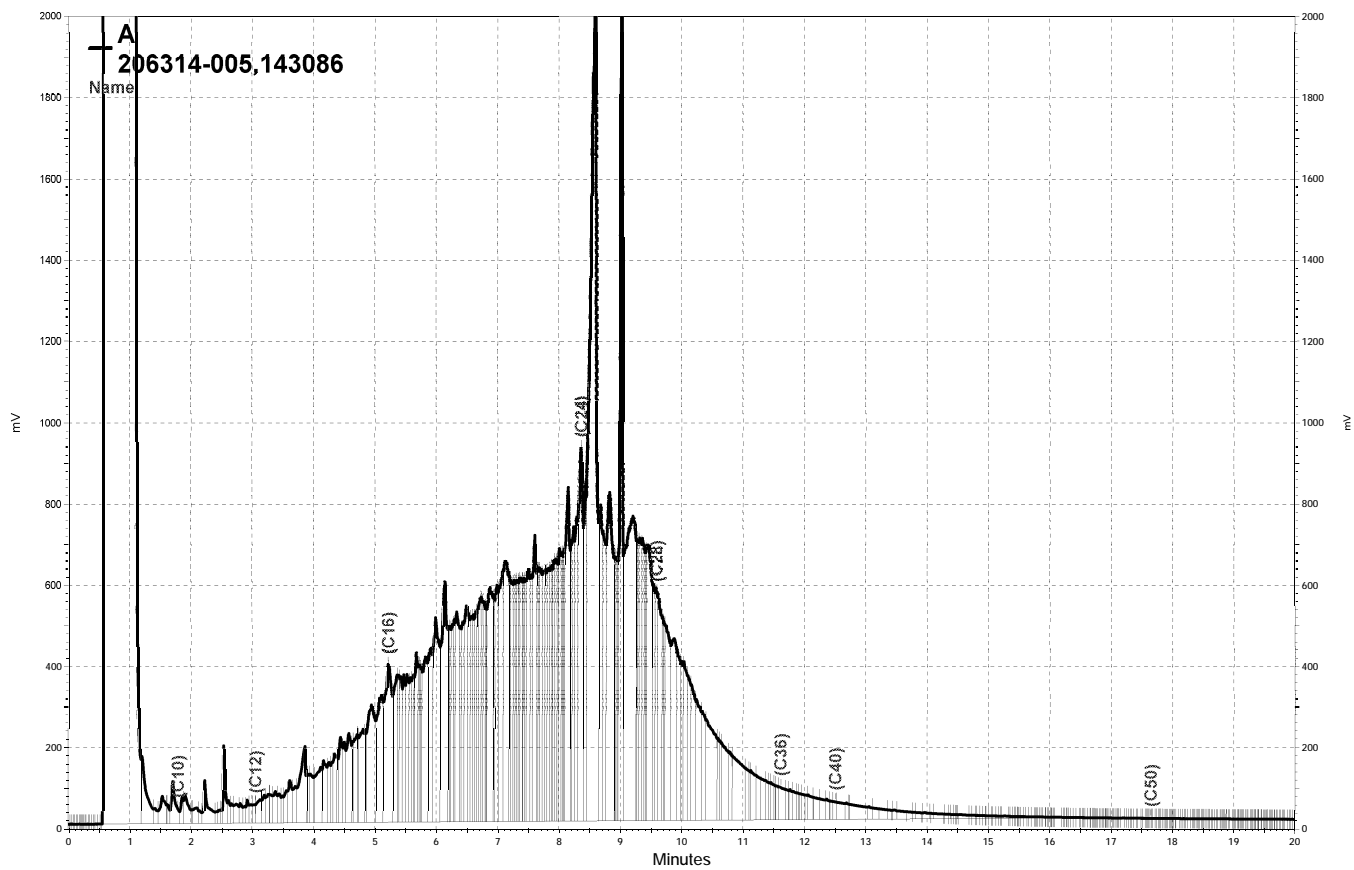


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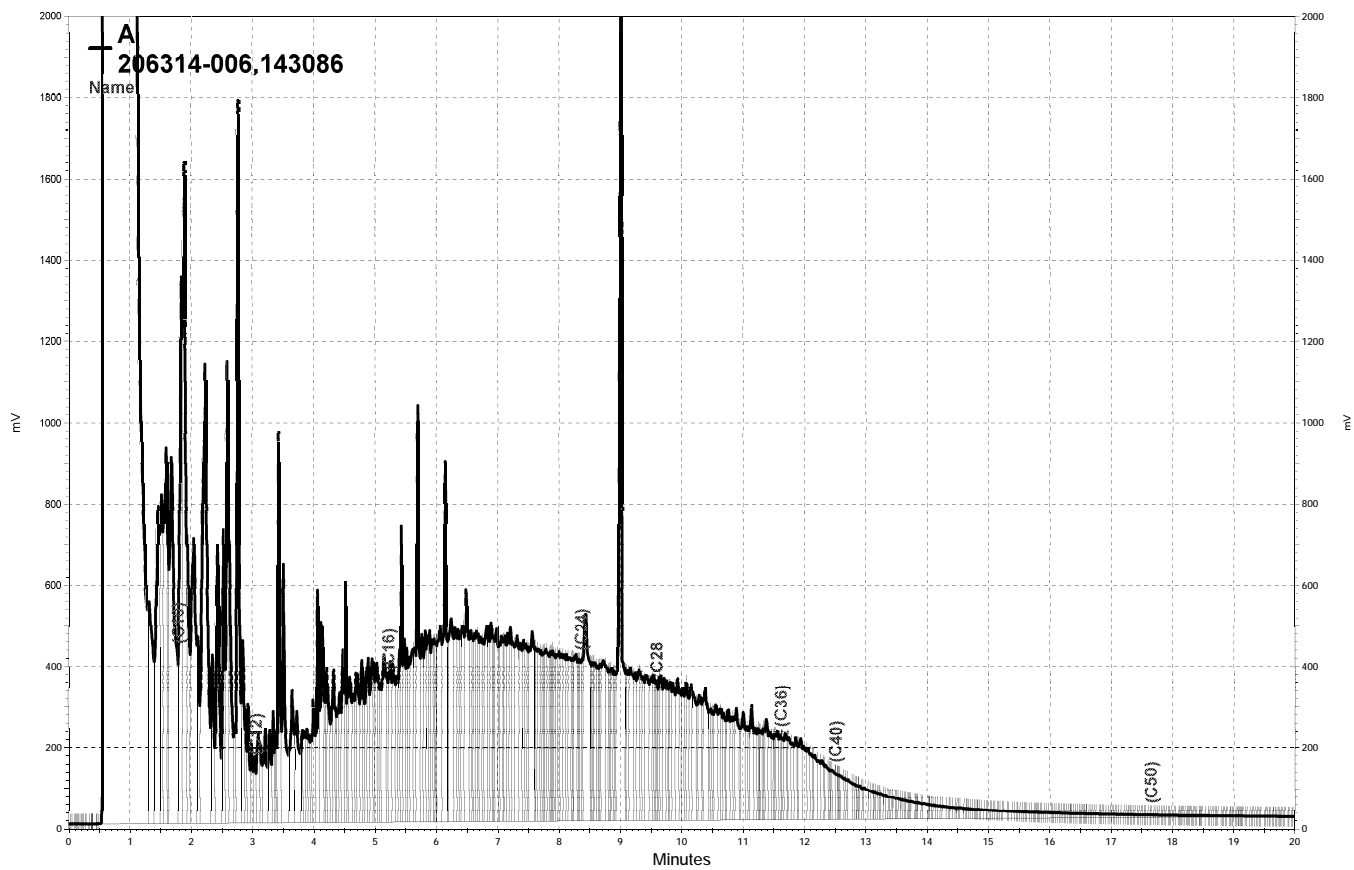


