FOURTH QUARTER 2009 GROUNDWATER MONITORING AND ANNUAL SUMMARY REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

January 2010

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

FOURTH QUARTER 2009 GROUNDWATER MONITORING AND ANNUAL SUMMARY REPORT

REDWOOD REGIONAL PARK SERVICE YARD OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

Prepared by:

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

January 21, 2010

Project No. 2009-02

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
2198 SIXTH STREET, SUITE 201·BERKELEY, CA 94710
TEL: (510)644-3123 · FAX: (510)644-3859
GEOSCIENCE & ENGINEERING CONSULTING

January 21, 2010

Mr. Jerry Wickham, P.G.
Hazardous Materials Specialist
Local Oversight Program
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Fourth Quarter 2009 Groundwater Monitoring and Annual Summary Report
Redwood Regional Park Service Yard Site – Oakland, California
ACEH Fuel Leak Case No. RO0000246

Dear Mr. Wickham:

Attached is the referenced report for the underground fuel storage tank (UFST) site at the Redwood Regional Park Service Yard, located at 7867 Redwood Road, Oakland, California. This project is being conducted for the East Bay Regional Park District (EBRPD), and follows previous site investigation and remediation activities (conducted since 1993) associated with former leaking UFSTs. The key regulatory agencies for this investigation are the Alameda County Department of Environmental Health, the Regional Water Quality Control Board, and the California Department of Fish and Game.

This report summarizes groundwater and surface monitoring and sampling activities conducted between October 1 and December 31, 2009 (Fourth Quarter 2009). This report also evaluates hydrochemical trends (including plume extent and stability) over the year of monitoring. In our professional opinion, continued groundwater monitoring is warranted to evaluate plume stability over time. Ongoing bioventing activities are reported in technical submittals separate from the ongoing water monitoring quarterly reports; summaries of salient information will be included in the quarterly reports.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge. If you have any questions regarding this report, please contact Mr. Neal Fujita of the EBRPD, or contact me directly at (510) 644-3123.

Sincerely,

Richard S. Makdisi, R.G., R.E.A.
Principal and Project Manager

cc: Carl Wilcox, California Department of Fish and Game
Neal Fujita, East Bay Regional Park District
State of California GeoTracker database / ACEH ftp database

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (continued)

Appendices

TABLES AND FIGURES

1.0 INTRODUCTION

PROJECT BACKGROUND

The subject property is the East Bay Regional Park District (EBRPD) Redwood Regional Park Service Yard located at 7867 Redwood Road in Oakland, Alameda County, California. The site has undergone site investigations and remediation since 1993 to address subsurface contamination caused by leakage from one or both of two former underground fuel storage tanks (UFSTs) that contained gasoline and diesel fuel. The Alameda County Department of Environmental Health (ACEH) has provided regulatory oversight of the investigation since its inception (ACEH Fuel Leak Case No. RO0000246). Other regulatory agencies with historical involvement in site review include the Regional Water Quality Control Board (Water Board) and the California Department of Fish and Game (CDFG).

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by Stellar Environmental Solutions, Inc. (SES) between October 1 and December 31, 2009 (Fourth Quarter 2009):

- Collecting water levels in site wells to determine shallow groundwater flow direction
- Sampling site wells for contaminant analysis and natural attenuation indicators
- Collecting surface water samples for contaminant analysis
- Conducting monthly monitoring and maintenance of bioventing system operation
- Conducting a microbial respiration test (discussed in the Fourth Quarter 2009 bioventing status report)

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

Previous SES reports have discussed previous site remediation and investigations, site geology and hydrogeology, residual site contamination, conceptual model for contaminant fate and transport, and hydrochemical trends and plume stability. Section 8.0 (References and Bibliography) of this report lists all technical reports for the site. The general phases of site work included:

- An October 2000 Feasibility Study report for the site, submitted to ACEH, which provided detailed analyses of the regulatory implications of the site contamination and an assessment of viable corrective actions (SES, 2000d).
- Two instream bioassessment events, conducted in April 1999 and January 2000, to evaluate potential impacts to stream biota associated with the site contamination. No impacts were documented.
- Additional monitoring well installations and corrective action by ORC™ injection—proposed by SES and approved by ACEH in its January 8, 2001 letter to the EBRPD. Two phases of ORC™ injection were conducted: in September 2001 and July 2002.
- A total of 48 groundwater monitoring events, conducted on a quarterly basis since project inception (November 1994). A total of 11 groundwater monitoring wells are currently available for monitoring.
- A bioventing pilot test conducted in September and October 2004 to evaluate the feasibility of this corrective action strategy, and installation of the full-scale bioventing system in November and December 2005. Bioventing well VW-3 was decommissioned, and two additional bioventing wells (VW-4 and VW-5) were installed on March 4, 2008. However, the bioventing remedy has not been effective to date. Bioventing activities conducted to date have been, and will continue to be, discussed in bioventing-specific technical reports, and updates will be provided in groundwater monitoring progress reports as they relate to this ongoing program.
- An additional ORC™ injection was conducted on March 10, 2009 to control elevated levels of hydrocarbons in the source area represented by MW-2.

SITE DESCRIPTION

The site slopes to the west—from an elevation of approximately 564 feet above mean sea level at the eastern edge of the service yard to approximately 530 feet above mean sea level at Redwood Creek, which defines the approximate western edge of the project site with regard to this investigation.

Figure 1 shows the location of the project site. Figure 2 presents the site plan.

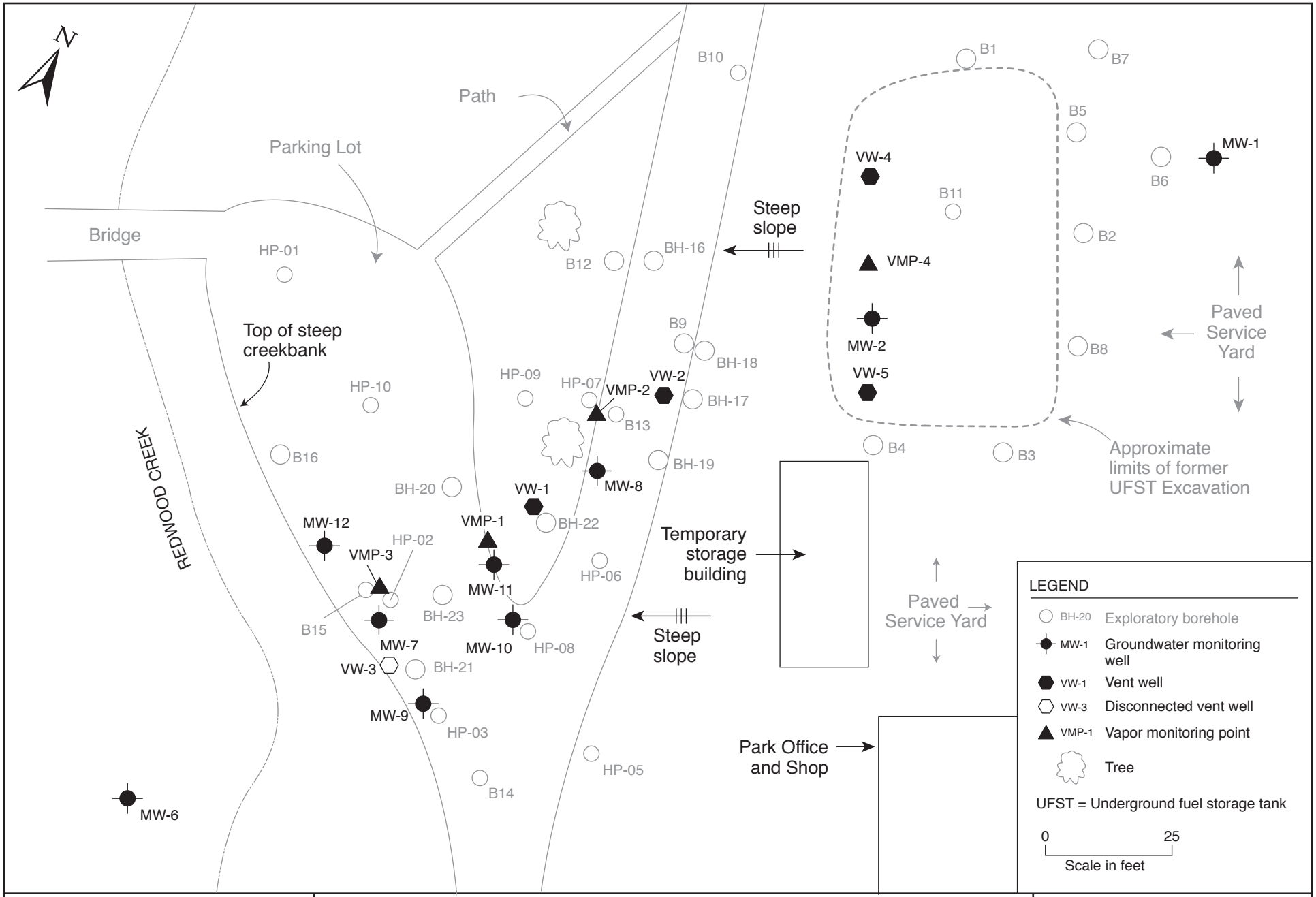
N

SITE LOCATION ON U.S.G.S. TOPOGRAPHIC MAP

Redwood Reg. Park Service Yard Oakland, CA	By: MJC	MARCH 2006
	Figure 1	

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

2006-17-01



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

SITE PLAN AND WELL LOCATIONS
Redwood Regional Park Service Yard, Oakland, CA

Figure 2

by: MJC | MARCH 2008

2008-02-02

REGULATORY OVERSIGHT

The lead regulatory agency for the site investigation and remediation is ACEH (Case No. RO0000246), with oversight provided by the Water Board (GeoTracker Global ID T0600100489). The CDFG is also involved with regard to water quality impacts to Redwood Creek. All workplans and reports have been submitted to these agencies. Historical ACEH-approved revisions to the groundwater sampling program have included:

- Discontinuing hydrochemical sampling and analysis in wells MW-1, MW-3, MW-5, and MW-6.
- Discontinuing creek surface water sampling at upstream location SW-1.
- Discontinuing field measurement and laboratory analyses for natural attenuation indicators, to be re-implemented following the bioventing corrective action.
- Reducing the frequency of creek surface water sampling from quarterly to semi-annually. The latter recommendation has not yet been implemented due to the EBRPD's continued concern over potential impacts to Redwood Creek.

In a March 24, 2009 letter, Mr. Jerry Wickham, the ACEH regulator for the site, requested completion of either a pilot test work plan or corrective action plan by May 27, 2009. Mr. Wickham subsequently granted the EBRPD a 90-day extension (until August 27, 2009) to complete the pilot test work plan or corrective action plan. In August 2009, SES submitted a remedial action workplan for Advanced ORC™ application (SES, 2009e). On October 2, 2009, that workplan was approved by ACEH, and SES is currently in the process of scheduling the work.

The site is in compliance with State Water Resources Control Board's GeoTracker requirements for uploading electronic data and reports. In addition, electronic copies of technical documentation reports published since Q2 2005 have been uploaded to ACEH's file transfer protocol (ftp) system.

2.0 PHYSICAL SETTING

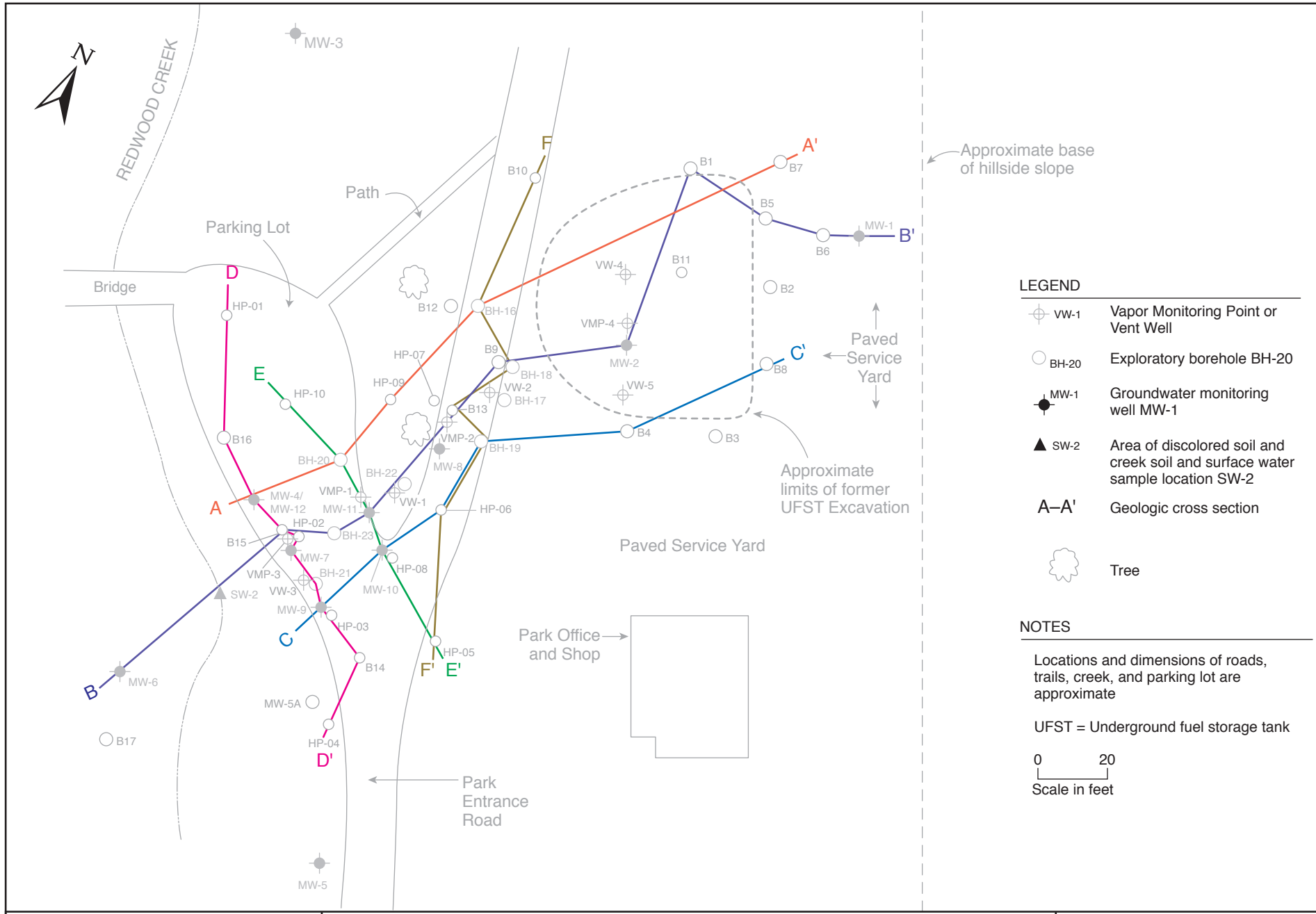
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous SES reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, ACEH requested, via email, an additional evaluation of site lithology—specifically, the preparation of multiple geologic cross-sections both parallel and perpendicular to the contaminant plume's long axis.

SITE LITHOLOGY

Figure 3 shows the location of geologic cross-sections. Figure 4 shows three sub-parallel geologic cross-sections (A-A' through C-C') along the long axis of the groundwater contaminant plume (i.e., along local groundwater flow direction). Figure 5 shows three sub-parallel geologic cross-sections (D-D' through F-F') roughly perpendicular to groundwater direction. In each figure, the three sub-parallel sections are presented together for ease of comparison. Due to the small scale, these sections show only lithologic conditions (i.e., soil type and bedrock depth). Additional information on water level depths, historical range of water levels, and inferred thickness of soil contamination were presented in a previous report (SES, 2004c) for cross-section B-B'.

Shallow soil stratigraphy consists of a surficial 3- to 10-foot-thick clayey silt unit underlain by a 5- to 15-foot-thick silty clay unit. In the majority of boreholes, a 5- to 10-foot-thick clayey coarse-grained sand and clayey gravel unit that laterally grades to a clay or silty clay was encountered. This unit overlies a weathered siltstone at the base of the observed soil profile. Soils in the vicinity of MW-1 are inferred to be landslide debris.

A previous SES report (SES, 2004c) presented a bedrock surface isopleth map (elevation contours for the top of the bedrock surface) in the contaminant plume area. The isopleth map indicates the following (as shown in Figures 4 and 5): the bedrock surface slopes steeply, approximately 0.3 feet/foot from east to west (toward Redwood Creek) in the upgradient portion of the site (from the service yard to under the entrance road), then slopes gently from east to west in the downgradient portion of the site (under the gravel parking area) toward Redwood Creek.



LEGEND

VW-1	Vapor Monitoring Point or Vent Well
BH-20	Exploratory borehole BH-20
MW-1	Groundwater monitoring well MW-1
SW-2	Area of discolored soil and creek soil and surface water sample location SW-2
A–A'	Geologic cross section
	Tree

NOTES

Locations and dimensions of roads, trails, creek, and parking lot are approximate

UFST = Underground fuel storage tank

0 20

Scale in feet

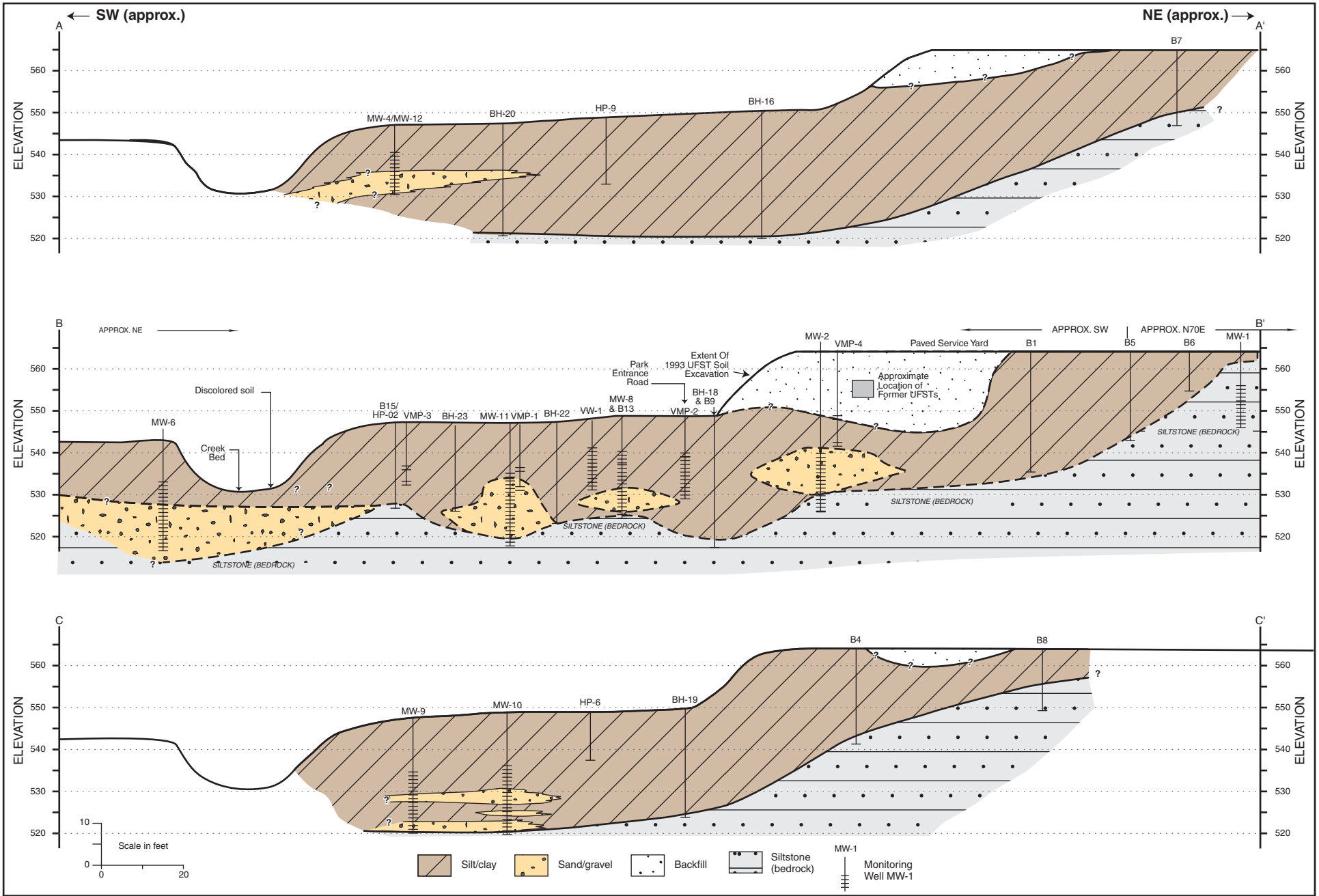
STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GEOLOGIC CROSS-SECTION LOCATIONS
Redwood Regional Park Service Yard, Oakland, CA

Figure 3

by: MJC | MARCH 2008

2008-02-05



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GEOLOGIC CROSS SECTIONS — A-A' through C-C'

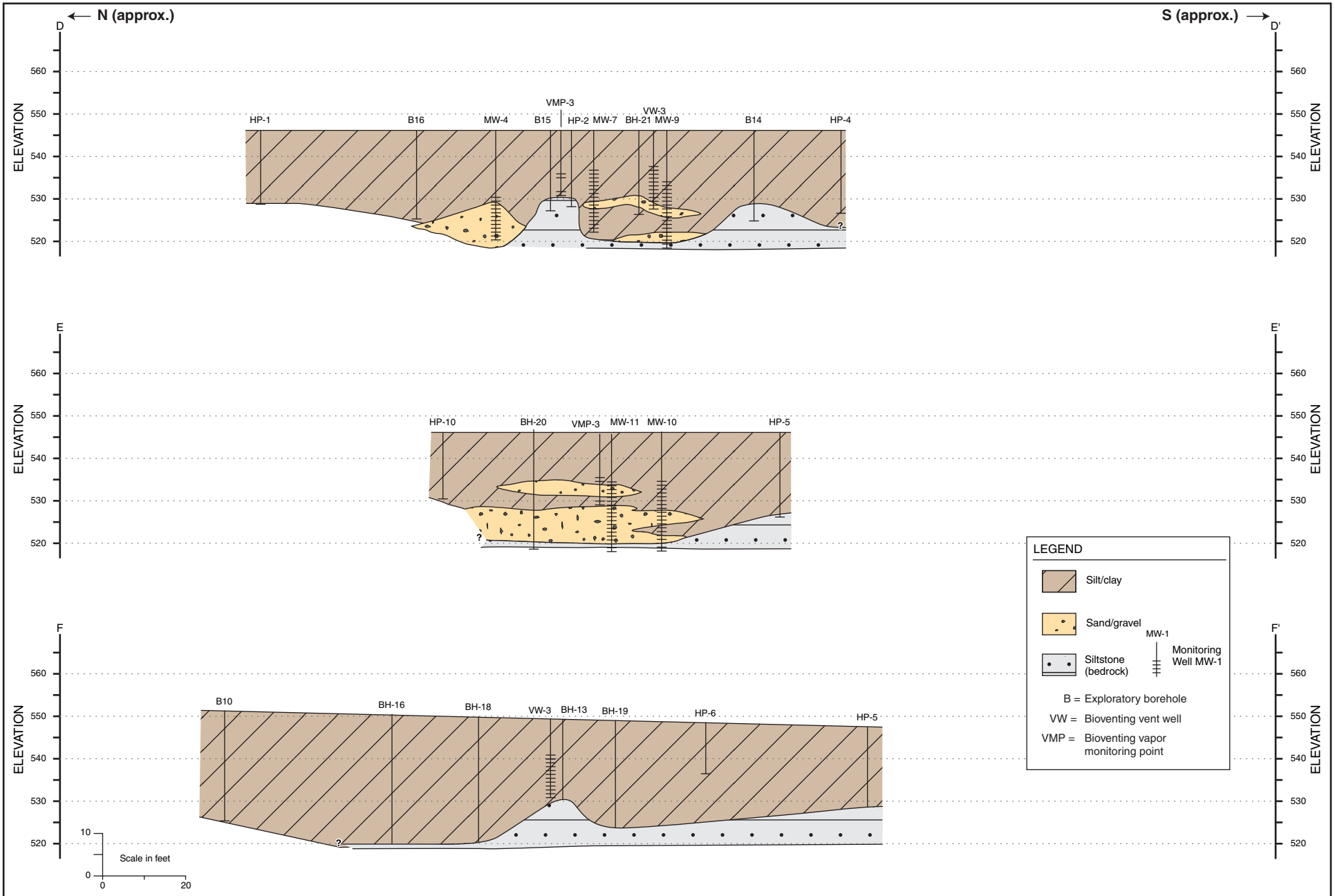
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2007

2005-66-14



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GEOLOGIC CROSS SECTIONS — D-D' through F-F'
Redwood Regional Park Service Yard, Oakland, CA

Figure 5

by: MJC | DECEMBER 2005

2005-66-13

This general gradient corresponds to the local groundwater flow direction. On the southern side of the plume area, bedrock slopes gently from south to north (the opposite of the general topographic gradient). Bedrock topography on the northern side of the plume cannot be determined from the available data.

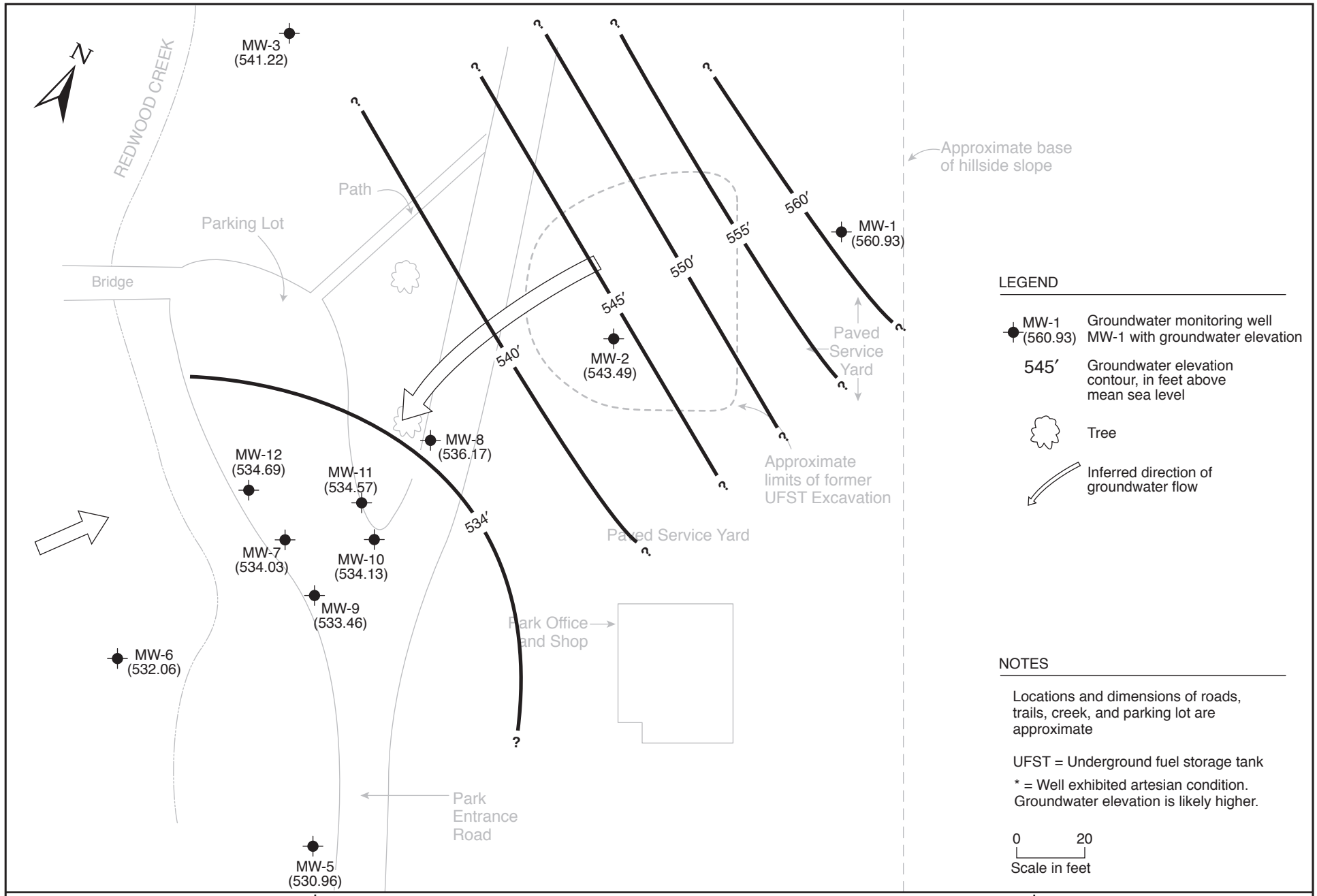
In the central and downgradient portions of the groundwater contaminant plume (under the entrance road and the parking area), the bedrock surface has local, fairly steep elevation highs and lows, expressing a hummocky surface. Bedrock elevations vary by up to 10 feet over distances of less than 20 feet in this area. Local bedrock elevation highs are observed at upgradient location BH-13 (see cross-section F-F') and at downgradient location B15/HP-02 (see cross-section B-B'). Intervening elevation lows create troughs that trend north-south in the central portion of the plume and east-west in the downgradient portion of the plume.

The bedrock surface (and overlying unconsolidated sediment lithology) suggests that the bedrock surface may have at one time undergone channel erosion from a paleostream(s) flowing sub-parallel to present-day Redwood Creek. Because groundwater flows in the unconsolidated sediments that directly overlie the bedrock surface, it is likely that the hummocky bedrock surface affects local groundwater depth and flow direction. This is an important hydrogeologic control that should be considered if groundwater-specific corrective action is contemplated.

HYDROGEOLOGY

Groundwater at the site occurs under unconfined and semi-confined conditions, generally within the clayey, silty, sand-gravel zone. The top of this zone varies between approximately 12 and 19 feet below ground surface (bgs); the bottom of the water-bearing zone (approximately 25 to 28 feet bgs) corresponds to the top of the siltstone bedrock unit. Seasonal fluctuations in groundwater depth create a capillary fringe of several feet that is saturated in the rainy period (late fall through early spring) and unsaturated during the remainder of the year. The thickness of the saturated zone plus the capillary fringe varies between approximately 10 and 15 feet in the area of contamination. Local perched water zones have been observed well above the top of the capillary fringe. Consistent with the bedrock isopleth map showing an elevation depression in the vicinity of MW-11, historical groundwater elevations in MW-11 are sporadically lower than in the surrounding area. As discussed in the previous subsection, local groundwater flow direction likely is more variable than expressed by groundwater monitoring well data, due to local variations in bedrock surface topography.

Figure 6 is a groundwater elevation map constructed from the current event monitoring well equilibrated water levels. Table 1 (in Section 4.0) summarizes current event groundwater elevation data. Appendix A contains historical groundwater elevation data.



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER ELEVATION MAP–December 21, 2009
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | JANUARY 2010

2008-02-18

In the upgradient portion of the site (between well MW-1 and MW-2, in landslide debris and the former UFST excavation backfill), the groundwater gradient is approximately 0.23 feet per foot. Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek), the groundwater gradient is approximately 0.08 feet per foot. The direction of shallow groundwater flow during the current event was to the west-southwest (toward Redwood Creek), which is consistent with historical site groundwater flow directions.

We assume a site groundwater velocity of 7 to 10 feet per year, using general look-up tables for permeability characteristics for the site-specific lithologic data obtained from site investigations. This velocity estimate is conservatively low, but does meet minimum-distance-traveled criteria from the date when contamination was first observed in Redwood Creek (1993) relative to the time of the UST installations (late 1970s). Locally, however, the groundwater velocity could vary significantly. Calculating the specific hydraulic conductivity critical to accurately estimating site-specific groundwater velocity would require direct testing of the water-bearing zone through a slug or pumping test.

Redwood Creek, which borders the site to the west, is a seasonal creek known for occurrence of rainbow trout. Creek flow in the vicinity of the site shows significant seasonal variation, with little to no flow during the summer and fall dry season, and vigorous flow with depths exceeding 1 foot during the winter and spring wet season. The creek is a gaining stream (i.e., it is recharged by groundwater seeps and springs) in the vicinity of the site, and discharges into Upper San Leandro Reservoir located approximately 1 mile southeast of the site. During low-flow conditions, the groundwater table is below the creek bed in most locations (including the area of historical contaminated groundwater discharge); consequently, there is little to no observable creek flow at these times.

3.0 REGULATORY CONSIDERATIONS

This section summarizes the regulatory considerations with regard to surface water and groundwater contamination. There are no ACEH or Water Board cleanup orders for the site, although all site work has been conducted under oversight of these agencies.

GROUNDWATER CONTAMINATION

As specified in the Water Board's *San Francisco Bay Region Water Quality Control Plan* (Water Board, 1995), all groundwaters are considered potential sources of drinking water unless otherwise approved by the Water Board, and are also assumed to ultimately discharge to a surface water body and potentially impact aquatic organisms. While it is likely that site groundwater would satisfy geology-related criteria for exclusion as a drinking water source (excessive total dissolved solids and/or insufficient sustained yield), Water Board approval for this exclusion has not been obtained for the site. As summarized in Table 2 (in Section 5.0), site groundwater contaminant levels are compared to two sets of criteria: 1) Water Board Tier 1 Environmental Screening Levels (ESLs) for residential sites where groundwater is a current or potential drinking water source; and 2) ESLs for residential sites where groundwater is not a current or potential drinking water source.

As stipulated in the ESL guidance (Water Board, 2008), the 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 multiple components, including ceiling value, human toxicity, indoor air impacts, and aquatic life protection. Exceedance of ESLs suggests that additional investigation and/or remediation is warranted. While drinking water standards [e.g., Maximum Contaminant Levels (MCLs)] are published for the site contaminants of concern, ACEH has indicated that impacts to nearby Redwood Creek are of primary importance, and that site target cleanup standards should be evaluated primarily in the context of surface water quality criteria.

SURFACE WATER CONTAMINATION

As summarized in Table 3 (in Section 5.0), site surface water contaminant levels are compared to the most stringent screening level criteria published by the State of California, U.S. Environmental Protection Agency, and U.S. Department of Energy. These screening criteria address chronic and acute exposures to aquatic life. As discussed in the ESL document (Water

Board, 2008), benthic communities at the groundwater/surface water interface (e.g., at site groundwater discharge location SW-2) are assumed to be exposed to the full concentration of groundwater contamination prior to dilution/mixing with the surface water). This was also a fundamental assumption in the instream benthic macroinvertebrate bioassessment events, which documented no measurable impacts.

Historical surface water sampling in the immediate vicinity of contaminated groundwater discharge (SW-2) has sporadically documented petroleum contamination, usually in periods of low stream flow, and generally at concentrations several orders of magnitude less than adjacent (within 20 feet) groundwater monitoring well concentrations. It is likely that mixing/dilution between groundwater and surface water precludes obtaining an "instantaneous discharge" surface water sample that is wholly representative of groundwater contamination at the discharge location. Therefore, the most conservative assumption is that surface water contamination at the groundwater/surface water interface is equivalent to the upgradient groundwater contamination (e.g., site downgradient wells MW-7, MW-9, and MW-12).

While site target cleanup standards for groundwater have not been determined, it is likely that no further action will be required by regulatory agencies when groundwater (and surface water) contaminant concentrations are all below their respective screening level criteria. Residual contaminant concentrations in excess of screening level criteria might be acceptable to regulatory agencies if a more detailed risk assessment (e.g., Tier 2 and/or Tier 3) demonstrates that no significant impacts are likely.

4.0 FOURTH QUARTER 2009 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q4 2009), conducted in December 2009. A summary of bioventing-related activities is also provided.

Groundwater and surface water analytical results are summarized in Section 5.0. Monitoring and sampling protocols were in accordance with the ACEH-approved SES technical workplan (SES, 1998a).

The current (Q4 2009) event activities included:

- Measuring static water levels in all 11 of the site wells.
- Collecting post-purge groundwater samples for laboratory analysis of site contaminants from wells located within (or potentially within) the groundwater plume (MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12).
- Collecting Redwood Creek surface water samples for laboratory analysis from locations SW-2 and SW-3.
- Conducting a respiration test to access the degree of microbial biodegradation activity at the site (discussed in quarterly bioventing status reports).

Redwood Creek surface water sampling and groundwater monitoring and sampling were conducted on December 21, 2009. The locations of all site monitoring wells and creek water sampling locations are shown on Figure 2 (in Section 1.0). Well construction information and water level data are summarized in Table 1. Appendix B contains the groundwater monitoring field records for the current event.

Due to the recent ORC™ injection at MW-2 and the proposed injections for 2010, during this event, SES also began monitoring dissolved oxygen (DO) in all key (sampled) site wells, in addition to MW-2, to establish baseline DO concentrations before injecting into other areas of the plume.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
December 21, 2009 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (12/21/09)
MW-1	18	7 to17	565.83	560.93
MW-2	36	20 to 35	566.42	543.49
MW-3	42	7 to 41	560.81	541.22
MW-5	26	10 to 25	547.41	530.96
MW-6	26	10 to 25	545.43	532.06
MW-7	24	9 to24	547.56	534.03
MW-8	23	8 to 23	549.13	536.17
MW-9	26	11 to 26	549.28	533.46
MW-10	26	11 to 26	547.22	534.13
MW-11	26	11 to 26	547.75	534.57
MW-12	25	10 to 25	544.67	534.69

Notes:

TOC = top of casing

Wells MW-1 through MW-6 are 4-inch diameter; all other wells are 2-inch diameter.

All elevations are expressed in feet above U.S. Geological Survey mean sea level.

GROUNDWATER LEVEL MONITORING AND SAMPLING

Groundwater monitoring well water level measurements, purging, sampling, and field analyses were conducted 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 (State Water Resources Control Board, 1989), and followed the methods and protocols approved by ACEH in the SES 1998 workplan (SES, 1998a).