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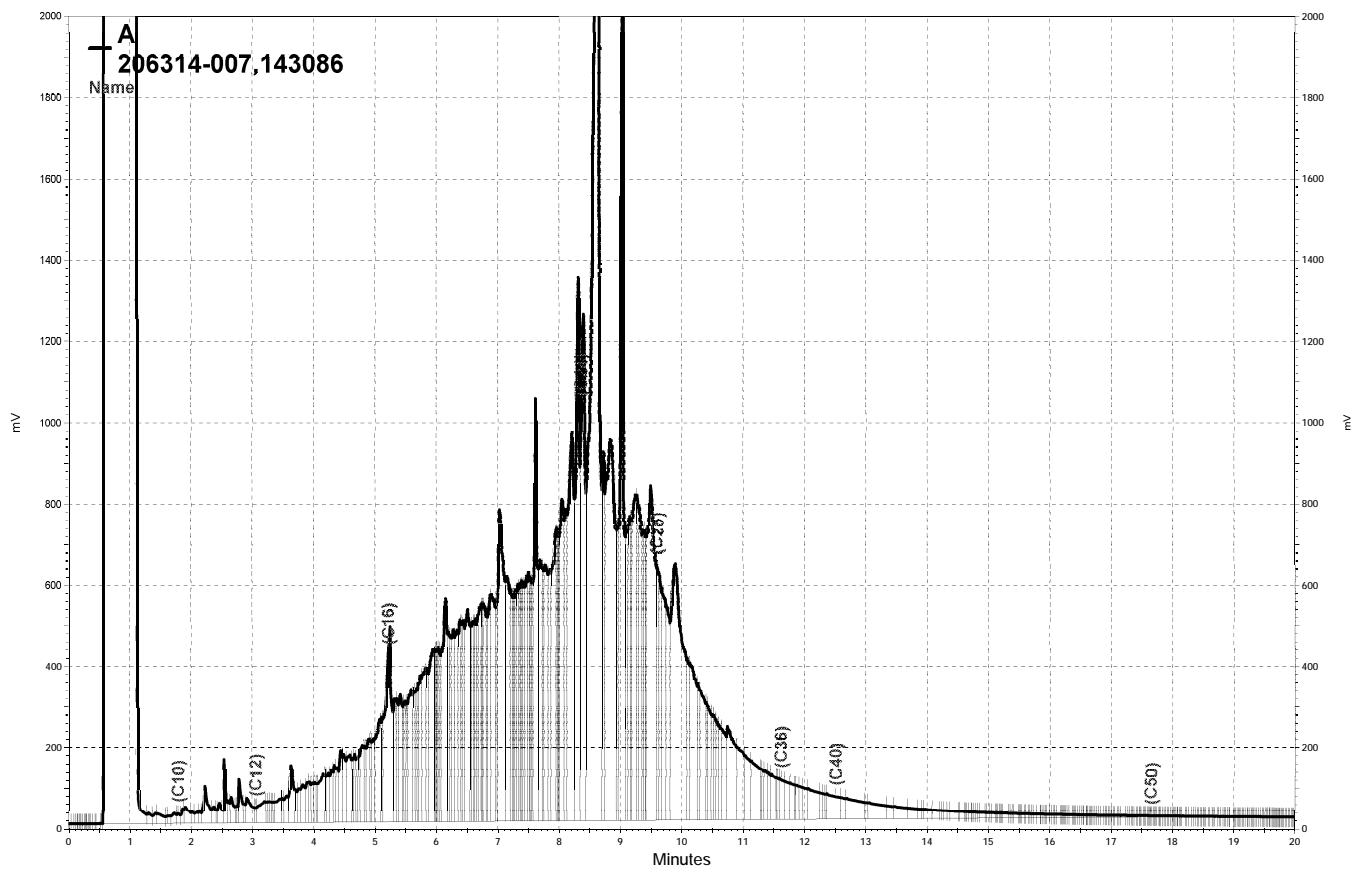