As the first task of the monitoring event, static water levels were measured using an electric water level indicator. The wells to be sampled for contaminant analyses were then purged (by bailing and/or pumping) of three wetted casing volumes. Aquifer stability parameters (temperature, pH, electrical conductivity, DO, and turbidity) were measured after each purged casing volume to ensure that representative formation water would be sampled. To minimize the

potential for cross-contamination, wells were purged and sampled in order of increasing contamination (based on the analytical results of the previous quarter).

The sampling-derived purge water and decontamination rinseate (approximately 139 gallons) from the current event was containerized in the onsite aboveground storage tank. Purge water from future events will continue to be accumulated in the onsite tank until it is full, at which time the water will be transported offsite for proper disposal.

CREEK SURFACE WATER SAMPLING

Surface water sampling was conducted by SES personnel on December 21, 2009. Surface water samples were collected from Redwood Creek location SW-2 (immediately downgradient of the former UFST source area and within the area of documented creek bank soil contamination), and at SW-3 (located approximately 500 feet downstream of the SW-2 location). In accordance with a previous SES recommendation approved by ACEH, upstream sample location SW-1 is no longer part of the surface water sampling program.

At the time of sampling, the creek was at a high stage due to recent rain and snow events; water depths ranged from approximately 1 to 2 feet with observed flow at both locations. SES did not observe any orange algae or sheen during this event, and no petroleum odors were detected.

BIOVENTING-RELATED ACTIVITIES

The bioventing system was installed and started up in December 2005/January 2006. Weekly system monitoring and air flow optimization events were conducted for 1 month in January and February 2006. Bioventing system operations and maintenance (O&M) events have been conducted monthly since March 2006, but were decreased to quarterly monitoring in 2009. However, EBRPD staff monitors the system in the interim periods. As noted previously, two new bioventing wells (VW-4 and VW-5) were installed on March 4, 2008 to augment the system, and VW-3, which historically had seen no change in pressurization, was disconnected. Bioventing activities are discussed in detail in separate technical documents.

MONITORING WELL MW-2 ORC™ INJECTION AND MONITORING

Monitoring well MW-2, installed in the area of the former UFSTs, historically has shown low to trace (sometimes non-detectable) contaminant levels. However, since September 2007, well MW-2 concentrations increased dramatically, suggesting desorption from the original upgradient source area as a result of the drought-induced drop in water levels. The increase in all petroleum hydrocarbons at MW-2 initially raised concern that the cause was local (a significant reduction occurred after pumping 100 gallons or less). In 2008, SES initialized a program of more frequent monitoring and purging at MW-2 to mitigate against higher concentrations migrating downgradient toward Redwood Creek. The program had limited success, with concentrations

declining after limited purging, but rapidly increasing between monitoring events. Thus, the more aggressive corrective action program, involving the injection of the ORC™ compound to catalyze enhanced biodegradation, was instituted. This remedy was designed to coincide with the higher groundwater elevations typically observed in spring.

Groundwater samples taken 6 days after the March 10, 2009 injection showed concentrations of total extractable hydrocarbons as diesel (TEHd) and total volatile hydrocarbons as gasoline (TVHg) at 37,000 micrograms per liter (µg/L) and 3,100 µg/L, respectively. Since that first post-injection sampling event, concentrations of TVHg have steadily decreased, as shown in Table 2 below. Concentrations of TEHd had been decreasing until the latest event, when it was observed to be the same as the previous event. The DO concentration in MW-2 steadily increased to a high of 1.35 milligrams per liter (mg/L) during the Q3 2009 event, and has since decreased, indicating a diminishing influence of the ORC™ injection. Figure 10 (in Section 6.0) shows the TEHd and TVHg concentration plot for MW-2 over time. Appendix C contains the certified laboratory analytical reports.

Table 2
Post-ORC™ Injection Monitoring Analytical Results
Monitoring Well MW-2

Date Sampled	TVHg (µg/L)	TEHd (µg/L)	DO (mg/L)
3-10-09	3,100	37,000	0.2
5-5-09	5,000	15,000	0.86
6-10-09	2,400	8,000	1.35
8-7-09	1,900	3,100	0.46
9-25-09	1,400	1,800	0.18
12-21-09	590	1,800	0.20

Notes:

DO = dissolved oxygen
TVHg = Total volatile hydrocarbons as gasoline
TEHd = Total extractable hydrocarbons as gasoline

mg/L = milligrams per liter
µg/L = micrograms per liter

5.0 FOURTH QUARTER 2009 ANALYTICAL RESULTS

This section presents the field and laboratory results of the current monitoring event. Table 3 summarizes the contaminant analytical results. Figure 7 shows the contaminant results and the inferred limits of the gasoline groundwater plume. Appendix C contains the certified analytical laboratory report and chain-of-custody record. Appendix D summarizes the historical groundwater and surface water analytical results.

GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS

Q4 2009 groundwater contaminant concentrations were as follows: The ESL for TVHg was exceeded in five of the seven wells—MW-2, MW-7, MW-8, MW-9, and MW-11; although TVHg was also detected in MW-10 and MW-12, those concentrations were below the ESL. Concentrations of TEHd exceeded the ESL in all seven wells sampled. The ESL for benzene was exceeded in MW-8, MW-9, and MW-11. The ESL for ethylbenzene was exceeded in MW-7, MW-8, MW-9, and MW-11. Concentrations of methyl tertiary-butyl ether (MTBE) in groundwater exceeded the ESL in MW-2 and MW-11. All of these concentrations exceeded the ESLs for residential areas where groundwater is a drinking water resource. No total xylenes were detected above the ESL in any of the seven wells sampled.

Well MW-7 contained the maximum TVHg groundwater concentration, and MW-9 contained the maximum TEHd concentration. MW-7 and MW-9 are located in the downgradient area of the plume, adjacent to Redwood Creek. The northern edge of this area of the plume is defined by well MW-12. The southern edge of the plume in the downgradient area is not strictly defined; however, based on historical groundwater data, it appears to be located between well MW-9 and well MW-5. The current event contaminant plume geometry is consistent with historical contaminant distribution. While the center of contaminant mass in groundwater is generally located downgradient of the former source area, in the previous year, large contaminant concentrations were found in the former source area represented by MW-2. This is discussed in Section 6.0.

Contaminant concentrations in surface water samples SW-2 or SW-3 were below laboratory detection limits.

Table 3
Groundwater and Surface Water Samples
Analytical Results – December 21, 2009
Redwood Regional Park Corporation Yard, Oakland, California

Location	Dissolved Oxygen	Contaminant Concentrations						
		TVHg	TEHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
GROUNDWATER SAMPLES								
MW-2	0.20	**590**	**1,800**	<0.5	<0.5	1.2	1.2	3.6
MW-7	0.47	**4,900**	**4,500**	<0.5	<0.5	**90**	2.9	**57**
MW-8	0.47	**560**	**540**	**1.5**	<0.5	**39**	7.1	4.2
MW-9	0.43	**2,500**	**4,000**	**27**	<0.5	**170**	8.69	<2.0
MW-10	0.28	72	**150**	0.61	<0.5	1.6	1.2	<2.0
MW-11	0.40	**2,200**	**3,100**	**19**	<0.5	**46**	0.78	**14**
MW-12	0.31	76	**170**	<0.5	<0.5	<0.5	<0.5	<2.0
Groundwater ESLs [(a)]	NLP	100 / 210	100/ 210	1.0 / 46	4.0 / 130	30 / 43	20 / 100	5.0 / 1,800
REDWOOD CREEK SURFACE WATER SAMPLES								
SW-2	NA	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.0
SW-3	NA	<50	<50	<0.5	<0.5	<0.5	<0.5	<2.0
Surface Water Screening Levels [(b)]	NLP	100	100	1.0	40	30	20	5.0

Notes:

[(a)] ESLs = Water Board Environmental Screening Levels (where groundwater is/is not a potential drinking water resource) (Water Board, 2008).

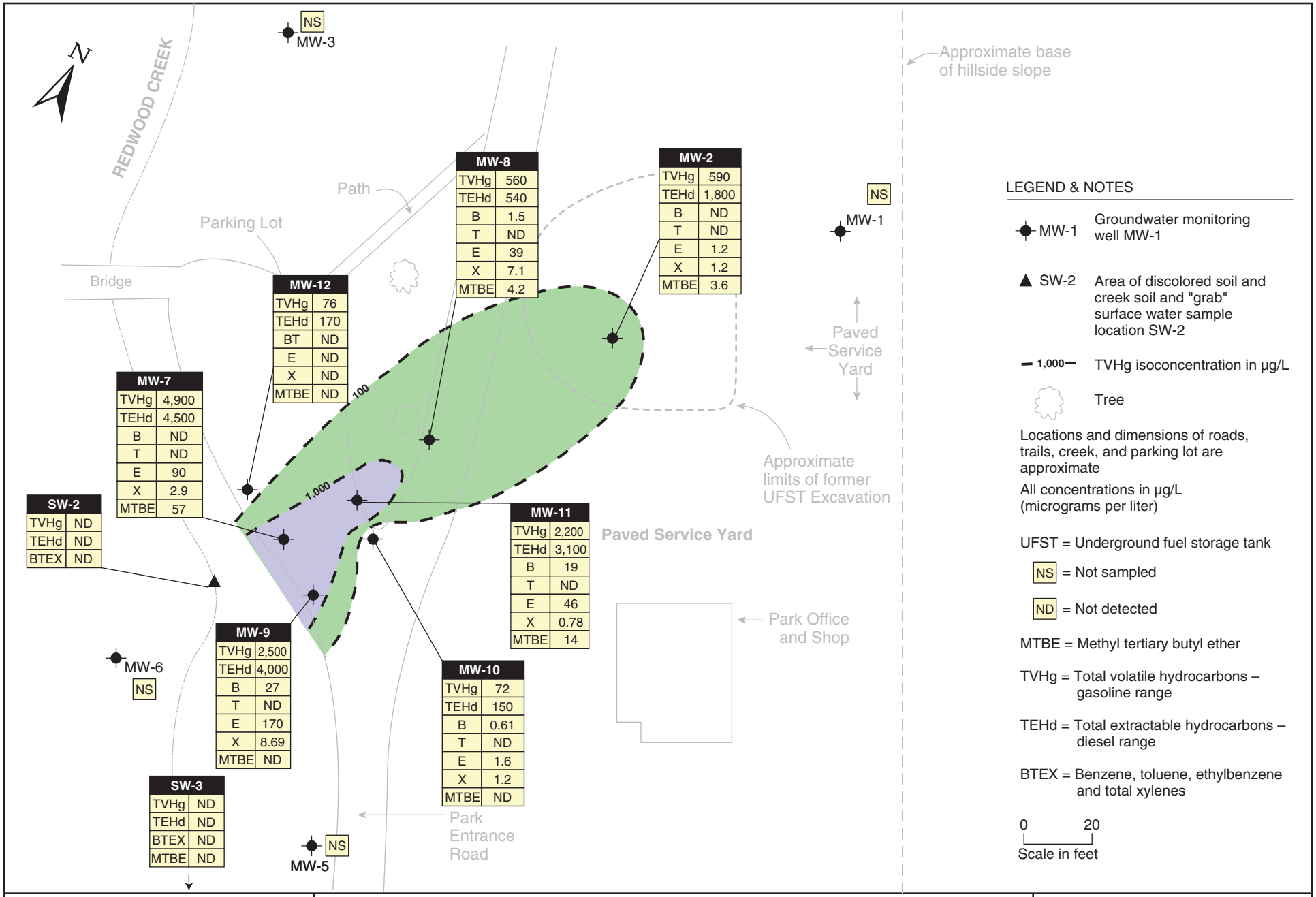
[(b)] Water Board Surface Water Screening Levels for freshwater habitats (Water Board, 2008).

NA = not analyzed
NLP = no level published

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

All contaminant concentrations are expressed in micrograms per liter (µg/L), equivalent to parts per billion. Samples in **bold-face type** exceed the ESLs and/or surface water screening levels where groundwater is a potential drinking water resource.

Dissolved oxygen concentrations are expressed in milligrams per liter (mg/L).



LEGEND & NOTES

- MW-1 — Groundwater monitoring well MW-1
- SW-2 — Area of discolored soil and creek soil and "grab" surface water sample location SW-2
- 1,000 — TVHg isoconcentration in µg/L
- Tree

Locations and dimensions of roads, trails, creek, and parking lot are approximate

All concentrations in µg/L (micrograms per liter)

UFST = Underground fuel storage tank

NS = Not sampled

ND = Not detected

MTBE = Methyl tertiary butyl ether

TVHg = Total volatile hydrocarbons – gasoline range

TEHd = Total extractable hydrocarbons – diesel range

BTEX = Benzene, toluene, ethylbenzene and total xylenes

0 20

Scale in feet

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

ANALYTICAL RESULTS AND GASOLINE PLUME—DECEMBER 2009

Redwood Regional Park Service Yard, Oakland, CA

Figure 7

by: MJC | JANUARY 2010

2006-17-25

QUALITY CONTROL SAMPLE ANALYTICAL RESULTS

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

6.0 EVALUATION OF HYDROCHEMICAL TRENDS AND PLUME STABILITY

This section evaluates the observed hydrochemical trends with regard to plume stability and migration of the center of contaminant mass toward Redwood Creek. An assessment is made as to the nature of residual contaminated soil that acts as a continued source of groundwater contamination. A conceptual model (incorporating site lithology, hydrogeology, and hydro-chemistry) is presented to explain the spatial extent and magnitude of the dissolved hydrocarbon plume.

CONTAMINANT SOURCE ASSESSMENT

Site UFSTs were removed (i.e., discharge was discontinued) in 1993, and some but not all of the source area excavation contaminated soil was removed. Borehole soil sampling has provided data on the extent and magnitude of soil contamination in the vicinity of the former UFSTs ("source area") and the outlying area (in the capillary fringe above the groundwater plume). Soil contamination is constrained to the unsaturated zone and the underlying saturated sediments on the weathered bedrock surface.

A large mass of residual TPH contamination in the unsaturated zone overlies the contaminant plume, primarily in the area between the former UFSTs and the park entrance roadway, with the contaminated zone thinning toward Redwood Creek. Seasonal desorption of contamination in this unsaturated zone occurs during the rainy season and during high-water periods, acting as a long-term source of dissolved contamination. Previous ORC™ injection programs—which resulted in permanent reductions at the peripheral plume margins, but were followed by rebound (to pre-injection conditions) within the central portions of the plume—indicate that site conditions support aerobic biodegradation. However, biodegradation is limited by oxygen deficiency in the unsaturated zone.

Based on this conceptual model—and using conservative assumptions for equilibrium partitioning, contaminant geometry, soil moisture, and previous laboratory analytical results for TPH in soil—estimates of TPH mass in soil were calculated based on 2004 and earlier borehole data. Residual TPH in vadose zone soil is estimated at 1,400 to 7,000 pounds (100 to 600 gallons of gasoline), compared to a mass of TPH in groundwater estimated at 1 to 10 pounds (0.1 to 1.0 gallon of gasoline). The hydrocarbon mass in groundwater is likely higher than originally estimated (based on post-2004 data).

Soil and groundwater contamination distribution and site lithologic and hydrogeologic conditions have shown that residual soil contamination, unless abated, will continue to be a source of long-term groundwater contamination via seasonal desorption and migration.

WATER LEVEL TRENDS

Appendix D contains historical groundwater elevation data. Figure 8 shows a trendline of site groundwater elevations in key wells (those within the contaminant plume). The data support the following conclusions:

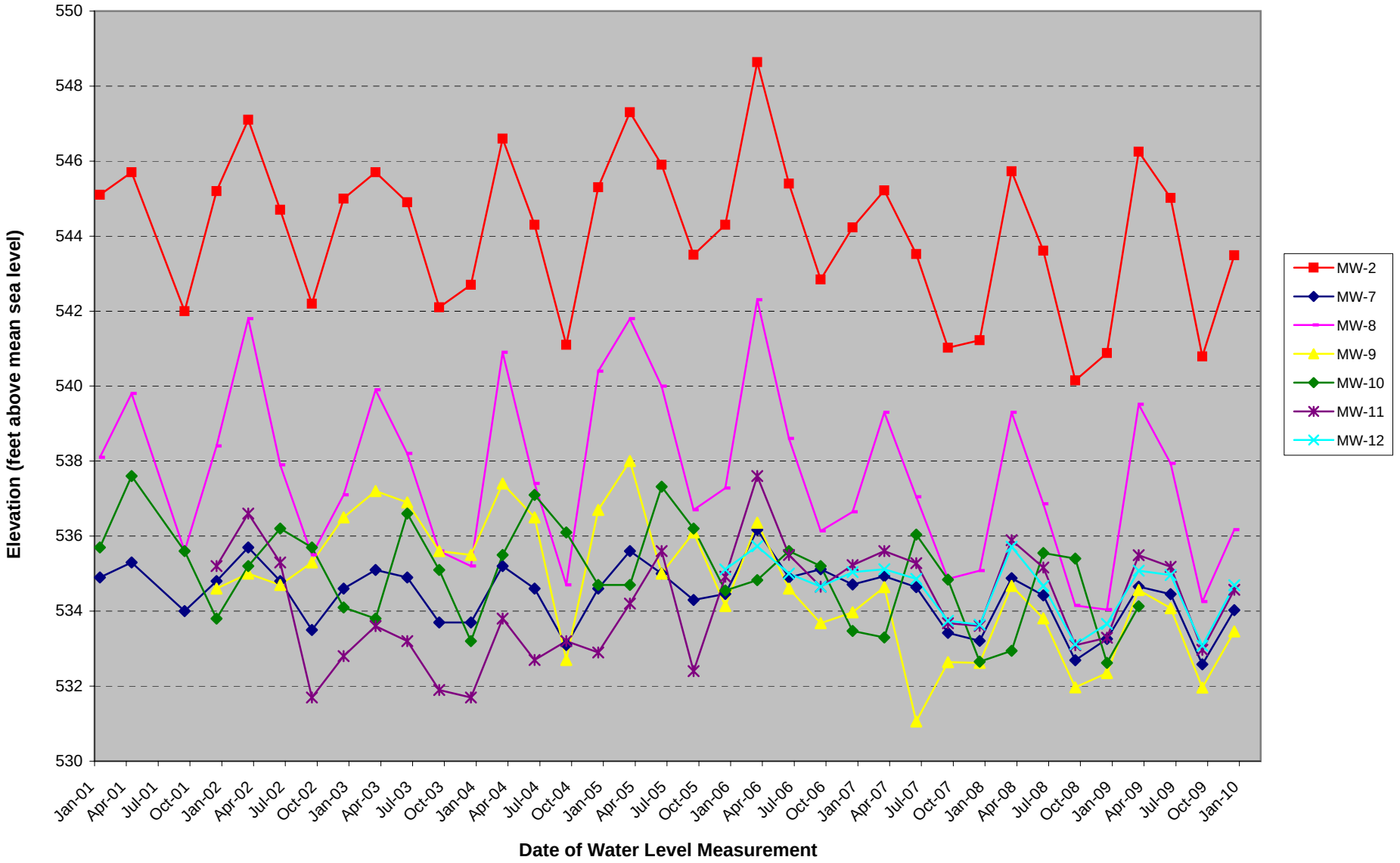
- Groundwater elevations in all of the monitored site wells showed a seasonal fluctuation in 2009—from an average increase of 1.9 feet (from September to December) to a decrease of 2.6 feet (from June to September)—with an average elevation change in individual wells of 3 feet.
- In all wells, the lowest elevations have generally been observed during the end of the dry season and the highest elevations at the peak of the rainy season. This is a common seasonal trend observed in the upper water-bearing zone in the Bay Area.
- Groundwater elevation trends and magnitudes are similar between wells.
- Overall groundwater flow direction is consistently to the west-southwest (toward Redwood Creek). Localized (on the scale of tens of feet) groundwater flow direction appears to vary within the general flow direction, likely controlled by bedrock surface topography.
- The historical groundwater gradient in the area of the contaminant plume is consistently around 0.1 feet/foot.

HYDROCHEMICAL TRENDS

Concentrations of contaminants in an individual well can fluctuate over time for one or more reasons—contaminant migration, seasonal effects due to fluctuating groundwater levels (i.e., desorption from the unsaturated zone and/or dilution of saturated zone contamination), and/or natural attenuation (plus enhancement by active remediation measures such as ORC™ injection and bioventing). These hydrochemical trends can result in changes in the lateral extent and magnitude of a dissolved contaminant plume.

The most consistent trend in the wells located within the centerline of the plume has been a seasonal influence of desorption following winter rains, with a resultant increase in dissolved hydrocarbon concentration in the groundwater.

Figure 8: Historical Groundwater Elevations in Site Wells
Redwood Regional Park Service Yard - Oakland, California



Because the quarter-to-quarter comparisons can be unduly influenced by seasonal effects that mask longer trends, it is useful to compare same-season data over time to determine if concentrations are increasing, decreasing, or remaining stable. Our evaluation of hydrochemical trends focuses on gasoline and diesel, which, when combined, represent the majority of the contaminant mass. To more closely evaluate plume stability differences, the following discussion focuses on four separate portions of the plume relative to the long axis (along the hydraulic gradient): "upgradient" (trailing edge of plume); "mid-plume"; "downgradient"; and "plume fringe."

Important components of plume stability include: degree of contaminant fluctuations in individual wells over time; changes in the lateral extent of the plume; and changes in the location of the center of contaminant mass within the plume.

Historically, the contaminant plume appeared to have disconnected from the source such that historical downgradient concentrations were higher than upgradient (near the source) concentrations. However, a significant increase in gasoline and diesel concentrations in source area well MW-2 was observed beginning in approximately September 2007. The increase continued, even after individual purging events, into 2009. SES commenced a limited ORC™ injection at this well in March 2009, and the concentrations have dramatically decreased since then. The lower plume well contaminant concentrations have varied. An overall decrease in gasoline concentrations in northwestern wells MW-7 and MW-12, and southeastern well MW-9 was observed over the past year. However, an overall increase was observed in diesel concentrations in all three wells over the past year.

To evaluate plume stability with regard to changes in the center of contaminant mass, we evaluated concentrations of TPH (gasoline and diesel combined) in individual wells over time. The data show no obvious correlation between maximum TPH concentrations and well locations, suggesting high plume instability. Since January 2001, maximum TPH concentrations have been variously detected in upgradient, mid-plume, and downgradient wells. These variations are likely due in large part to differing contaminant mass in unsaturated zone soils at particular locations, resulting in variable amounts of desorbed mass to the plume during high water conditions. The following discusses hydrochemical trends in each of the upgradient, mid-plume, and downgradient portions of the site, as well as at the fringes of the plume.

Upgradient Hydrochemical Trends

MW-2. As described in Section 4.0, this source area well historically has shown low to trace (sometimes non-detectable) contaminant levels. However, since September 2007, well MW-2 concentrations increased dramatically, suggesting desorption from the original upgradient source area as a result of the drought-induced drop in water levels. In March 2009, SES conducted a

limited ORC™ injection, which has dramatically decreased concentrations of both gasoline and diesel over time. Compared to December 2008, TVHg concentrations have decreased from 9,200 µg/L to 590 µg/L and TEHd concentrations have decreased from 2,200 µg/L to 1,800 µg/L (this is down from a maximum of 37,000 µg/L observed in March 2009). Figure 9 shows hydrochemical trends for gasoline and diesel in MW-2.

MW-8. Concentrations of TVHg in MW-8, located approximately 60 feet downgradient of MW-2, have been steadily decreasing since 2005: from 33,000 µg/L observed in June 2005 to 560 µg/L in this latest event. TEHd concentrations had remained fairly stable until a spike of 13,000 µg/L was observed in March 2008; however, the concentration has since decreased to the 540 µg/L observed in this latest event. This fluctuation demonstrates that significant contaminant mass entrained in the soil continues to "feed" the dissolved concentration, as demonstrated by periods of recharge represented during the March 2008 sampling event. As contaminant concentrations remain high in upgradient well MW-2, contaminant concentrations in this well will most likely rise as the plume migrates downgradient.

Figure 10 shows hydrochemical trends for gasoline and diesel in MW-8. Both gasoline and diesel concentrations have fluctuated widely, but follow a well-established seasonal fluctuation pattern. The strong seasonal effect is visually apparent, with annual maximum concentrations generally occurring in late winter/early spring (usually the March event), and annual minimum concentrations generally occurring in the fall/winter (usually the September or December events). Figure 10 show a strong correlation; the seasonal hydrologic trends are presented in Figure 8.

Mid-Plume Trends

MW-11. This well is located along the plume centerline, approximately midway between upgradient well MW-8 and downgradient well MW-7. Figure 11 shows hydrochemical trends for gasoline and diesel in this well. Gasoline and diesel concentrations were greatly reduced in 2001, and this was followed by an equally large increase by late 2002. Since that time, concentrations have fluctuated widely, with a strong seasonal effect. However, both diesel and gasoline concentrations in this well demonstrated a generally decreasing trend over the past year.

Downgradient Hydrochemical Trends

MW-7 and MW-9. These wells represent the high-concentration centerline of the plume at the downgradient area approximately 20 feet from Redwood Creek. Figure 12 shows hydrochemical trends for gasoline and diesel in MW-7. Gasoline has shown strong fluctuations in concentration, but with a general downward trend. However, diesel was observed to spike to a new historical TPHd maximum of 6,700 µg/L in March 2009. This is the second year in a row that new historical maximums have been observed in March in MW-7.

Figure 9: Gasoline and Diesel Hydrochemical Trends: Well MW-2
Redwood Regional Park Service Yard, Oakland, California

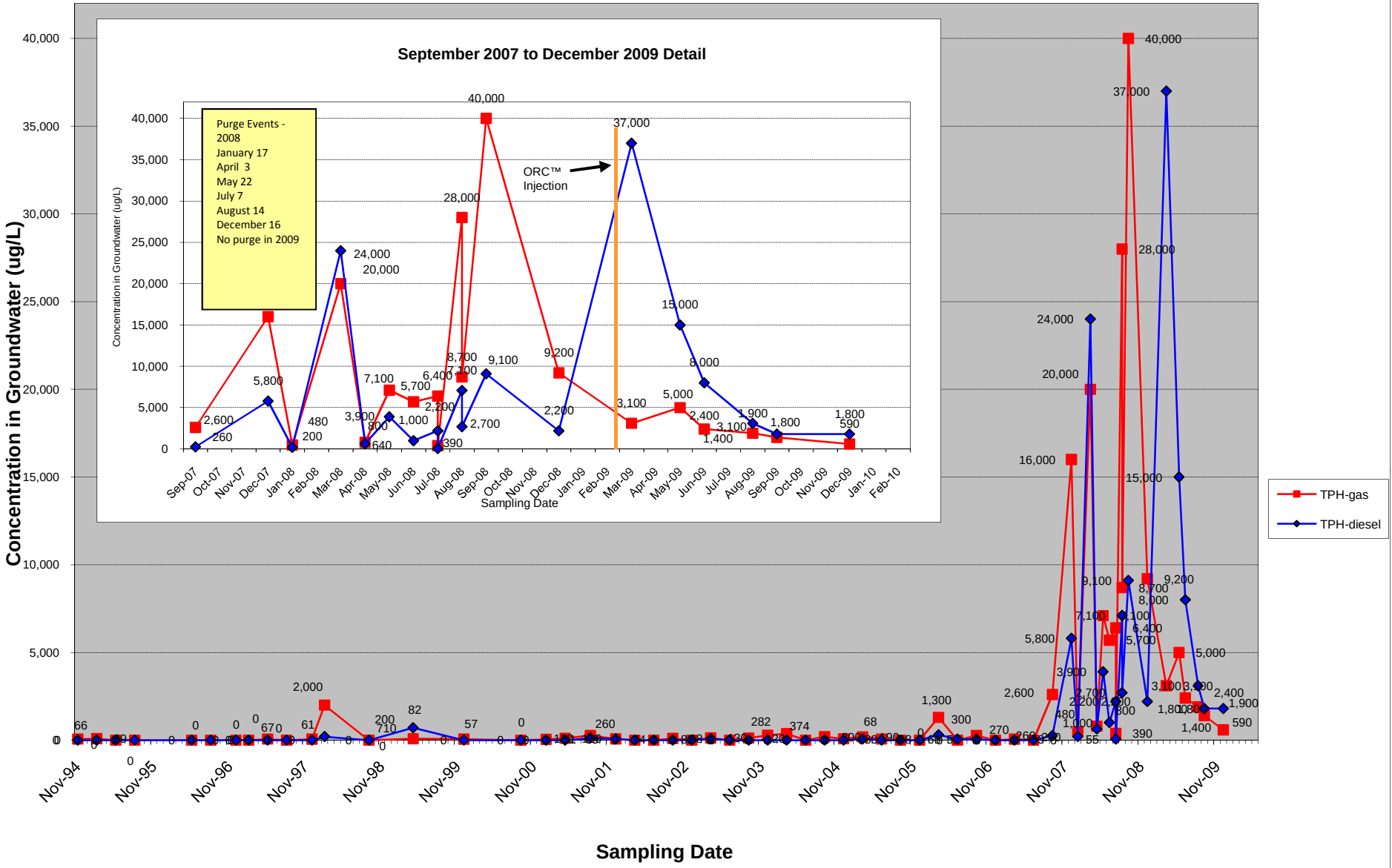


Figure 10: Gasoline and Diesel Hydrochemical Trends: Well MW-8
Redwood Regional Park Service Yard, Oakland, California

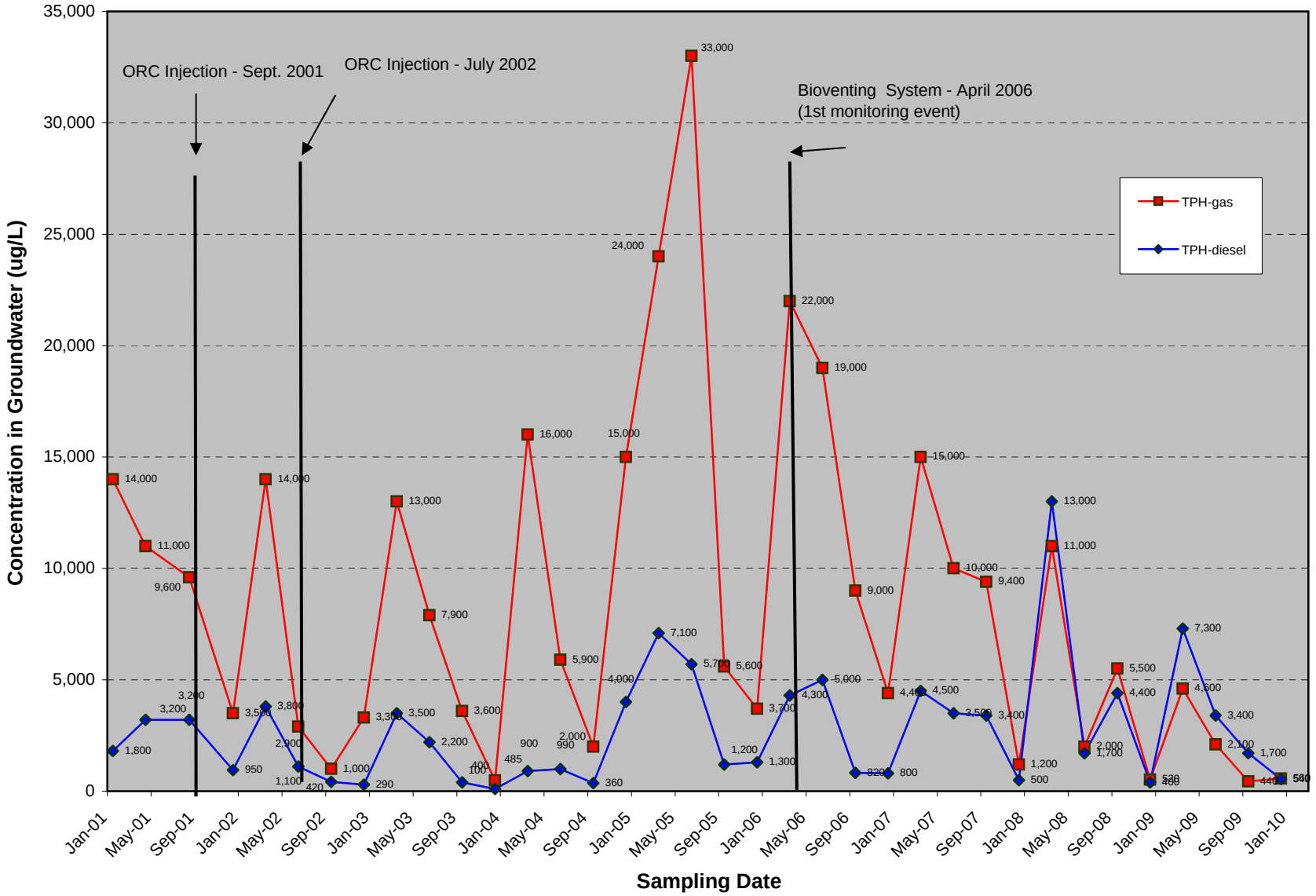


Figure 11: Gasoline and Diesel Hydrochemical Trends: Well MW-11
Redwood Regional Park Service Yard, Oakland, California

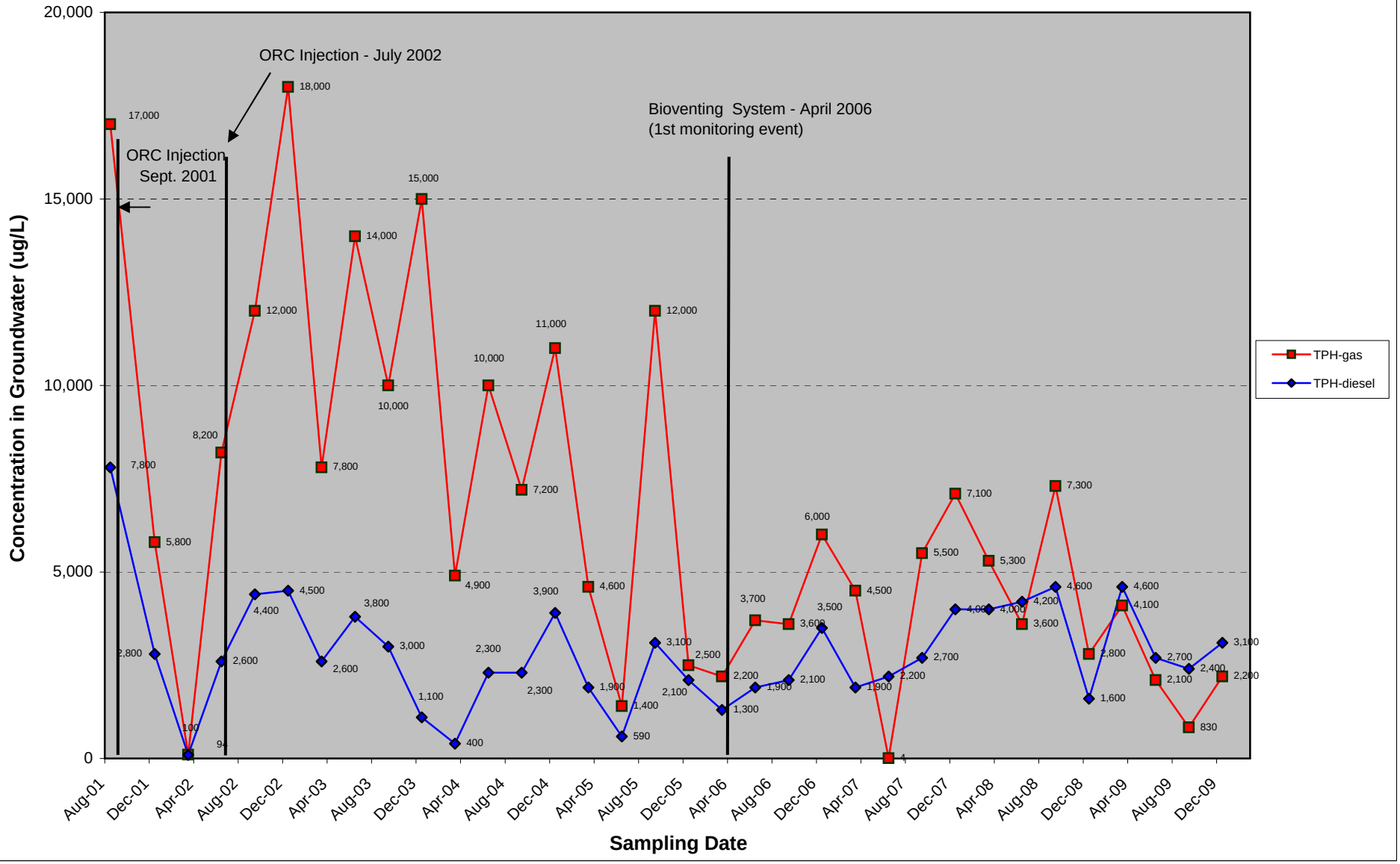


Figure 12: Gasoline and Diesel Hydrochemical Trends: Well MW-7
Redwood Regional Park Service Yard, Oakland, California

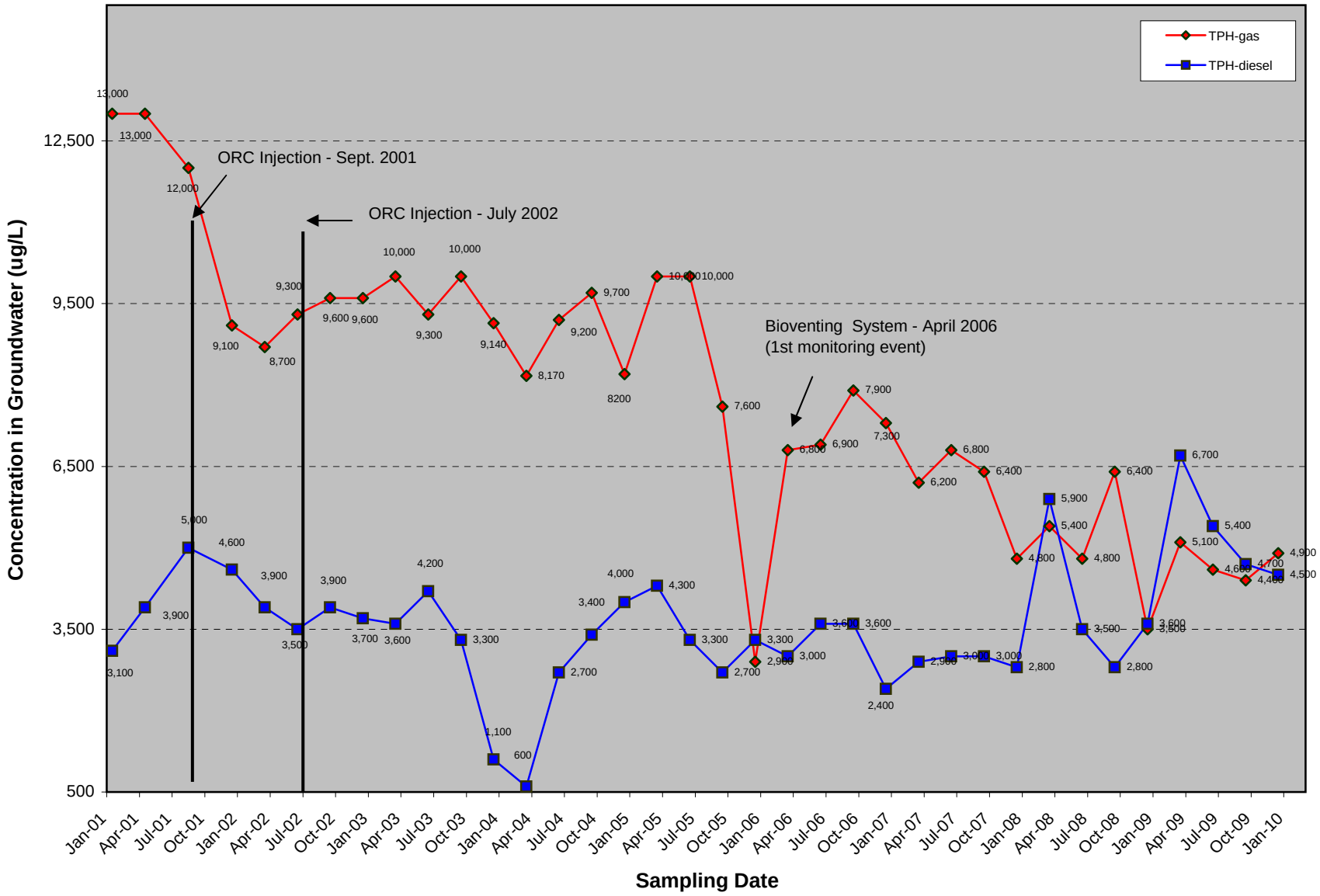


Figure 13 shows hydrochemical trends for gasoline and diesel in MW-9. This well exhibited a decrease in gasoline concentrations, but a surge in diesel concentrations. A new historical maximum was observed at 4,000 µg/L in the December 2009 event.