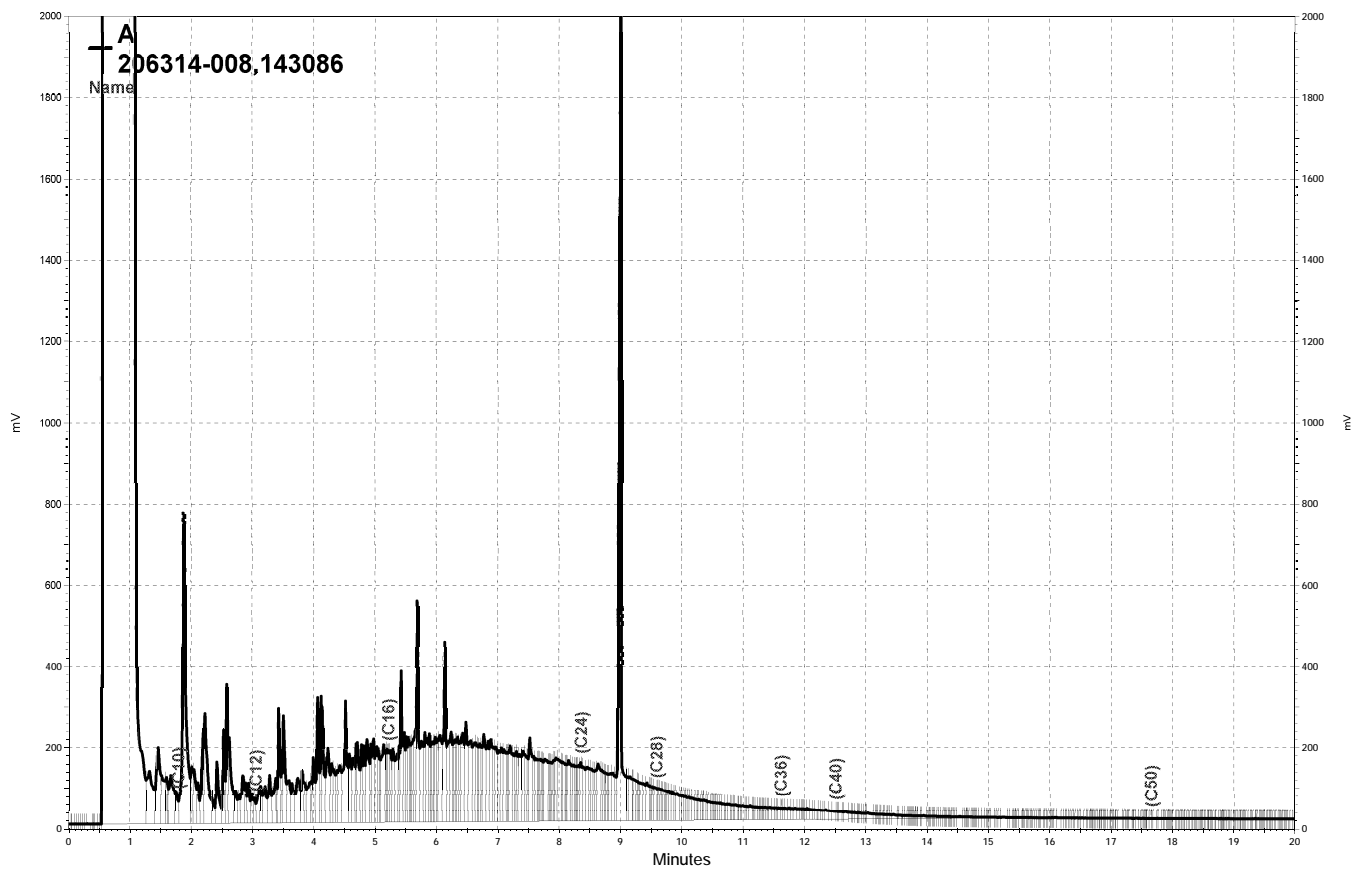
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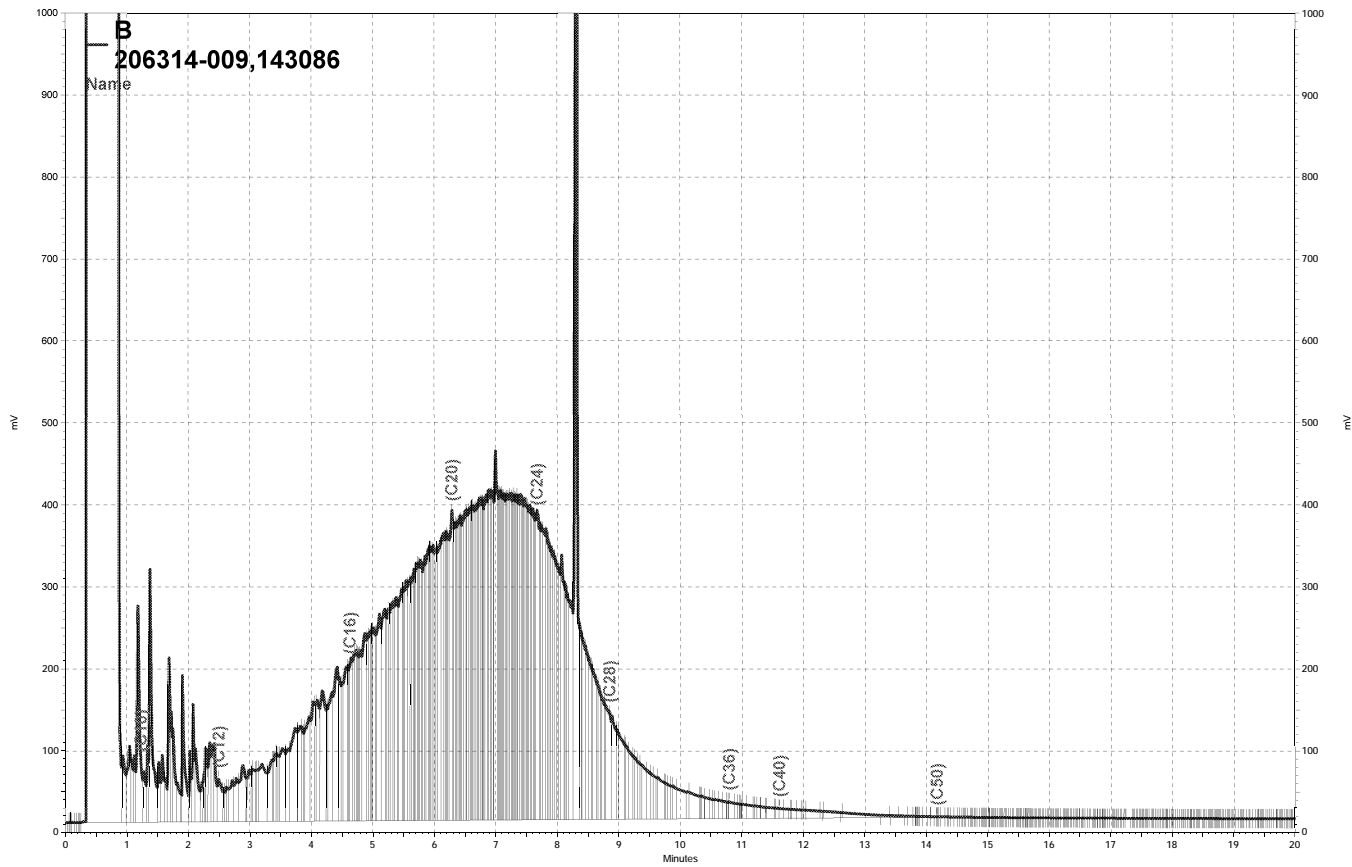
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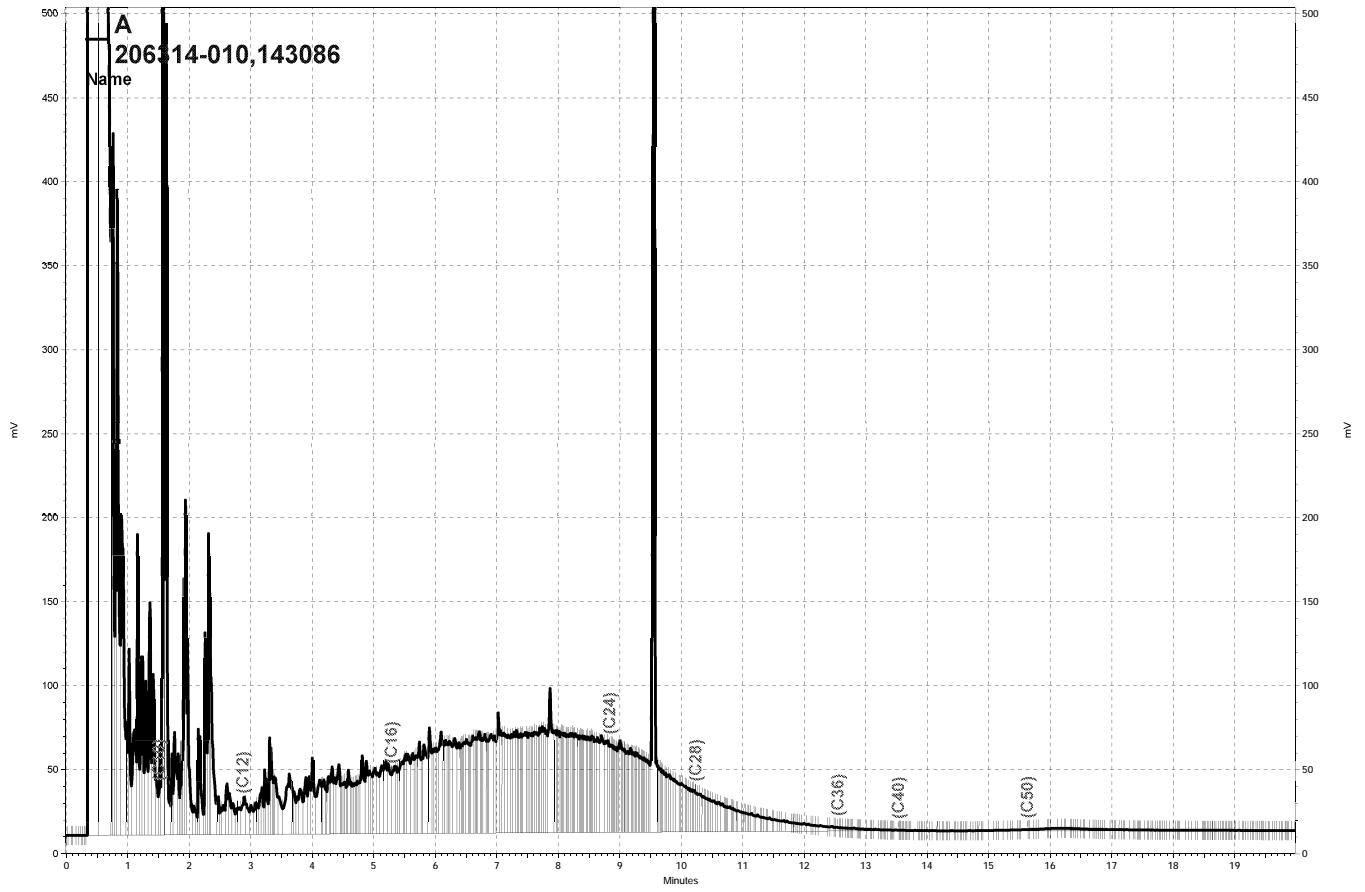
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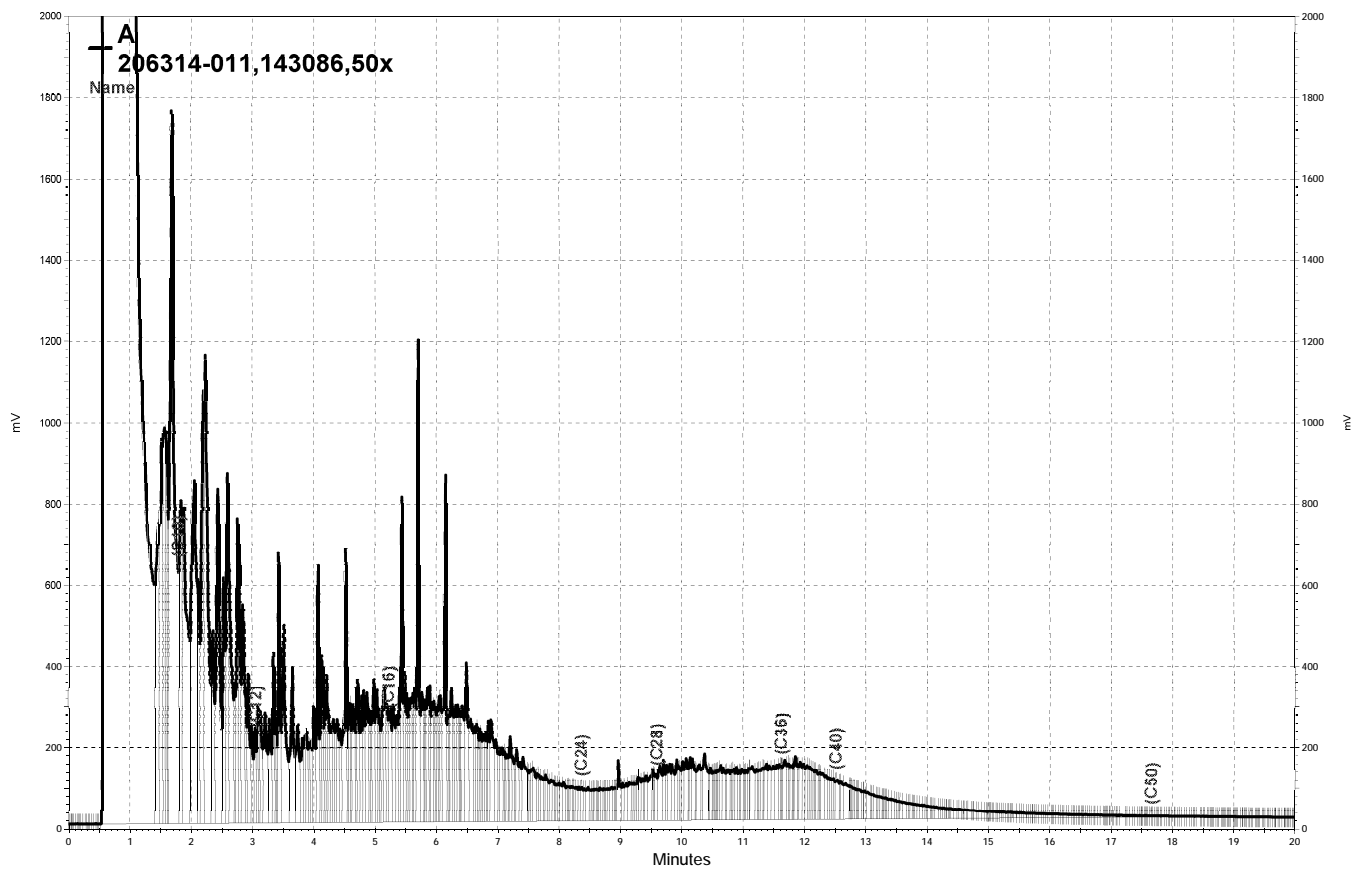
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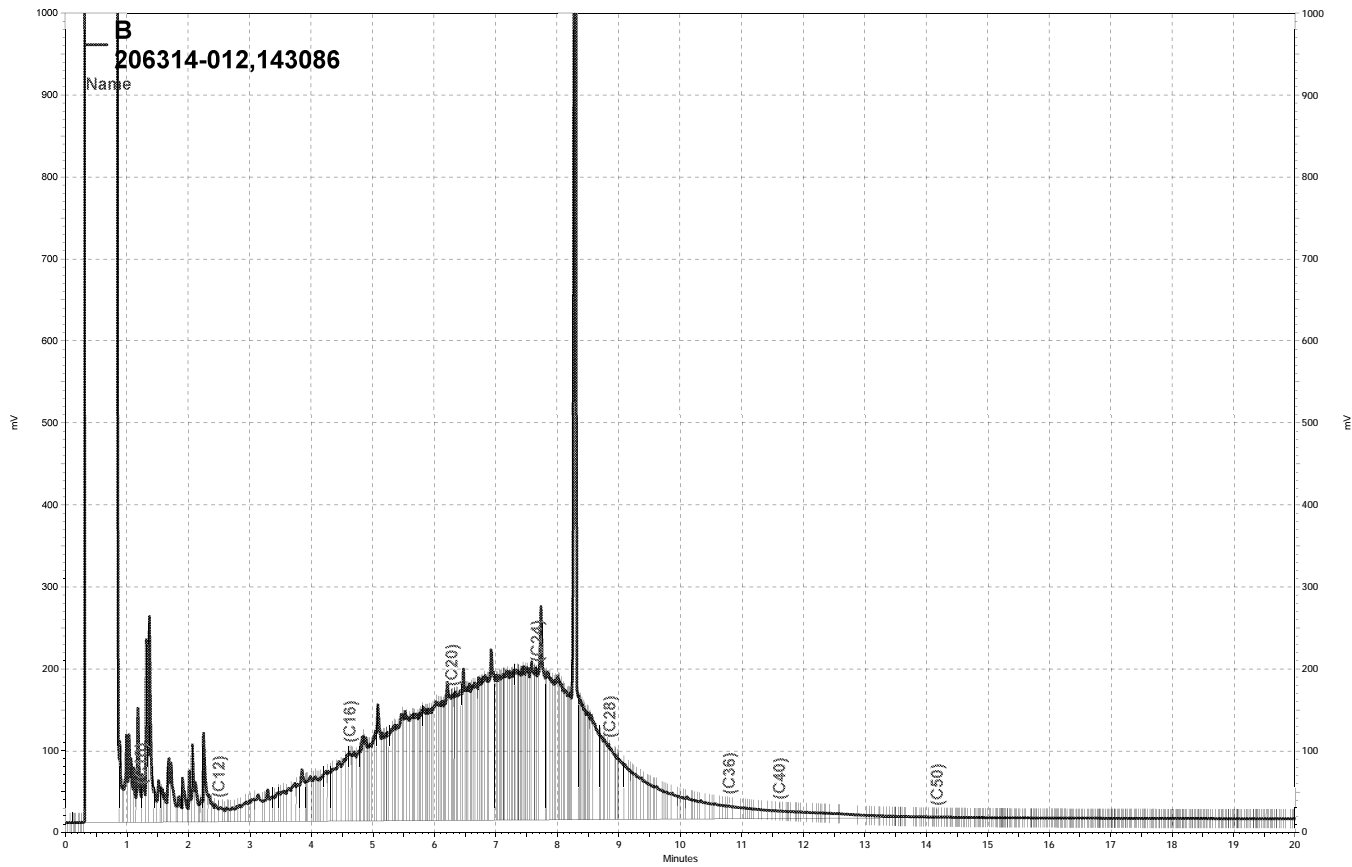
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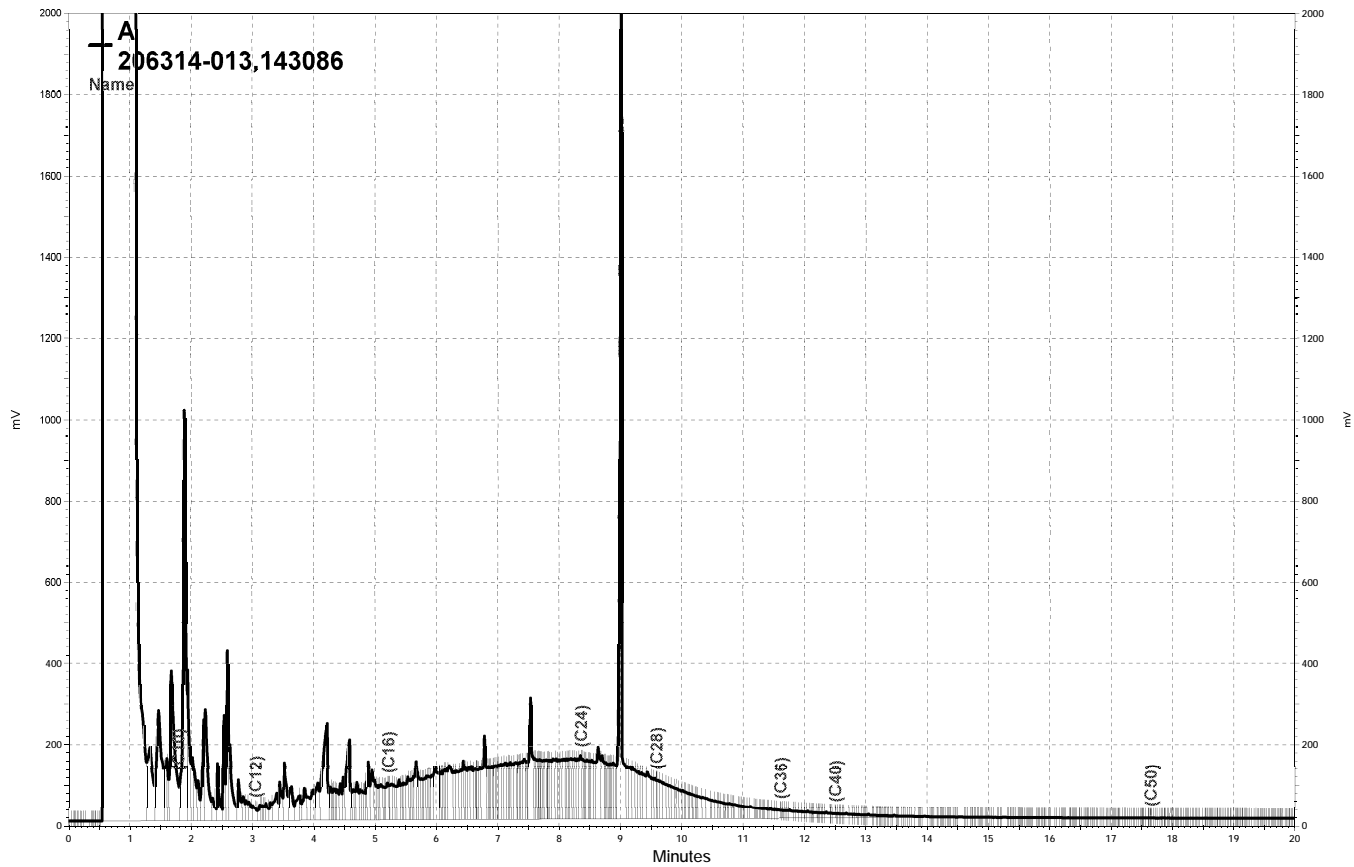