Plume Fringe Zone Trends

MW-10. This well is located on the southern edge of the plume, in the mid-plume portion relative to the longitudinal axis. Figure 14 shows hydrochemical trends for gasoline and diesel in this well. Concentrations of gasoline generally remained stable compared to 2008, with no concentrations above 100 µg/L. However, the diesel concentration spiked in March 2009; the concentration fell slightly in the June 2009 event, but rose again in September before dropping slightly in December. The concentration is still below the historical maximum of 320 µg/L observed in June 2008.

MW-4 (former). This well was located on the northern edge of the plume, just upgradient of Redwood Creek. Other than an anomalous diesel detection in June 2004, no contamination had been detected in this well since December 2001. Due to poor recharge in this well, the well was destroyed in November 2005 and replaced by well MW-12 (in an adjacent position).

MW-12. The initial sampling of MW-12 shows elevated petroleum concentrations up to 1,300 µg/L, but those concentrations declined until March 2008 when a spike was observed. Concentrations have fluctuated since then, but are below the historical maximum observed during the initial sampling. Figure 15 shows hydrochemical trends for gasoline and diesel in this well.

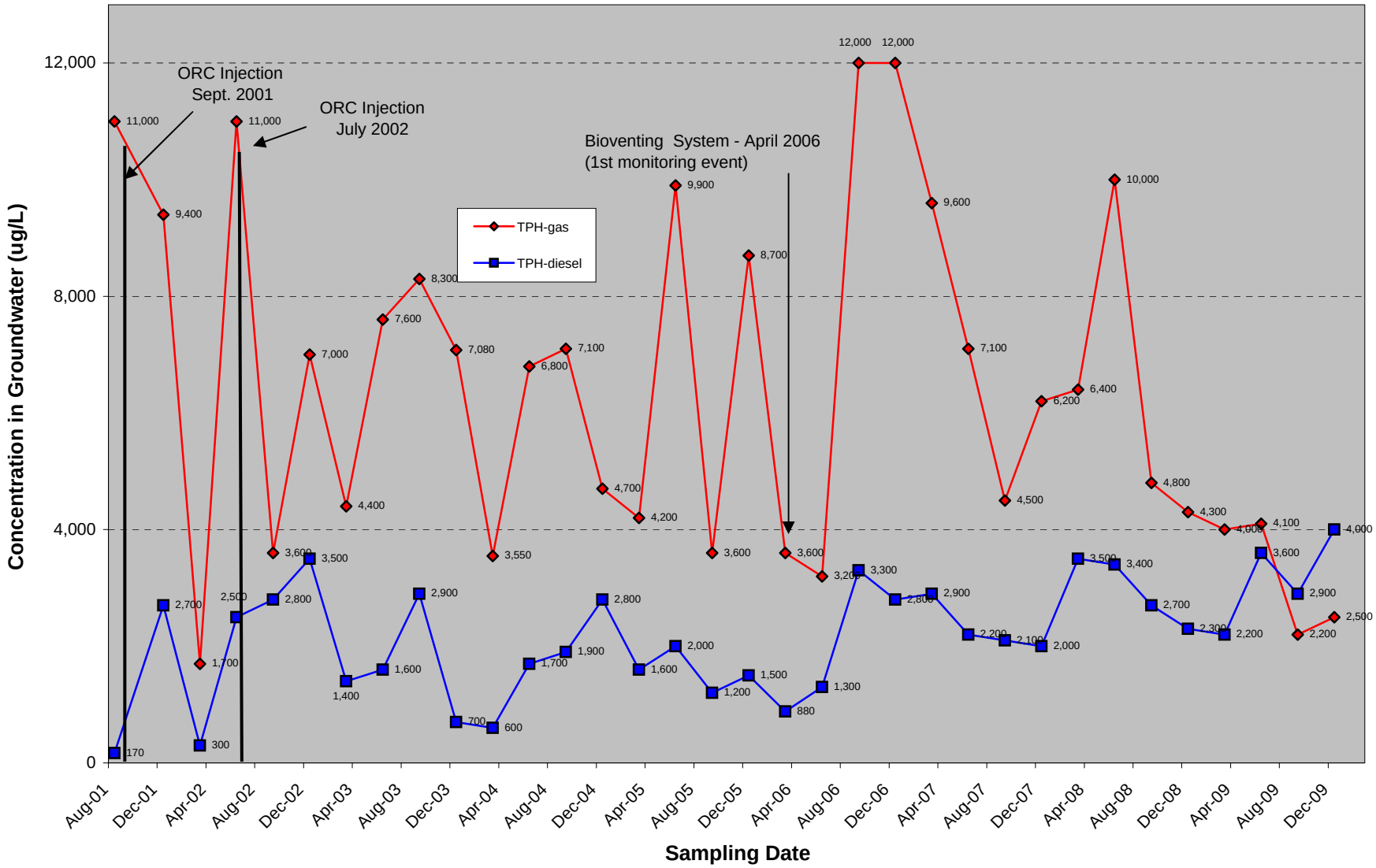
As of the most recent groundwater monitoring event, over 6 years have passed since the second phase of ORC™ injection. This is well beyond the useful life of injected ORC™ (generally 6 to 9 months), and the data reflect that the previously-injected ORC™ is no longer substantially contributing to contamination reduction.

PLUME GEOMETRY AND MIGRATION INDICATIONS

The plume of groundwater contamination above screening levels appears to be approximately 130 feet long and approximately 50 feet wide. The zone of greatest contamination fluctuates between the upper portion of the plume (MW-2), the mid-portion of the plume (near MW-8), and the downgradient portion of the plume (at MW-7 and MW-9).

The plume geometry has not varied substantially over the past 4 years of monitoring, although seasonal fluctuations in contaminant concentrations have been observed. This is exhibited by higher concentrations in downgradient wells in some events, and in mid-plume or upgradient wells in other events.

Figure 13: TPH-gasoline and TPH-diesel Hydrochemical Trends: Well MW-9
Redwood Regional Park Service Yard, Oakland, California



Stellar Environmental Solutions, Inc.

Figure 14: Gasoline and Diesel Hydrochemical Trends: Well MW-10
Redwood Regional Park Service Yard, Oakland, California

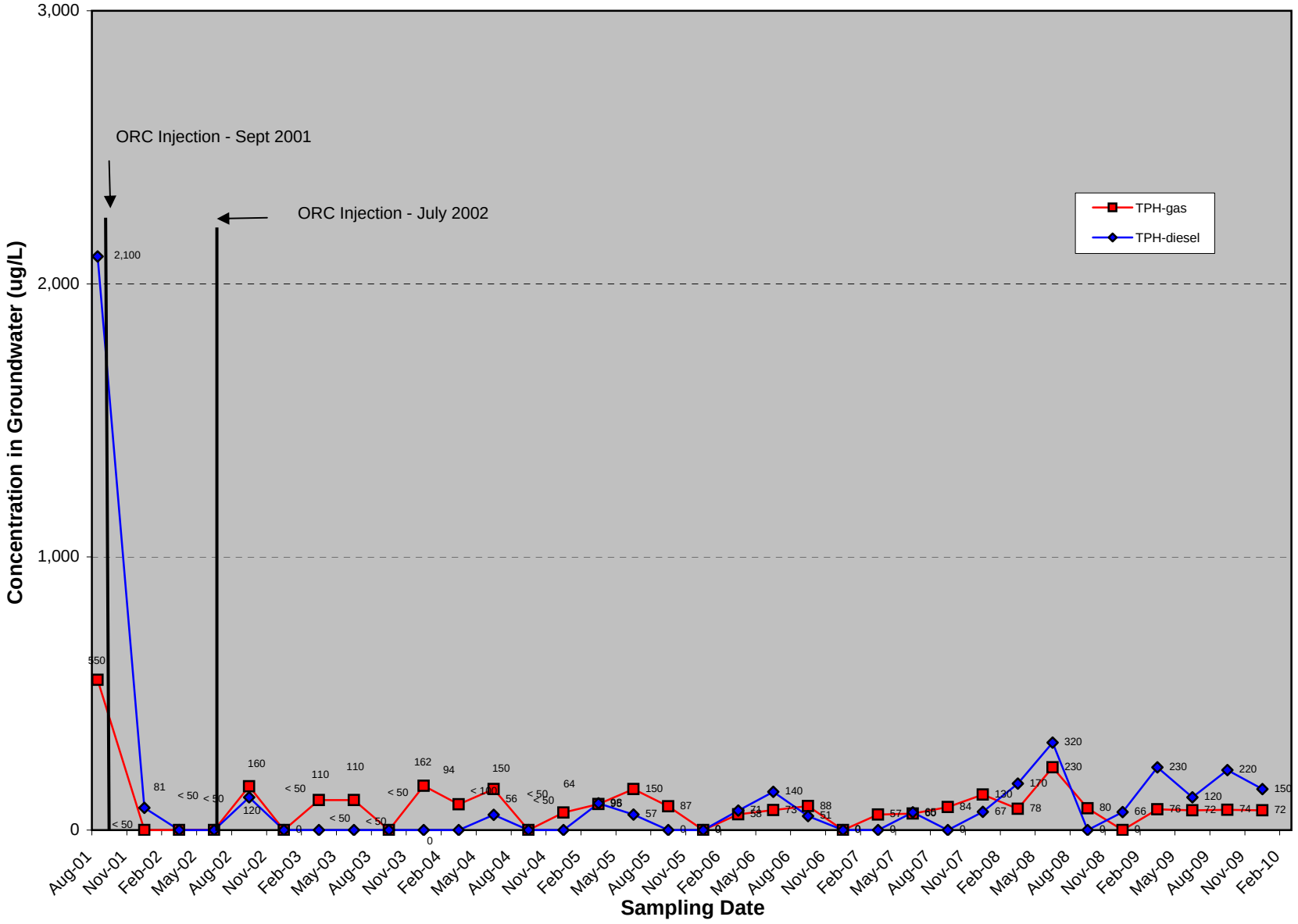
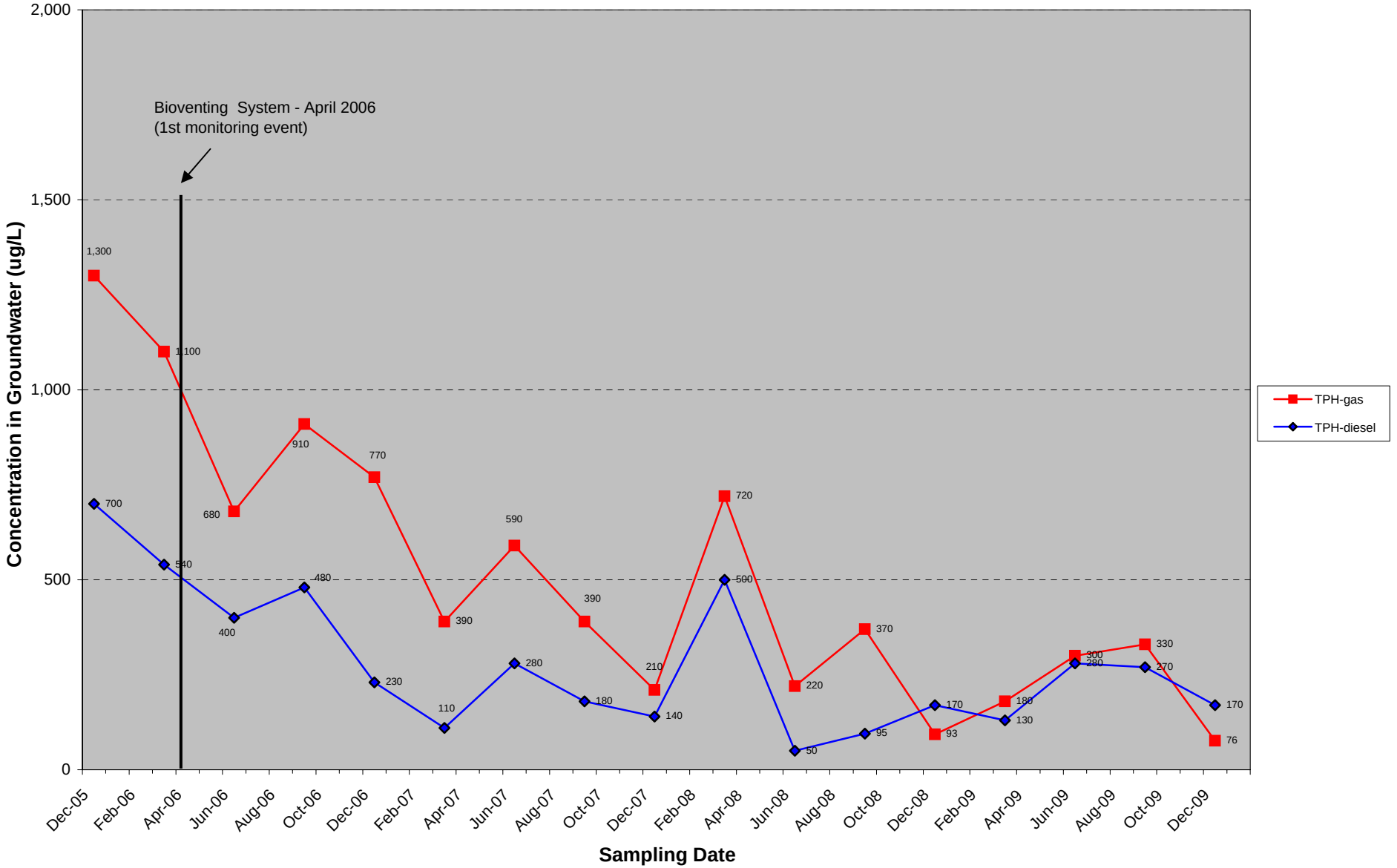


Figure 15: Gasoline and Diesel Hydrochemical Trends: Well MW-12
Redwood Regional Park Service Yard, Oakland, California



Over the past 2 years, maximum contaminant concentrations have been exceeded in several of the wells, including the historical source area well MW-2. This suggests that the drought-like conditions experienced during 2006-2008 and at the beginning of 2009 allowed the desorption of previously confined pockets of residual contamination.

CLOSURE CRITERIA ASSESSMENT AND PROPOSED ACTIONS

The Water Board and ACEH generally require that the following criteria be met before issuing regulatory closure of contaminant cases:

1. ***The contaminant source has been removed (i.e., the source of the discharge and obviously-contaminated soil).*** This criterion has not been fully met, with the recent data from well MW-2 suggesting more remaining mass than originally thought. While the UFSTs have been removed, borehole soil sampling has shown a substantial mass of residual source area soil contamination that will act as an ongoing source of groundwater contamination. As discussed below, a soil bioventing system has been installed as a corrective action to reduce contaminant mass. The bioventing system began operating in December 2005.
2. ***The groundwater contaminant plume is well characterized, and is stable or reducing in magnitude and extent.*** As discussed above, in our professional opinion, this criterion has not been met, and continued groundwater monitoring will be needed to demonstrate plume stability.
3. ***If residual contamination (soil or groundwater) exists, there is no reasonable risk to sensitive receptors (i.e., contaminant discharge to surface water or water supply wells) or to site occupants.*** This criterion is generally met by conducting a Risk-Based Corrective Action assessment that models the fate and transport of residual contamination in the context of potential impacts to sensitive receptors (e.g., water wells, residential land use). For this site, Redwood Creek is considered the primary sensitive receptor. The proposed corrective action is designed specifically to reduce the magnitude and duration of future contaminated groundwater discharge to Redwood Creek.

7.0 SUMMARY, CONCLUSIONS AND PROPOSED ACTIONS

The following conclusions and proposed actions are based on the findings of the current event activities, as well as on salient historical data.

SUMMARY AND CONCLUSIONS

- Groundwater sampling has been conducted on an approximately quarterly basis since November 1994). A total of 11 site wells are available for monitoring, 7 of which are currently being monitored for contamination.
- Site contaminants of concern include gasoline, diesel, BTEX, and MTBE. Current groundwater concentrations exceed regulatory screening levels for TPHg, TPHd, benzene, ethylbenzene, and MTBE in groundwater. No contaminants were detected in surface water during this event.
- The primary environmental risk is discharge of contaminated groundwater to the adjacent Redwood Creek. A stream bioassessment concluded that there were no direct impacts to the surface water benthic community; however, groundwater contamination is sporadically detected in surface water samples, and there is historical visual evidence of plume discharge at the creek/groundwater interface. Surface water samples have sporadically exceeded surface water ESL criteria for gasoline, diesel, and benzene, and generally only under low creek flow conditions. An in-stream bioassessment evaluation conducted in 1999 to 2000 determined that there were no impacts to the benthic macroinvertebrate community.
- The existing well layout adequately constrains the lateral extent of groundwater contamination, and the vertical limit is very likely the top of the near-surface (25 to 28 feet) siltstone bedrock. The saturated interval extends approximately 12 to 15 feet from top of bedrock through the capillary fringe. Groundwater elevations fluctuate seasonally, creating a capillary fringe that varies seasonally in thickness.
- The plume of groundwater contamination above screening levels appears to be approximately 130 feet long and approximately 50 feet wide. The zone of greatest contamination (greater than 5,000 µg/L of TVHg) is currently centered around well MW-7, a downgradient well. However, until the ORC™ injection in March 2009, the greatest zone of contamination was observed in MW-2, the historical source area well.

- The contaminant plume is neither stable nor reducing, as groundwater contaminant concentrations fluctuate seasonally, and the center of mass of the contaminant plume (represented by maximum concentrations) has alternated between the upgradient, mid-plume, and downgradient wells in recent history. The increases in MW-2 indicate that further increases will be observed downgradient, as the plume moves downgradient.
- To reduce the contaminant mass in the area of MW-2, a limited injection program was implemented around the well in March 2009. Nine injection points were delivered within a 300-square-foot radius of the well to a depth of 25 feet. A total of approximately 270 pounds of ORC™ was mixed with water to achieve a 30-percent solid slurry, and was delivered to the subsurface (30 pounds of ORC™ mixed with 12 gallons of water was injected into each bore). Subsequent monitoring of the well revealed a drastic reduction in contaminant concentrations, which were continuing to decrease as observed in the current (Q4 2009) event.
- A September 2003 exploratory borehole program confirmed that sorbed-phase contamination in the seasonally unsaturated zone is a primary source of long-term contaminant contribution to the groundwater plume. Reduction/removal of this contamination will be necessary to eliminate continued discharge of contaminated groundwater to Redwood Creek, and to ultimately obtain site closure.
- Soil bioventing is a proven technology for contaminant mass removal in the unsaturated zone, under conditions similar to the site. However, the drought-like conditions in 2006-2009 should have generated a relative increase in the effectiveness of the system. It appears as if tight soil morphology is preventing air saturation in several of the vent wells, and the system is therefore performing at a less-than-optimal level.

PROPOSED ACTIONS

The EBRPD proposes to implement the following actions in 2010 to address the current site conditions and regulatory concerns:

- While the ORC™ injection in 2001 did not produce a long-lasting decrease in overall concentrations, SES believes that this was due to the placement of the original injections (mid-plume and at the downgradient portion of the plume, where the highest contaminant concentrations were detected at that time). By advancing injections in the upgradient, mid-plume, and downgradient areas, the remedy should create a more sustainable result. Advanced ORC™ was selected to inoculate the groundwater in a treatment barrier design in the source zone, as well as immediately downgradient in the downhill roadway area. This remedy will create highly oxygenated barrier zones at critical locations transverse to the plume, focusing depth and loading based on lithology and known or suspected TPH mass. In addition, the Advanced ORC™ is a longer lasting and more powerful oxygen delivery compound than the original ORC™ compound. Four Advanced ORC™ zones,

comprising a total of 24 borehole injections, are proposed for delivery of the Advanced ORC™ product. A total of approximately 2,158 pounds of ORC™ will be mixed with water to achieve a 30-percent solid slurry, which will be delivered to the subsurface. All injection points will be advanced to a depth of approximately 20 to 25 feet bgs, with ORC™ injected across the approximately 5- to 10-foot-thick saturated zone and associated capillary fringe. The upper 10 feet of each borehole will be tremie-grouted with a hydrated slurry of bentonite powder and Portland cement to ground surface. Following the injection, SES will monitor DO concentrations during the quarterly monitoring events to measure the effectiveness of the remedy. In August 2009, a technical workplan describing this work was submitted to ACEH (SES, 2009e). SES proposes to conduct this work within the first quarter of 2010.

- Continue the quarterly program of creek and groundwater monitoring.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Operate the bioventing system as a corrective action to move the site toward closure, and report the results in bioventing-specific technical reports.
- Conduct another in-situ respiration test to access oxygenation and microbial activity in the contaminated zone.
- Continue to evaluate analytical results (and bioventing contaminant removal data) in the context of hydrochemical trends, impacts of groundwater contamination on Redwood Creek, and effectiveness of the corrective action.
- Continue to make required Electronic Data Format uploads to the State of California GeoTracker database, and upload an electronic copy of technical reports to ACEH's ftp database.

8.0 REFERENCES AND BIBLIOGRAPHY

Parsons Engineering Science (Parsons), 1998. Quarterly Progress Report 11, Redwood Regional Park Service Yard, Oakland, California. January 28.

Parsons Engineering Science (Parsons), 1997a. Quarterly Progress Report 7, Redwood Regional Park Service Yard, Oakland, California. January 31.

Parsons Engineering Science (Parsons), 1997b. Quarterly Progress Report 8 and Annual Summary Assessment, Redwood Regional Park Service Yard, Oakland, California. April 4.

Parsons Engineering Science (Parsons), 1997c. Quarterly Progress Report 9, Redwood Regional Park Service Yard, Oakland, California. June 30.

Parsons Engineering Science (Parsons), 1997d. Quarterly Progress Report 10, Redwood Regional Park Service Yard, Oakland, California. September 22.

Parsons Engineering Science (Parsons), 1996a. Quarterly Progress Report 5, Redwood Regional Park Service Yard, Oakland, California. June 6.

Parsons Engineering Science (Parsons), 1996b. Quarterly Progress Report 6, Redwood Regional Park Service Yard, Oakland, California. September 24.

Parsons Engineering Science (Parsons), 1995a. Quarterly Progress Report 2, Redwood Regional Park Service Yard, Oakland, California. March 8.

Parsons Engineering Science (Parsons), 1995b. Quarterly Progress Report 3, Redwood Regional Park Service Yard, Oakland, California. June 23.

Parsons Engineering Science (Parsons), 1995c. Quarterly Progress Report 4 and Annual Summary Assessment (November 1994 - August 1995), Redwood Regional Park Service Yard, Oakland, California. November 13.

Parsons Engineering Science (Parsons), 1994a. Creek and Soil Sampling at Redwood Regional Park, Oakland, California. March 2.

Parsons Engineering Science (Parsons), 1994b. Creek Surface Water at Redwood Regional Park, Oakland, California. May 13.

Parsons Engineering Science (Parsons), 1994c. Workplan for Groundwater Characterization Program at East Bay Regional Park Service Yard, Oakland, California. August 17.

Parsons Engineering Science (Parsons), 1994d. Quarterly Progress Report 1, Redwood Regional Park Service Yard, Oakland, California. December 28.

Parsons Engineering Science (Parsons), 1993a. Closure of Underground Fuel Storage Tanks and Initial Site Characterization at Redwood Regional Park Service Yard, Oakland, California. December 16.

Parsons Engineering Science (Parsons), 1993b. Workplan for Site Characterization at East Bay Regional Park District, Redwood Regional Park Corporation Yard, Oakland, Alameda County, California. September 3.

Regional Water Quality Control Board, San Francisco Bay Region (Water Board), 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater and Surface Water Screening Levels for Freshwater Aquatic Habitats. Initial values produced February 2005, Revised May 2008.

Regional Water Quality Control Board, San Francisco Bay Region (Water Board), 1995. San Francisco Bay Region Water Quality Control Plan.

State Water Resources Control Board, 1989. Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure. State of California Leaking Underground Fuel Tank Task Force. October.

Stellar Environmental Solutions, Inc. (SES), 2009a. Fourth Quarter 2008 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. January 15.

Stellar Environmental Solutions, Inc. (SES), 2009b. First Quarter 2009 Groundwater Monitoring and Oxygen Release Compound ORC™ Treatment Corrective Action Report, Redwood Regional Park Service Yard, Oakland, California. April 10.

Stellar Environmental Solutions, Inc. (SES), 2009c. Second Quarter 2009 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 1.

Stellar Environmental Solutions, Inc. (SES), 2009d. Third Quarter 2009 Groundwater Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 20.

Stellar Environmental Solutions, Inc. (SES), 2009e. Workplan for Insitu Injection. Redwood Regional Park Service Yard, Oakland, California. August 20.

Stellar Environmental Solutions, Inc. (SES), 2008a. Fourth Quarter 2007 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 8.

Stellar Environmental Solutions, Inc. (SES), 2008b. First Quarter 2008 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. April 29.

Stellar Environmental Solutions, Inc. (SES), 2008c. Second Quarter 2008 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. July 15.

Stellar Environmental Solutions, Inc. (SES), 2008d. Third Quarter 2008 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. October 7.

Stellar Environmental Solutions, Inc. (SES), 2007a. First Quarter 2007 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 25.

Stellar Environmental Solutions, Inc. (SES), 2007b. Second Quarter 2007 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 9.

Stellar Environmental Solutions, Inc. (SES), 2007c. Third Quarter 2007 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 9.

Stellar Environmental Solutions, Inc. (SES), 2006a. Fourth Quarter 2005 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 20.

Stellar Environmental Solutions, Inc. (SES), 2006b. First Quarter 2006 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 21.

Stellar Environmental Solutions, Inc. (SES), 2006c. Second Quarter 2006 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 5.

Stellar Environmental Solutions, Inc. (SES), 2006d. Third Quarter 2006 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. November 21.

Stellar Environmental Solutions, Inc. (SES), 2005a. First Quarter 2005 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. March 31.

Stellar Environmental Solutions, Inc. (SES), 2005b. Second Quarter 2005 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 12.

Stellar Environmental Solutions, Inc. (SES), 2005c. Third Quarter 2005 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 13.

Stellar Environmental Solutions, Inc. (SES), 2005d. Fourth Quarter 2004 Groundwater Monitoring and Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 24.

Stellar Environmental Solutions, Inc. (SES), 2004a. Year 2003 Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 15.

Stellar Environmental Solutions, Inc. (SES), 2004b. First Quarter 2004 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 14.

Stellar Environmental Solutions, Inc. (SES), 2004c. Second Quarter 2004 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 16.

Stellar Environmental Solutions, Inc. (SES), 2004d. Third Quarter 2004 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 12.

Stellar Environmental Solutions, Inc. (SES), 2003a. Year 2002 Annual Summary Report, Redwood Regional Park Service Yard, Oakland, California. January 27.

Stellar Environmental Solutions, Inc. (SES), 2003b. First Quarter 2003 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. May 5.

Stellar Environmental Solutions, Inc. (SES), 2003c. Second Quarter 2003 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 29.

Stellar Environmental Solutions, Inc. (SES), 2003d. Third Quarter 2003 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 3.

Stellar Environmental Solutions, Inc. (SES), 2002a. First Quarter 2002 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 16.

Stellar Environmental Solutions, Inc. (SES), 2002b. Second Quarter 2002 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. July 23.

Stellar Environmental Solutions, Inc. (SES), 2002c. Third Quarter 2002 Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 14.

Stellar Environmental Solutions, Inc. (SES), 2001a. Monitoring Well Installation and Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. February 8.

Stellar Environmental Solutions, Inc. (SES), 2001b. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. May 4.

Stellar Environmental Solutions, Inc. (SES), 2001c. Well Installation, Site Monitoring, and Corrective Action Report, Redwood Regional Park Service Yard, Oakland, California. October 26.

Stellar Environmental Solutions, Inc. (SES), 2000a. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. April 21.

Stellar Environmental Solutions, Inc. (SES), 2000b. Workplan for Groundwater Monitoring Well Installations, Redwood Regional Park Service Yard, Oakland, California. October 19.

Stellar Environmental Solutions, Inc. (SES), 2000c. Site Monitoring Report, Redwood Regional Park Service Yard, Oakland, California. October 19.

Stellar Environmental Solutions, Inc. (SES), 2000d. Site Feasibility Study Report, Redwood Regional Park Service Yard, Oakland, California. October 20.

Stellar Environmental Solutions, Inc. (SES), 1999a. Workplan for Subsurface Investigation, Redwood Regional Park Service Yard, Oakland, California. April 8.

Stellar Environmental Solutions, Inc. (SES), 1999b. Residual Contamination Investigation and Remedial Action Assessment Report, Redwood Regional Park Service Yard, Oakland, California. June 9.

Stellar Environmental Solutions, Inc. (SES), 1998a. Workplan for Continued Site Investigation and Closure Assessment, Redwood Regional Park Service Yard, Oakland, California. October 9.

Stellar Environmental Solutions, Inc. (SES), 1998b. Site Investigation and Closure Assessment Report, Redwood Regional Park Service Yard, Oakland, California. December 4.

9.0 LIMITATIONS

This report has been prepared for the exclusive use of the East Bay Regional Park District, its authorized representatives, 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 the review of previous investigators' findings at the site, as well as onsite activities conducted by SES since September 1998. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this work 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 present. 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 site characterization and corrective actions completed.

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

HISTORICAL GROUNDWATER ELEVATIONS IN MONITORING WELLS
REDWOOD REGIONAL PARK SERVICE YARD
7867 REDWOOD ROAD, OAKLAND, CALIFORNIA

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	531.4						
04/06/99	565.2	546.9	542.3	535.6	532.3	532.9						
12/20/99	562.9	544.7	541.5	534.9	531.2	532.2						
09/28/00	562.8	542.7	538.3	532.2	530.9	532.0						
01/11/01	562.9	545.1	541.7	535.0	531.2	532.3	534.9	538.1				
04/13/01	562.1	545.7	541.7	535.1	531.5	532.4	535.3	539.8				
09/01/01	560.9	542.0	537.7	533.9	530.7	531.8	534.0	535.6				
12/17/01	562.2	545.2	542.2	534.8	531.4	532.4	534.8	538.4	534.6	535.7	535.2	
03/14/02	563.0	547.1	542.2	535.5	532.4	533.3	535.7	541.8	535.0	537.6	536.6	
06/18/02	562.1	544.7	541.1	534.6	531.2	532.2	534.8	537.9	534.7	535.6	535.3	
09/24/02	561.4	542.2	537.3	533.5	530.6	531.8	533.5	535.5	535.3	533.8	531.7	
12/18/02	562.4	545.0	542.0	534.8	531.5	532.5	534.6	537.1	536.5	535.2	532.8	
03/27/03	562.6	545.7	541.7	534.8	531.6	532.4	535.1	539.9	537.2	536.2	533.6	
06/19/03	562.3	544.9	541.5	534.8	531.3	532.3	534.9	538.2	536.9	535.7	533.2	
09/10/03	561.6	542.1	537.9	533.8	530.8	531.9	533.7	535.6	535.6	534.1	531.9	
12/10/03	562.4	542.7	537.6	533.7	530.9	531.9	533.7	535.2	535.5	533.8	531.7	
03/18/04	563.1	546.6	541.9	535.0	531.7	532.4	535.2	540.9	537.4	536.6	533.8	
06/17/04	562.1	544.3	540.7	534.3	531.0	532.1	534.6	537.4	536.5	535.1	532.7	
09/21/04	561.5	541.1	536.5	533.1	530.5	531.6	533.1	534.7	532.7	533.2	533.2	
12/14/04	562.2	545.3	541.7	534.7	531.4	532.2	534.6	540.4	536.7	535.5	532.9	
03/16/05	563.8	547.3	541.7	535.3	532.4	532.8	535.6	541.8	538.0	537.1	534.2	
06/15/05	562.9	545.9	541.6	535.0	531.7	532.5	535.0	540.0	535.0	536.1	535.6	
09/13/05	562.3	543.5	539.7	534.4	530.9	532.2	534.3	536.7	536.1	534.7	532.4	
12/15/05	562.2	544.3	541.4	(b)	531.0	532.2	534.5	537.3	534.1	534.7	534.9	535.1
03/30/06	565.8	548.6	542.7	(b)	533.9	534.4	536.2	542.3	536.4	537.3	537.6	535.7
06/20/06	563.6	545.4	541.6	(b)	531.5	532.5	534.9	538.6	534.6	536.2	535.5	535.0
09/29/06	561.9	542.8	539.0	(b)	530.7	532.1	535.1	536.1	533.7	534.6	534.7	534.7
12/14/06	562.9	544.2	541.5	(b)	531.1	532.3	534.7	536.7	534.0	534.8	535.2	535.0
03/21/07	562.5	545.2	541.7	(b)	531.4	532.4	534.9	539.3	534.6	535.6	535.6	535.1
06/20/07	561.5	543.5	540.8	(b)	531.0	532.4	534.6	537.1	531.1	535.2	535.3	534.9
9/14/2007	560.71	541.02	536.99	(b)	530.46	531.58	533.42	534.86	532.64	533.47	533.68	533.74
12/6/2007	560.62	541.22	536.85	(b)	530.68	531.48	533.21	535.08	532.62	533.3	533.61	533.64
3/14/2008	561.76	545.73	541.63	(b)	531.34	532.30	534.88	539.30	534.67	536.04	535.89	535.72
6/13/2008	560.92	543.61	540.6	(b)	530.83	532.02	534.42	536.86	533.81	534.84	535.16	534.67
9/18/2008	560.43	540.15	536.41	(b)	529.85	531.11	532.69	534.15	531.97	532.65	533.09	533.12
12/17/2008	561.11	540.88	536.77	(b)	530.68	531.67	533.26	534.04	532.35	532.94	533.29	533.66
3/16/2009	561.84	546.25	539.51	(b)	531.63	532.58	534.65	539.51	534.56	535.55	535.49	535.08
6/10/2009	561.05	545.02	541.38	(b)	531.02	532.08	534.45	537.94	534.08	535.40	535.18	534.96
9/25/2009	560.00	540.79	536.33	(b)	529.98	Dry	532.58	534.25	531.96	532.62	532.97	533.08
12/21/2009	560.93	543.49	541.22	(b)	530.96	532.06	534.03	536.17	533.46	534.13	534.57	534.69

TOC = Top of well Casing
(a) TOC Elevations resurveyed on December 15, 2005 in accordance GeoTracker requirements.
(b) Well decomissioned and replaced by MW-12 in December 2005.

APPENDIX B

Groundwater Monitoring
Field Documentation

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Stellar @ Redwood Regional Service Yard				PROJECT NUMBER 09122I-DRI			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP. °F	INITIALS
Myron L ultrameter	6223839	12/21/09	7.0 10.0 4.0 3900	7.02 9.99 3.97 3901	Y	54.5-54.7	DR
Hach Turbidimeter	07110C026534	12/21/09	560 55 5.7	558 54 5	Y	—	DR
YSI 550	0361029 AH	12/21/09	100%	✓	Y	54.9	DR

WELLHEAD INSPECTION CHECKLIST

Date 12/21/09 Client Stellar Env.

Site Address Redwood Regional Park Service Yard Oakland Ca.

Job Number 091221-DR1 Technician DR/BP

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-1	X							
MW-2	X							
MW-3	X							
MW-5	X							
MW-6	X							
MW-7	X							
MW-8		X					X	
MW-9	X							
MW-10							X	
MW-11	X							
MW-12	X							

NOTES: ~~BP~~ (BP) MW-8: 3/3 bolts missing. MW-10: 2/2 bolts stripped, annular seal has fallen

WELL GAUGING DATA

Project # 091221-DR1 Date 12/21/09 Client Stellar Environmental

Site Redwood Regional Park Service Yard Oakland Ca.