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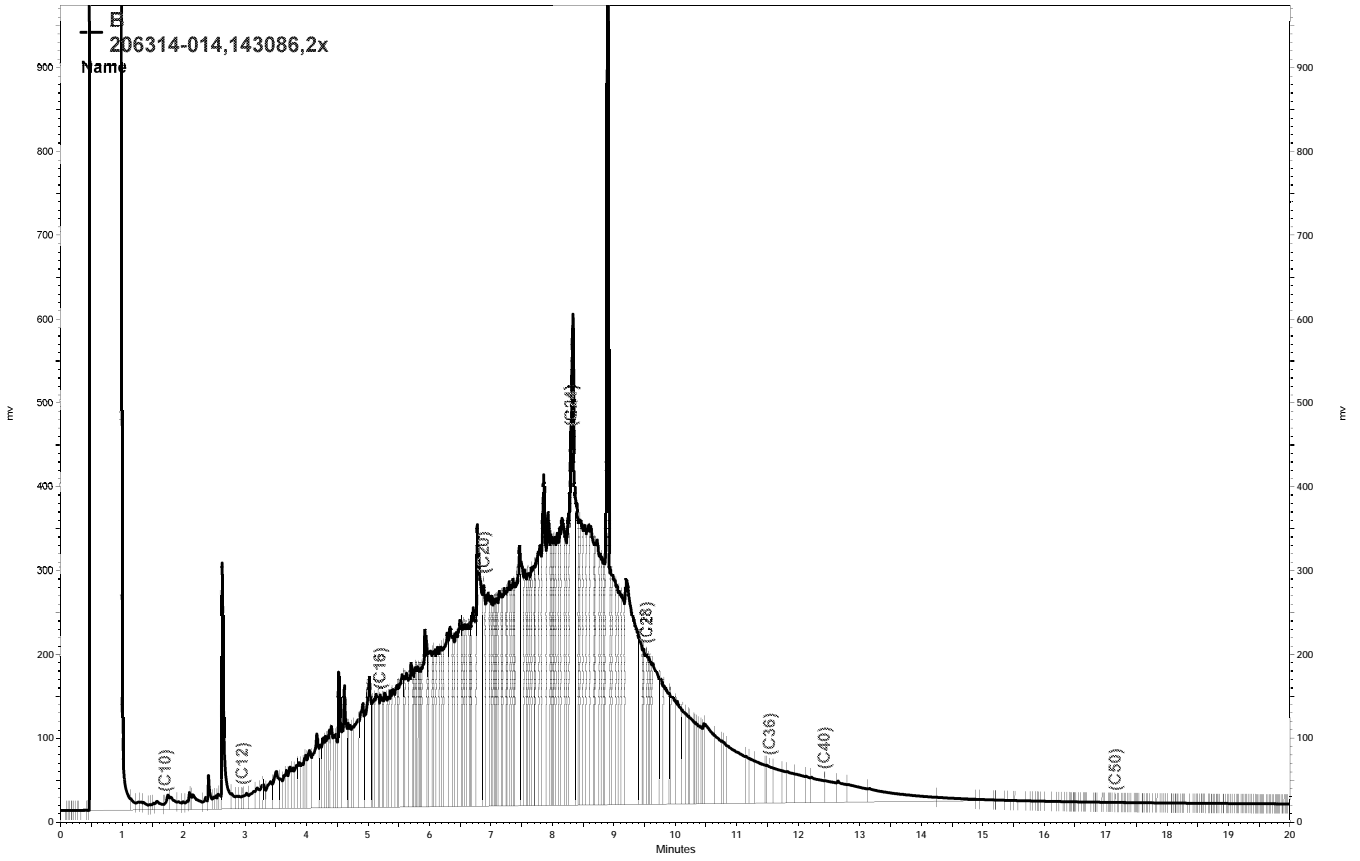