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	0948	4					4.90	19.20		
MW-2	0952	4					22.93	38.68		
MW-3	0858	4					19.59	45.00		
MW-5	~~0904~~ 0926 BP	4					~~15.85~~ 16.45 BP	~~30.21~~ 27.04 BP		
MW-6	0934	4					13.37	27.41		
MW-7	0907	2					13.53	25.45		
MW-8	0915	2					12.90	22.19		
MW-9	0904	2					15.82	30.21		
MW-10	0922	2					13.09	28.41		
MW-11	0910	2					13.18	28.80		
MW-12	0940	2					9.98	23.85	↓	

V L MONITORING DATA SHL

Project #: 091221-DR1	Client: Stellar Env. Solutions
Sampler: DR / BF	Date: 12/21/09
Well I.D.: MW-(B)2	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD): 38.08	Depth to Water (DTW): 22.93
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]: 26.08	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

10.2 (Gals.) X 3 = 30.6 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1015	60.3	6.61	839	9	10.2	
1017	60.3	6.69	851	122	20.4	
1019	60.4	6.72	853	274	30.6	DTW=34.85

Did well dewater? Yes (No) Gallons actually evacuated: 30.6

Sampling Date: 12/21/09 Sampling Time: 1325 Depth to Water: 24.45

Sample I.D.: MW-2 Laboratory: Kiff CalScience Other (Curtis & Tompkins)

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	0.20	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

...L MONITORING DATA SH...

Project #: 091221-DR1	Client: Stetler Env. Solutions
Sampler: DR / BP	Date: 12/21/09
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 25.45	Depth to Water (DTW): 13.53
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]: 15.91	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: ____

1.9 (Gals.) X 3 = 5.7 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1113	57.0	7.01	818.3	812	1.9	slight odor/cloudy
1117	57.1	6.93	823.1	>1000	3.8	
1120	57.2	6.91	787.4	>1000	5.7	
						DTW = 16.73

Did well dewater? Yes (No) Gallons actually evacuated: 5.7

Sampling Date: 12/21/09 Sampling Time: 1130 Depth to Water: 15.90

Sample I.D.: MW-7 Laboratory: Kiff CalScience Other (Curtis & Tompkins)

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

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

...L MONITORING DATA SH...

Project #: 091221-DR1	Client: Stellar Env. Solutions
Sampler: DR / BP	Date: 12/21/09
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 22.19	Depth to Water (DTW): 12.96
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]: 14.81	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: ____

1.5 (Gals.) X 3 = 4.5 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1219	59.2	7.27	787	>1000	1.5	
1222	59.6	7.23	785	>1000	3.0	
1224	59.7	7.20	785	>1000	4.5	

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Date: 12/21/09 Sampling Time: 1230 Depth to Water: 14.72

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

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	0.47 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

L MONITORING DATA SH

Project #: 091221-DR1	Client: Stellar Env. Solutions
Sampler: DR/BP	Date: 12/21/09
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.21	Depth to Water (DTW): 15.82
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 18.70	

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

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

2.3 (Gals.) X	3	= 6.9 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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1156	57.7	6.92	1032	>1000	2.3	odor/sheen
1200	57.9	6.97	1017	>1000	4.6	"
1204	57.5	7.02	1042	>1000	6.9	"
					DTW	= 22.23

Did well dewater? Yes (No) Gallons actually evacuated: 6.9

Sampling Date: 12/21/09 Sampling Time: ~~1510~~ BP 1410 Depth to Water: 16.29

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

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

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

...L MONITORING DATA SH...

Project #: 091221-DR1	Client: Stellar Env. Solutions
Sampler: DR (EP)	Date: 12/21/09
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.41	Depth to Water (DTW): 13.09
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]: 16.15	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1044	58.6	6.91	802	729	2.5	cloudy
1051	58.6	6.96	827	>1000	5.0	"
1058	58.4	7.01	818	>1000	7.5	" DTW=20.38

Did well dewater? Yes (No)		Gallons actually evacuated: 7.5	
Sampling Date: 12/21/09	Sampling Time: 1345	Depth to Water: 13.65	
Sample I.D.: MW-10	Laboratory: Kiff CalScience Other (Curtis & Tompkins)		
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other: See COC			
EB I.D. (if applicable): @ Time	Duplicate I.D. (if applicable):		
Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:			
D.O. (if req'd): Pre-purge:	mg/L	Post-purge:	0.28 mg/L
O.R.P. (if req'd): Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 091221-DR1	Client: Stellar Env. Solutions
Sampler: (DR) / BP	Date: 12/21/09
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 28.80	Depth to Water (DTW): 13.18
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 16.30	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1242	57.4	7.14	759.8	>1000	2.5	cloudy, odor
1245	57.7	6.99	770.1	>1000	5.0	cloudy, odor
1248	57.7	6.93	782.0	>1000	7.5	cloudy, odor
						DTW = 14.06

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

Sampling Date: 12/21/09 Sampling Time: 1255 Depth to Water: 14.22

Sample I.D.: MW-11 Laboratory: Kiff CalScience Other (Curtis & Tompkins)

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	0.40 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

...L MONITORING DATA SH...

Project #: 091221-DR1	Client: Stiller Env. Solutions
Sampler: DR / (BP)	Date: 12/21/09
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.85	Depth to Water (DTW): 9.98
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.75	

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

Sampling Method: Bailer / X Disposable Bailer / Extraction Port / Dedicated Tubing / Other: _____

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1138	56.6	7.10	655	394	2.2	
1143	56.7	7.09	674	>1000	4.4	
1148	56.7	7.09	673	>1000	6.6	DTW = 15.43

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

Sampling Date: 12/21/09 Sampling Time: 1355 Depth to Water: 10.62

Sample I.D.: MW-12 Laboratory: Kiff CalScience Other (Curtis & Tompkins)

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

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

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

D.O. (if req'd):	Pre-purge:		mg/L	(Post-purge:)	0.31 mg/L
O.R.P. (if req'd):	Pre-purge:		mV	Post-purge:	mV

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 217403
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2008-12
2198 6th Street	Location : Redwood Regional Park
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-7	217403-001
MW-8	217403-002
MW-11	217403-003
MW-9	217403-004
MW-2	217403-005
MW-10	217403-006
MW-12	217403-007

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

Signature: _____ Date: 12/30/2009
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**217403**
Client:	**Stellar Environmental Solutions**
Project:	**2008-12**
Location:	**Redwood Regional Park**
Request Date:	**12/21/09**
Samples Received:	**12/21/09**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 12/21/09. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
High responses were observed for MTBE in the CCV analyzed 12/22/09 12:38 and the CCV analyzed 12/22/09 20:42; affected data was qualified with "b". High recovery was observed for MTBE in the BS for batch 158553; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated sample. High surrogate recovery was observed for trifluorotoluene (FID) in MW-11 (lab # 217403-003); the corresponding bromofluorobenzene (FID) surrogate recovery was within limits. No other analytical problems were encountered.

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

Chain of Custody Record

217403
Lab job no.
Date 12/21/09
Page 1 of 1

Laboratory Curtis and Tompkins, Ltd.
Address 2323 Fifth Street
Berkeley, California 94710
510-486-0900

Project Owner East Bay Regional Park District
Site Address 7867 Redwood Road
Oakland, California

Project Name Redwood Regional Park
Project Number ~~2006-10~~ 2008-12

Method of Shipment Hand Delivery
Shipment No.
Airbill No.
Cooler No.
Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) RR/BR

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVH-G (8015)	BTEX/MTBE (8021)	TEH-D (8015)	Remarks
1	MW-7		12/21/09	1130	W	3 x 40mL VOA + 1 x 1L NP Amber	Y	Yes		4	X	X	X	
2	MW-8			1230	W		Y	Yes		4	X	X	X	
3	MW-11			1255	W		Y	Yes		4	X	X	X	
4	MW-9			1410	W		Y	Yes		4	X	X	X	Sampled at 1410
5	MW-2			1325	W		Y	Yes		4	X	X	X	
6	MW-10			1345	W		Y	Yes		4	X	X	X	
7	MW-12			1355	W		Y	Yes		4	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature [signature]	12/21/09	Signature [signature]	12/21/09	Signature		Signature	
Printed Devin Rayna / Blaine Tech	Time 1430	Printed Pat Gonzalez	Time 2355	Printed	Time	Printed	Time
Company ~~Stellar Environmental~~		Company C&T		Company		Company	

Turnaround Time: 5 Day TAT

Comments: Please provide a GeoTracker EDF for groundwater samples only
Surface water samples collected by Stellar Environmental Solutions.
Groundwater samples collected by Blaine Tech Services.

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

2000-00-01

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 217403 Date Received 12-21-9 Number of coolers 1
Client STEWART ENV. Project REDWOOD REGIONAL PARK

Date Opened 12-21-9 By (print) S. EVANS (sign) [signature]
Date Logged in [signature] By (print) [signature] (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 ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ 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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000		

Field ID: MW-7 Lab ID: 217403-001
Type: SAMPLE

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	4,900	50	158553	12/22/09	EPA 8015B
MTBE	57 C	2.0	158682	12/28/09	EPA 8021B
Benzene	ND	0.50	158553	12/22/09	EPA 8021B
Toluene	ND	0.50	158553	12/22/09	EPA 8021B
Ethylbenzene	90 C	0.50	158553	12/22/09	EPA 8021B
m,p-Xylenes	2.9	0.50	158553	12/22/09	EPA 8021B
o-Xylene	ND	0.50	158553	12/22/09	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	119	48-162	158553	12/22/09	EPA 8015B
Bromofluorobenzene (FID)	111	52-158	158553	12/22/09	EPA 8015B
Trifluorotoluene (PID)	108	21-180	158553	12/22/09	EPA 8021B
Bromofluorobenzene (PID)	89	26-167	158553	12/22/09	EPA 8021B

Field ID: MW-8 Lab ID: 217403-002
Type: SAMPLE

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	560	50	158553	12/22/09	EPA 8015B
MTBE	4.2	2.0	158604	12/23/09	EPA 8021B
Benzene	1.5	0.50	158553	12/22/09	EPA 8021B
Toluene	ND	0.50	158553	12/22/09	EPA 8021B
Ethylbenzene	39 C	0.50	158553	12/22/09	EPA 8021B
m,p-Xylenes	7.1	0.50	158553	12/22/09	EPA 8021B
o-Xylene	ND	0.50	158553	12/22/09	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Trifluorotoluene (FID)	116	48-162	158553	12/22/09	EPA 8015B
Bromofluorobenzene (FID)	104	52-158	158553	12/22/09	EPA 8015B
Trifluorotoluene (PID)	95	21-180	158553	12/22/09	EPA 8021B
Bromofluorobenzene (PID)	89	26-167	158553	12/22/09	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000		

Field ID: MW-11 Lab ID: 217403-003
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	2,200	50	158553	EPA 8015B
MTBE	14	2.0	158604	EPA 8021B
Benzene	19 C	0.50	158553	EPA 8021B
Toluene	ND	0.50	158553	EPA 8021B
Ethylbenzene	46	0.50	158553	EPA 8021B
m,p-Xylenes	0.78 C	0.50	158553	EPA 8021B
o-Xylene	ND	0.50	158553	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	170 *	48-162	158553	EPA 8015B
Bromofluorobenzene (FID)	103	52-158	158553	EPA 8015B
Trifluorotoluene (PID)	92	21-180	158553	EPA 8021B
Bromofluorobenzene (PID)	82	26-167	158553	EPA 8021B

Field ID: MW-9 Lab ID: 217403-004
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	2,500	50	158553	EPA 8015B
MTBE	ND	2.0	158604	EPA 8021B
Benzene	27	0.50	158553	EPA 8021B
Toluene	ND	0.50	158553	EPA 8021B
Ethylbenzene	170	0.50	158553	EPA 8021B
m,p-Xylenes	7.9	0.50	158553	EPA 8021B
o-Xylene	0.79	0.50	158553	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	133	48-162	158553	EPA 8015B
Bromofluorobenzene (FID)	108	52-158	158553	EPA 8015B
Trifluorotoluene (PID)	113	21-180	158553	EPA 8021B
Bromofluorobenzene (PID)	84	26-167	158553	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000		

Field ID: MW-2 Lab ID: 217403-005
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	590	50	158553	EPA 8015B
MTBE	3.6 C	2.0	158604	EPA 8021B
Benzene	ND	0.50	158553	EPA 8021B
Toluene	ND	0.50	158553	EPA 8021B
Ethylbenzene	1.2	0.50	158553	EPA 8021B
m,p-Xylenes	ND	0.50	158553	EPA 8021B
o-Xylene	1.2	0.50	158553	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	103	48-162	158553	EPA 8015B
Bromofluorobenzene (FID)	107	52-158	158553	EPA 8015B
Trifluorotoluene (PID)	90	21-180	158553	EPA 8021B
Bromofluorobenzene (PID)	90	26-167	158553	EPA 8021B

Field ID: MW-10 Lab ID: 217403-006
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL	Batch#	Analysis
Gasoline C7-C12	72	50	158553	EPA 8015B
MTBE	ND	2.0	158604	EPA 8021B
Benzene	0.61 C	0.50	158553	EPA 8021B
Toluene	ND	0.50	158553	EPA 8021B
Ethylbenzene	1.6 C	0.50	158553	EPA 8021B
m,p-Xylenes	1.2 C	0.50	158553	EPA 8021B
o-Xylene	ND	0.50	158553	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analysis
Trifluorotoluene (FID)	102	48-162	158553	EPA 8015B
Bromofluorobenzene (FID)	99	52-158	158553	EPA 8015B
Trifluorotoluene (PID)	89	21-180	158553	EPA 8021B
Bromofluorobenzene (PID)	87	26-167	158553	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000		

Field ID:	MW-12	Batch#:	158553
Type:	SAMPLE	Analyzed:	12/23/09
Lab ID:	217403-007		

Analyte	Result	RL	Analysis
Gasoline C7-C12	76	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)	103	48-162	EPA 8015B
Bromofluorobenzene (FID)	95	52-158	EPA 8015B
Trifluorotoluene (PID)	86	21-180	EPA 8021B
Bromofluorobenzene (PID)	84	26-167	EPA 8021B

Type:	BLANK	Batch#:	158553
Lab ID:	QC526843	Analyzed:	12/22/09

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)	102	48-162	EPA 8015B
Bromofluorobenzene (FID)	99	52-158	EPA 8015B
Trifluorotoluene (PID)	90	21-180	EPA 8021B
Bromofluorobenzene (PID)	87	26-167	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000		

Type:	BLANK	Analyzed:	12/23/09
Lab ID:	QC527063	Analysis:	EPA 8021B
Batch#:	158604		

Analyte	Result	RL
MTBE	ND	2.0

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		94	21-180
Bromofluorobenzene (PID)		91	26-167

Type:	BLANK	Analyzed:	12/28/09
Lab ID:	QC527341	Analysis:	EPA 8021B
Batch#:	158682		

Analyte	Result	RL
MTBE	ND	2.0

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		87	21-180
Bromofluorobenzene (PID)		93	26-167

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12		
Matrix:	Water	Batch#:	158553
Units:	ug/L	Analyzed:	12/22/09
Diln Fac:	1.000		

Type: BS Lab ID: QC526844

Analyte	Spiked	Result	%REC	Limits	Analysis
MTBE	10.00	19.72 b	197 *	36-168	EPA 8021B
Benzene	10.00	10.59	106	69-121	EPA 8021B
Toluene	10.00	9.340	93	64-132	EPA 8021B
Ethylbenzene	10.00	9.871	99	64-136	EPA 8021B
m,p-Xylenes	10.00	9.761	98	63-138	EPA 8021B
o-Xylene	10.00	10.15	101	64-135	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	101	48-162	EPA 8015B
Bromofluorobenzene (FID)	100	52-158	EPA 8015B
Trifluorotoluene (PID)	96	21-180	EPA 8021B
Bromofluorobenzene (PID)	91	26-167	EPA 8021B

Type: BSD Lab ID: QC526845

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
MTBE	10.00	16.04 b	160	36-168	21	35	EPA 8021B
Benzene	10.00	10.62	106	69-121	0	24	EPA 8021B
Toluene	10.00	11.15	111	64-132	18	27	EPA 8021B
Ethylbenzene	10.00	11.45	115	64-136	15	27	EPA 8021B
m,p-Xylenes	10.00	11.75	117	63-138	18	32	EPA 8021B
o-Xylene	10.00	11.99	120	64-135	17	27	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	101	48-162	EPA 8015B
Bromofluorobenzene (FID)	100	52-158	EPA 8015B
Trifluorotoluene (PID)	84	21-180	EPA 8021B
Bromofluorobenzene (PID)	89	26-167	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC526846	Batch#:	158553
Matrix:	Water	Analyzed:	12/22/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	994.7	99	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	48-162
Bromofluorobenzene (FID)	91	52-158

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158553
MSS Lab ID:	217401-001	Sampled:	12/21/09
Matrix:	Water	Received:	12/21/09
Units:	ug/L	Analyzed:	12/22/09
Diln Fac:	1.000		

Type: MS Lab ID: QC526847

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	12.05	2,000	2,265	113	49-129

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	48-162
Bromofluorobenzene (FID)	103	52-158

Type: MSD Lab ID: QC526848

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,286	114	49-129	1	19

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	48-162
Bromofluorobenzene (FID)	108	52-158

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	158604
Units:	ug/L	Analyzed:	12/23/09
Diln Fac:	1.000		

Type: BS Lab ID: QC527064

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	13.98	140	36-168

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	21-180
Bromofluorobenzene (PID)	88	26-167

Type: BSD Lab ID: QC527065

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	12.40	124	36-168	12	35

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	21-180
Bromofluorobenzene (PID)	96	26-167

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-12	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	158682
Units:	ug/L	Analyzed:	12/28/09
Diln Fac:	1.000		

Type: BS Lab ID: QC527342

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.230	92	36-168

Surrogate	%REC	Limits
Trifluorotoluene (PID)	88	21-180
Bromofluorobenzene (PID)	96	26-167