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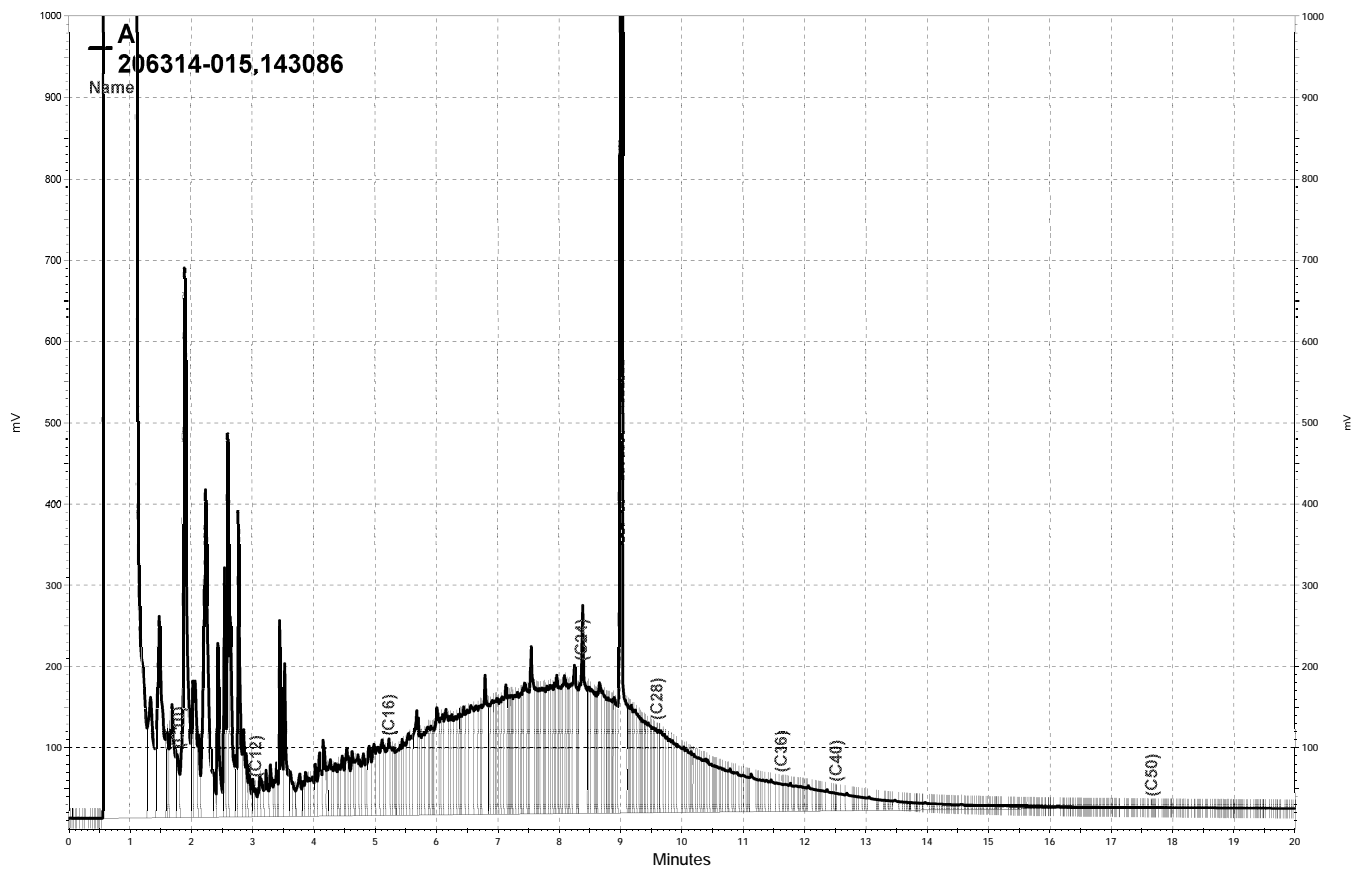




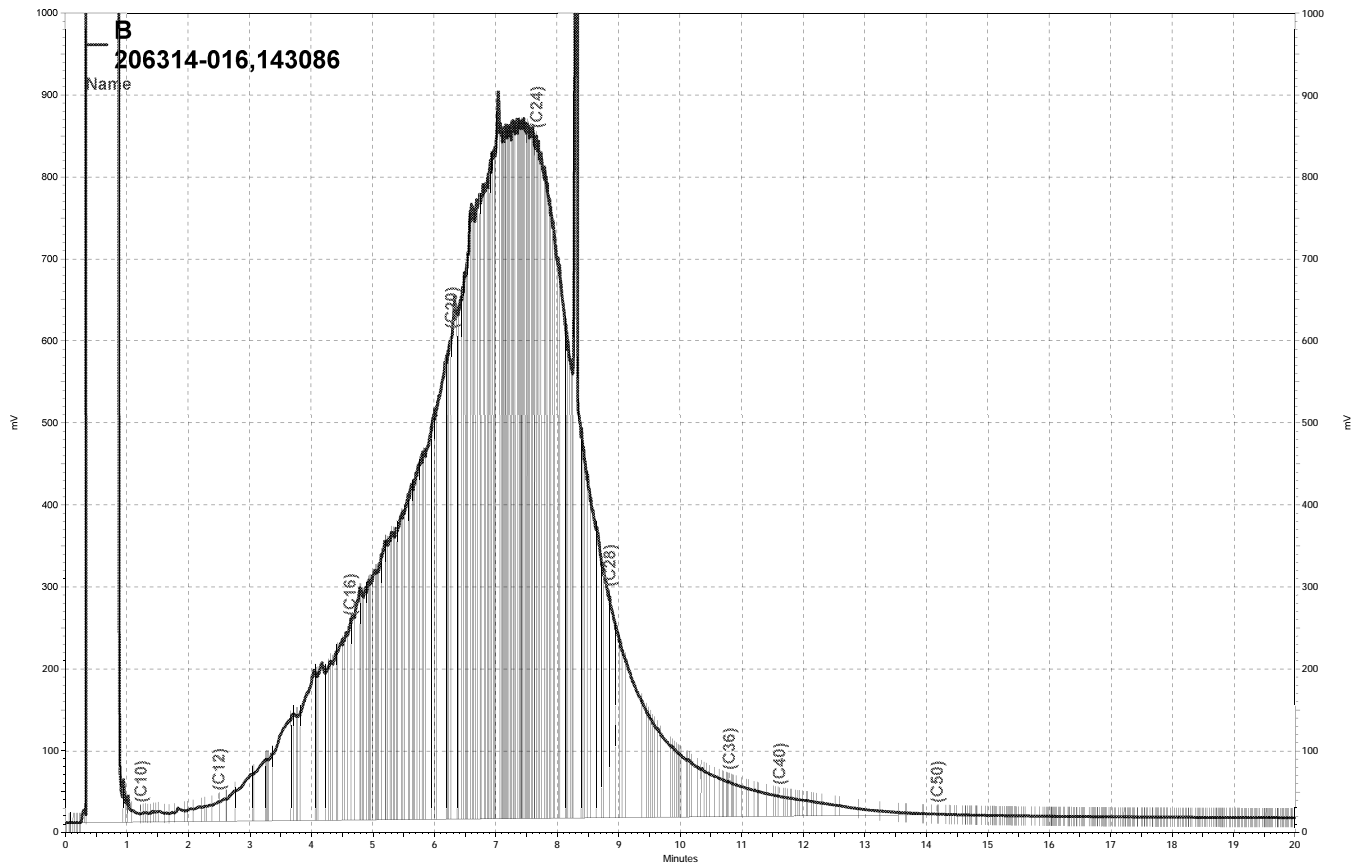
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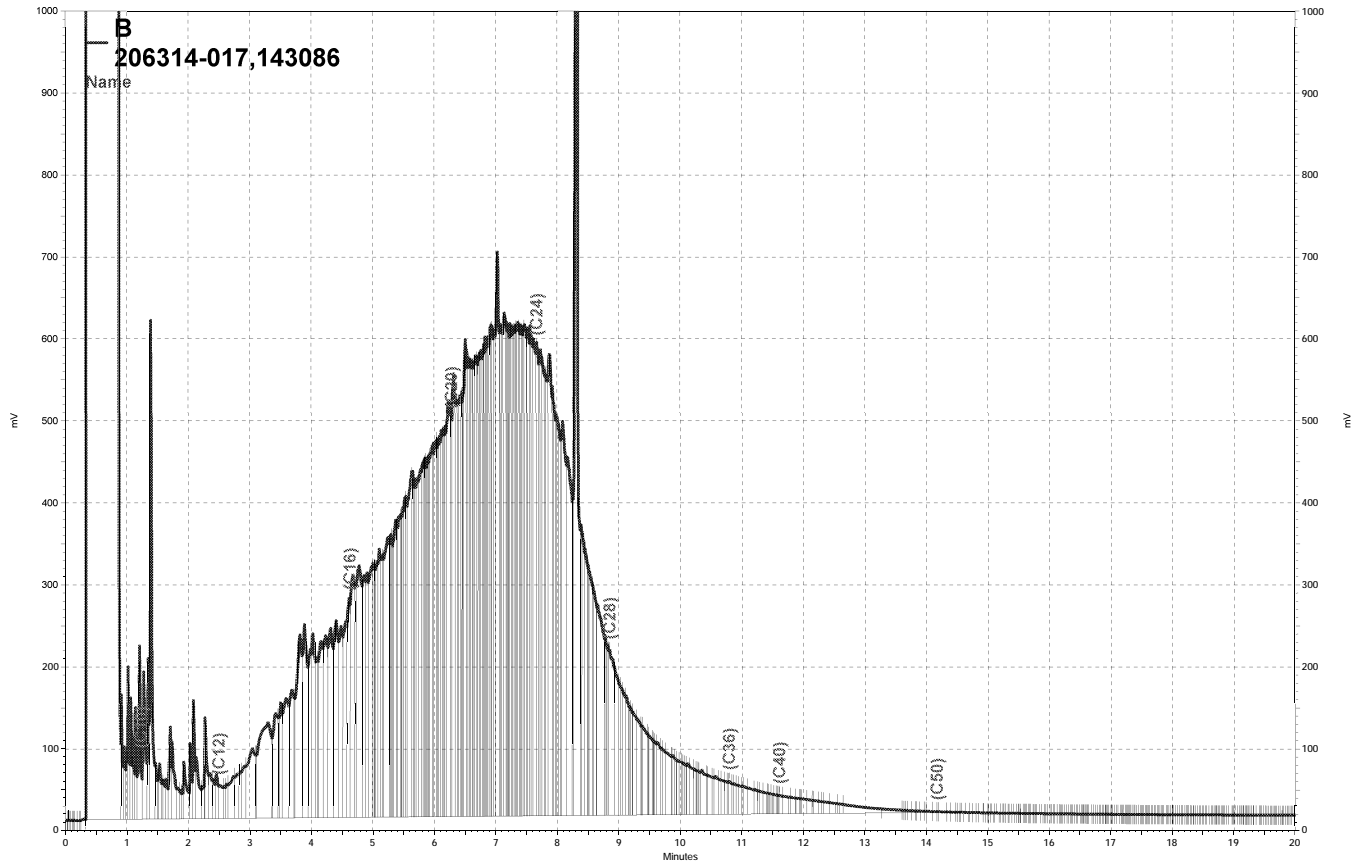
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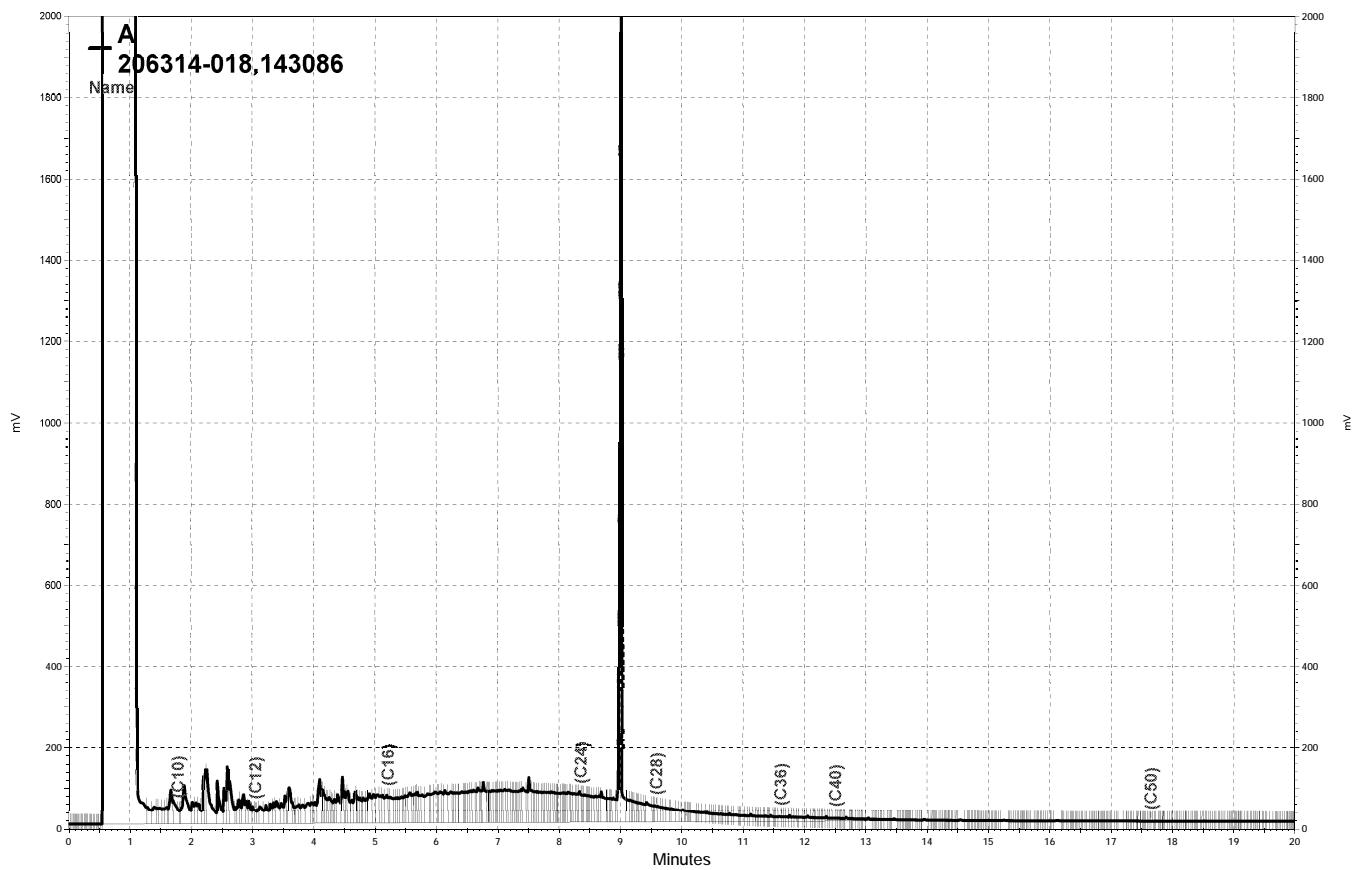
— \\Lims\gdrive\ezchrom\Projects\GC17A\Data\275a021, A



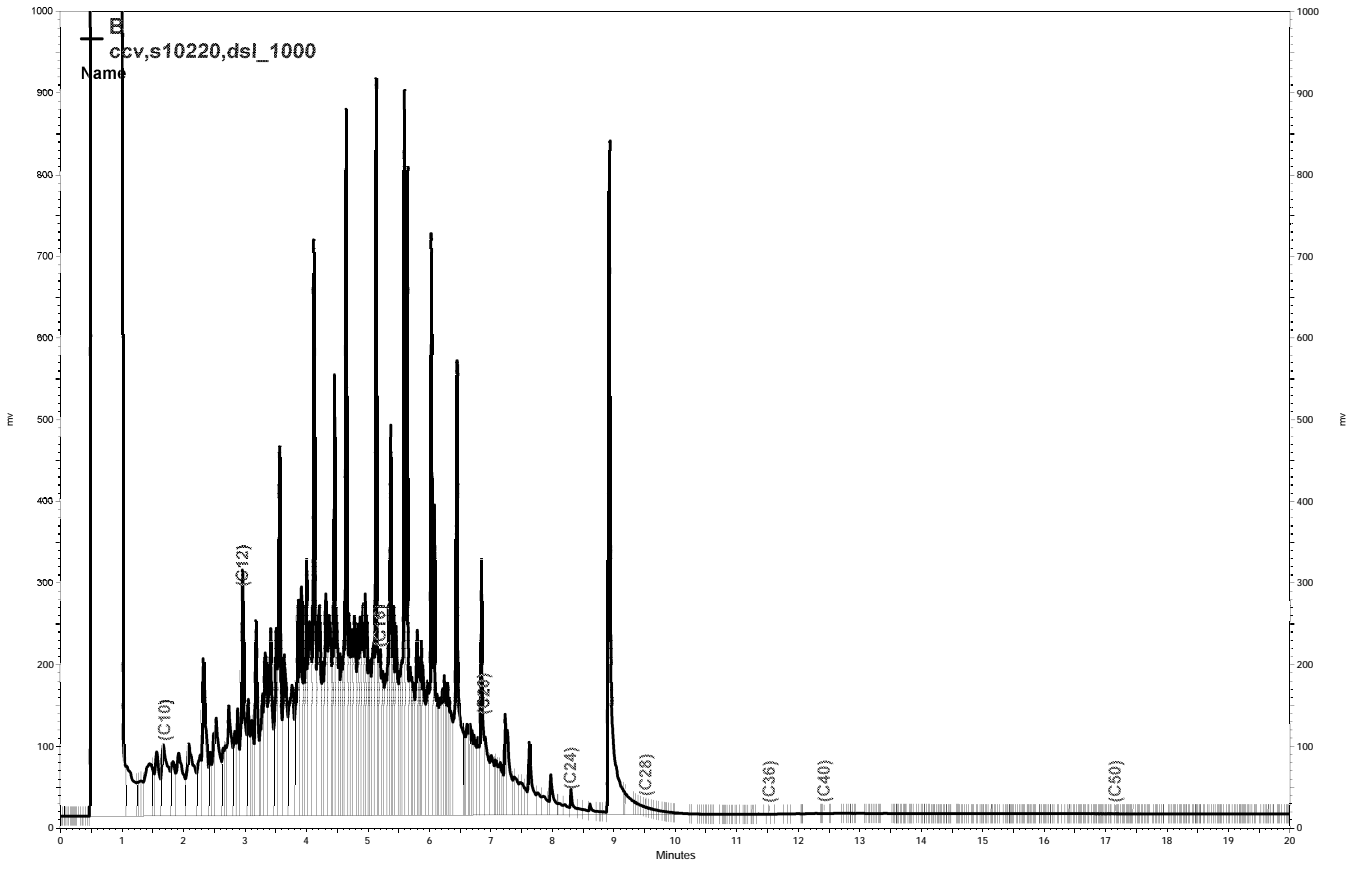
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\275b049, B



\\Lims\gdrive\ezchrom\Projects\GC14B\Data\275b050, B



— \\Lims\gdrive\ezchrom\Projects\GC17A\Data\275a013, A



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\276b005, B

## **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>(c)</sup>	7.76	8.89
7	Mar-08	16.65	8.72	8.70	7.93
8	Jun-08	16.65	8.56	NP	8.09
9	Sep-08	16.65	9.27	7.95	7.38

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
7	Mar-08	16.29	7.24	NP	9.05
8	Jun-08	16.29	6.94	NP	9.35
9	Sep-08	16.29	6.85	NP	6.85

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
7	Mar-08	16.72	9.72	NP	7.00
8	Jun-08	16.72	9.72	NP	7.00
9	Sep-08	16.72	8.56	NP	8.16

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
7	Mar-08	16.82	7.02	NP	9.80
8	Jun-08	16.82	7.55	NP	9.27
9	Sep-08	16.82	6.06	NP	10.76

MW-7					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.09	9.93	NP	8.16
2	Dec-06	NA	NA	NA	NA
3	Dec-07	17.73 <sup>(c)</sup>	10.30	NP	7.43
4	Mar-08	17.73	10.51	NP	7.22
5	Jun-08	17.73	10.50	NP	7.23
6	Sep-08	17.73	10.37	NP	7.36

MW-8					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.25	9.32	8.15	8.93
2	Nov-06 <sup>(d)</sup>	16.96	10.59	NP	6.37
3	Dec-07	17.84 <sup>(c)</sup>	9.42	NP	8.42
4	Mar-08	17.84	10.50	9.18	7.34
5	Jun-08	17.84	9.68	9.10	8.16
6	Sep-08	17.84	9.63	8.89	8.21

MW-9					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.27	9.38	NP	8.89
2	Dec-06	NA	NA	NA	NA
3	Dec-07	17.84 <sup>(c)</sup>	9.54	NP	8.30
4	Mar-08	17.84	9.77	NP	8.07
5	Jun-08	17.84	9.68	NP	9.27
6	Sep-08	17.84	9.30	NP	8.54

MW-10					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed March 2004					
1	Mar-04	18.21	9.87	8.24	8.34
2	Dec-06	18.21	9.30	8.86	8.91
3	Dec-07	17.83 <sup>(c)</sup>	8.98 <sup>(e)</sup>	8.98	8.85
4	Mar-08	17.83	9.28	8.98	8.55
5	Jun-08	17.83	8.86	8.78	7.23
6	Sep-08	17.83	8.95	8.84	8.88

MW-11					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed May 2004					
1	Nov-06 <sup>(d)</sup>	17.76 <sup>(c)</sup>	10.33	NP	7.43
2	Dec-07	17.76	10.27	NP	7.49
3	Mar-08	17.76	10.34	NP	7.42
4	Jun-08	17.76	10.20	NP	8.16
5	Sep-08	17.76	10.03	NP	7.73

MW-12					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Nov-06 <sup>(d)</sup>	17.83 <sup>(c)</sup>	9.37	NP	8.46
2	Dec-07	17.83	9.15	NP	8.68
3	Mar-08	17.83	9.11	NP	8.72
4	Jun-08	17.83	8.86	NP	8.97
5	Sep-08	17.83	8.76	NP	9.07

MW-13					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	17.66 <sup>(c)</sup>	9.81	9.44	7.85
2	Dec-07	17.66	9.95	9.39	7.71
3	Mar-08	17.66	10.02	9.54	7.64
4	Jun-08	17.66	9.86	9.45	7.80
5	Sep-08	17.66	10.34	9.54	7.32

MW-14					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Nov-06 <sup>(d)</sup>	17.60 <sup>(c)</sup>	9.11	9.11(sheen)	8.49
2	Dec-07	17.60	8.86	8.84	8.74
3	Mar-08	17.60	8.91	8.88	8.69
4	Jun-08	17.60	8.66	8.62	8.94
5	Sep-08	17.60	8.64	NP	8.96

MW-15					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	17.80 <sup>(c)</sup>	9.15	NP	8.65
2	Dec-07	17.80	9.30	NP	8.50
3	Mar-08	17.80	9.20	9.18	8.60
4	Jun-08	17.80	9.60	9.63	8.20
5	Sep-08	17.80	8.84	8.84 <sup>(f)</sup>	8.96

MW-16					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	17.74 <sup>(c)</sup>	9.36	NP	8.38
3	Mar-08	17.74	9.88	NP	7.86
4	Jun-08	17.74	9.25	NP	7.80
5	Sep-08	17.74	9.07	NP	8.67

MW-17					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	18.17 <sup>(c)</sup>	9.40	9.32	8.77
3	Mar-08	18.17	9.34	9.18	8.83
4	Jun-08	18.17	8.98	8.97	9.19
5	Sep-08	18.17	9.21	7.92	8.96

MW-18					
Sampling Event No.	Date	TOC Elevation	DTW	DTP	GW Elevation
Installed between 2004-2006					
1	Dec-06	NA	NA	NA	NA
2	Dec-07	16.35 <sup>(c)</sup>	8.30	NP	8.05
3	Mar-04	16.35	8.34	NP	8.01
4	Jun-08	16.35	8.34	NP	8.20
5	Sep-08	16.35	8.48	NP	7.87

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
7	Mar-08	17.47	10.21	NP	7.26
8	Jun-08	17.47	10.20	NP	7.27
9	Sep-08	17.47	9.55	NP	7.92

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
7	Mar-08	16.70	8.99	8.92	7.71
8	Jun-08	16.70	8.95	8.87	7.75
9	Sep-08	16.70	NM	NM	NM

Notes:

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

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

NS = Not sampled

NP = No product

NM = Not measured

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

TOC Elevation = Top of Casing Elevation

DTW = Depth to water from the top of the casing

DTP = Depth to product from the top of the casing

GW Elevation - Groundwater elevation as compared to mean sea level

<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.

<sup>(f)</sup> Depth to groundwater = depth to free product as difference could not be determined

## **APPENDIX E**

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### **Historical Product Extraction Data Table**

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

Extraction Date	Well or Trench Location																								Total Extracted		
	MW-3	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MW-E	RW-1	TA-E	TA-M	TA-W	TB-E	TB-M	TB-W	TC-E		TC-M	TC-W
Apr-04	---	---	---	---	1	---	1	---	---	---	---	---	---	---	---	---	19.75	---	---	---	---	---	---	---	---	---	21.75
May-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22.5	---	---	---	---	---	---	---	---	---	22.50
Sep-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.74	---	---	---	---	---	---	---	---	---	0.74
Oct-04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5.22	---	---	---	---	---	---	---	---	---	5.22
<b>2004 Total</b>																									<b>50.21</b>		
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
<b>2006 Total</b>																									<b>52.30</b>		
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
<b>2007 Total</b>																									<b>3.41</b>		
Feb-08	0.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.08	0.06	0.18	0.04	0.06	0.06	0.08	0.05	0.05	1.14	
Feb-08	---	0.05	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45	0.15	0.15	0.30	---	---	---	---	---	---	---	1.10
Mar-08	---	---	0.02	0.002	0.02	0.001	0.04	0.02	0.03	0.004	0.01	0.02	0.01	0.01	0.003	0.012	0.3	0.09	0.06	0.09	---	---	---	0.06	---	0.80	
Mar-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	0.008	---	---	---	---	---	---	---	0.01
May-08	0.09	---	---	---	---	---	0.075	---	0.075	0.019	0.009	---	---	0.13	---	1.397	0.866	1.466	1.431	---	---	---	---	---	---	5.56	
Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.11	0.57	---	---	---	---	---	---	---	0.83
Aug-08	0.12	---	---	---	---	---	0.048	---	0.024	0.009	---	---	---	---	---	0.75	0.9	1.6	0.7	0.3	0.3	---	0.15	---	---	4.90	
Sep-08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.03	0.09	0.048	---	---	---	---	---	---	---	0.17
<b>2008 Total</b>																									<b>14.51</b>		
<b>Total Extracted</b>	<b>0.24</b>	<b>0.05</b>	<b>0.02</b>	<b>0.00</b>	<b>1.82</b>	<b>0.00</b>	<b>2.76</b>	<b>0.02</b>	<b>0.13</b>	<b>1.23</b>	<b>0.52</b>	<b>0.22</b>	<b>0.01</b>	<b>0.14</b>	<b>0.00</b>	<b>0.01</b>	<b>51.56</b>	<b>16.58</b>	<b>19.36</b>	<b>23.98</b>	<b>0.34</b>	<b>0.36</b>	<b>0.06</b>	<b>0.92</b>	<b>0.05</b>	<b>0.05</b>	<b>120.43</b>

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

## **APPENDIX F**

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### **Purge Water Manifest and Certificate of Recycling**

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>CA1000331636</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>1-800-424-9300</b>	4. Manifest Tracking Number <b>004478280 JJK</b>			
5. Generator's Name and Mailing Address <b>Bay Center Apartments 6400 Christie St Emeryville CA 94608</b>				Generator's Site Address (if different than mailing address)				
Generator's Phone: <b>510-594-2050</b>								
6. Transporter 1 Company Name <b>EVERGREEN ENVIRONMENTAL SERVICES</b>				U.S. EPA ID Number <b>CAD982413262</b>				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address <b>EVERGREEN OIL, INC. 6880 SMITH AVENUE NEWARK CA 94560</b>				U.S. EPA ID Number <b>CAD980887418</b>				
Facility's Phone: <b>510-795-4400</b>								
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
1.	<b>NON-RCRA HAZARDOUS WASTE, LIQUID (Oil &amp; water)</b>	<b>001</b>	<b>TT</b>	<b>1050</b>	<b>G</b>	<b>221</b>	<b>223</b>	
2.								
3.								
4.								
14. Special Handling Instructions and Additional Information <b>PROFILE # _____ INVOICE # 476508</b> <b>DOT ERG# 171 WEAR PROTECTIVE CLOTHING SALES ORDER # 0187833</b>								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offoror's Printed/Typed Name <b>Real Class Agent of Emergencyst</b> Signature <b>Real Class Agent of Emergencyst</b> Signature Month Day Year <b>10 19 08</b>								
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____ Transporter signature (for exports only): _____								
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <b>Jesse Falow</b> Signature <b>Jesse Falow</b> Signature Month Day Year <b>10 19 08</b>								
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____								
18b. Alternate Facility (or Generator) U.S. EPA ID Number Facility's Phone: _____								
18c. Signature of Alternate Facility (or Generator) Month Day Year								
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) 1. <b>H135</b> 2. 3. 4.								
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name <b>DeAndre Green</b> Signature <b>DeAndre Green</b> Signature Month Day Year <b>8 19 08</b>								





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# *Certificate of Recycling*

Dear Valued Customer:

Evergreen certifies that the **used oil, used antifreeze, oily water, and used oil filters** collected from your facility were fully recycled in accordance with all applicable state and federal regulations.

Evergreen Environmental Services also provides emergency spill response: vacuum cleaning of tanks, clarifiers, and sumps; transportation of hazardous waste, steam cleaning, management of oily solids, and treatment of non-hazardous wastewater.

For more information regarding the services Evergreen provides, please call:

**1-800-972-5284**

***We appreciate your business!***

*This certificate also serves as notification, as required by Title 22, Section 66264.12, that Evergreen Oil, Inc. has the appropriate permits for, and will accept the wastes manifested to Evergreen facilities.*



*“dedicated to the protection of the environment”*