Type: BSD Lab ID: QC527343

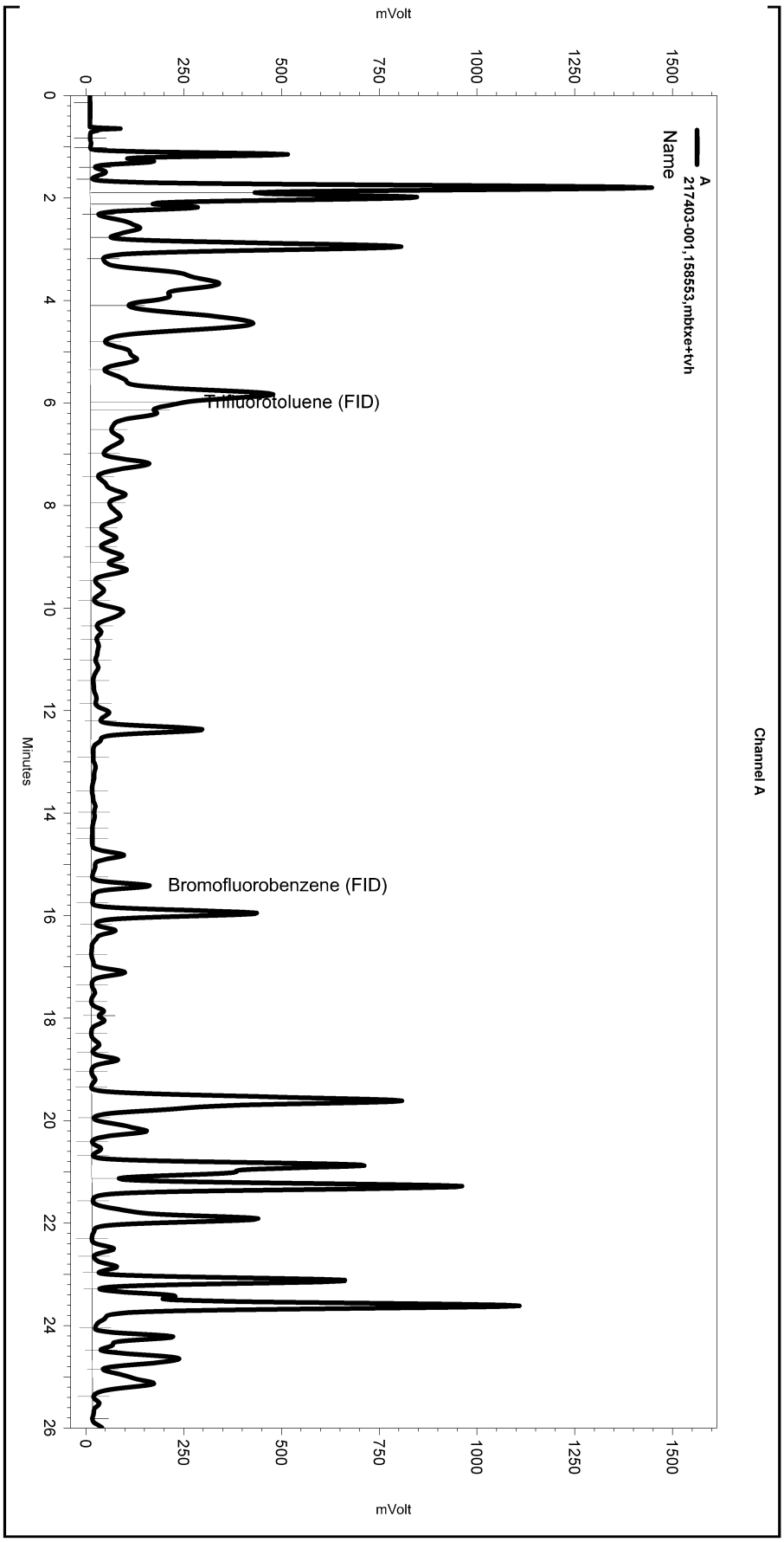
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	9.338	93	36-168	1	35

Surrogate	%REC	Limits
Trifluorotoluene (PID)	90	21-180
Bromofluorobenzene (PID)	98	26-167

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-001,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_014**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/22/2009 7:30:17 PM
Analysis Date: 12/23/2009 9:28:13 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

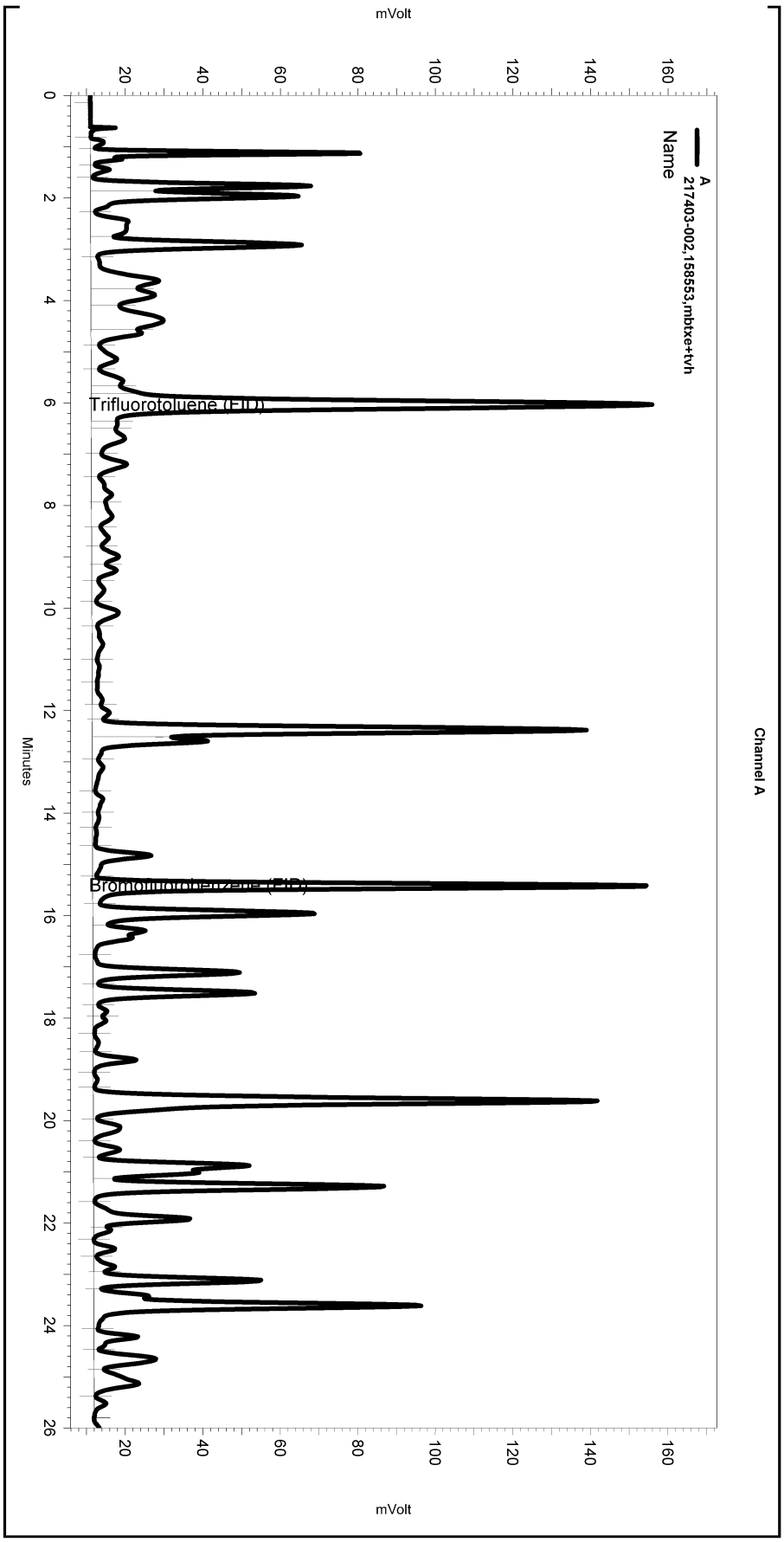
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.985	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-002,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_021**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/22/2009 11:42:01 PM
Analysis Date: 12/23/2009 9:43:14 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

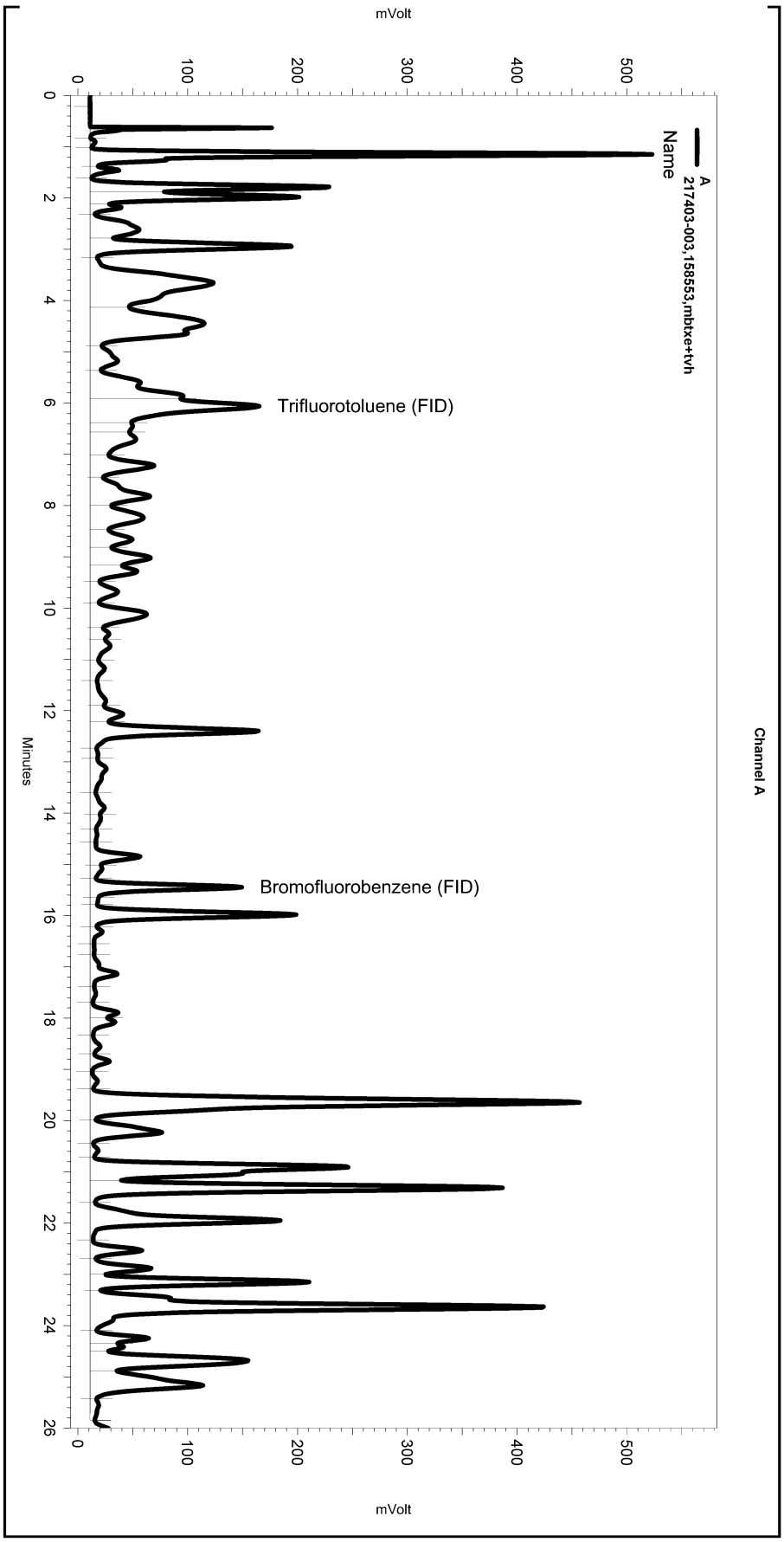
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_021

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.818	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-003,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_027**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/23/2009 3:18:13 AM
Analysis Date: 12/23/2009 9:59:49 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

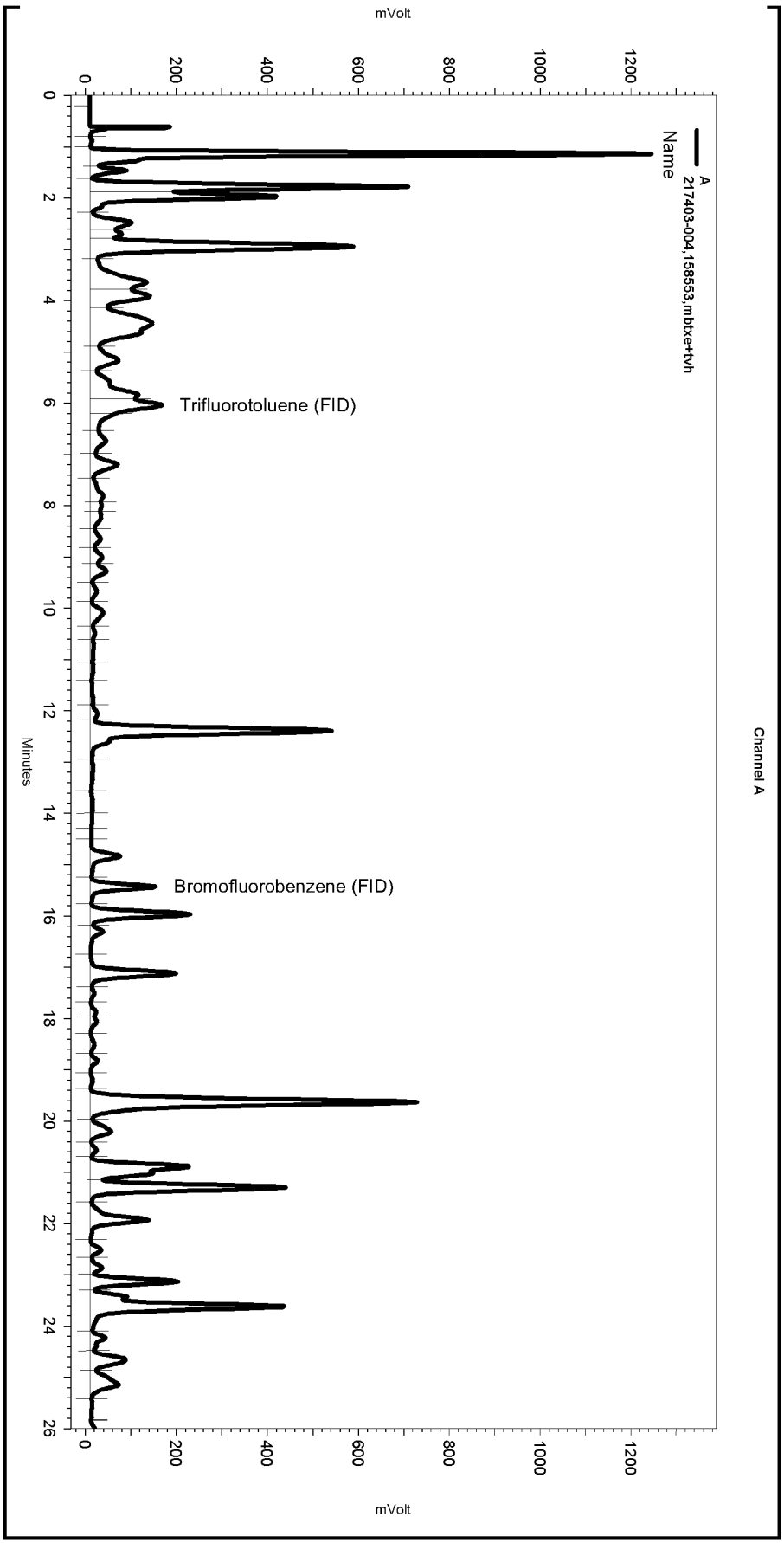
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_027

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	5.913	0	0
Yes	Split Peak	15.652	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-004,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_029**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/23/2009 4:30:20 AM
Analysis Date: 12/29/2009 8:15:14 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

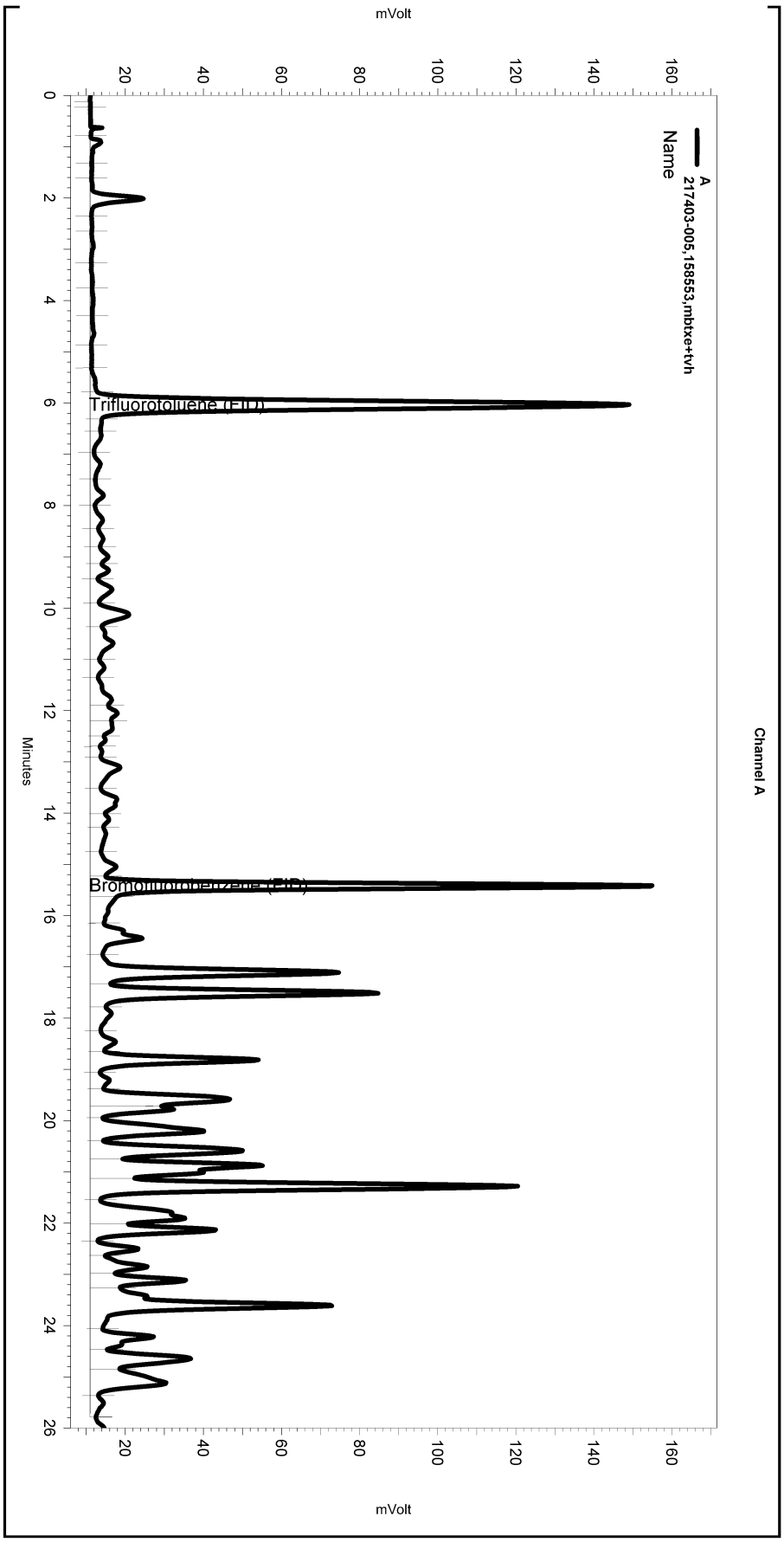
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_029

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	5.909	0	0
Yes	Split Peak	6.202	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-005,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_022**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/23/2009 12:18:05 AM
Analysis Date: 12/23/2009 9:43:21 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

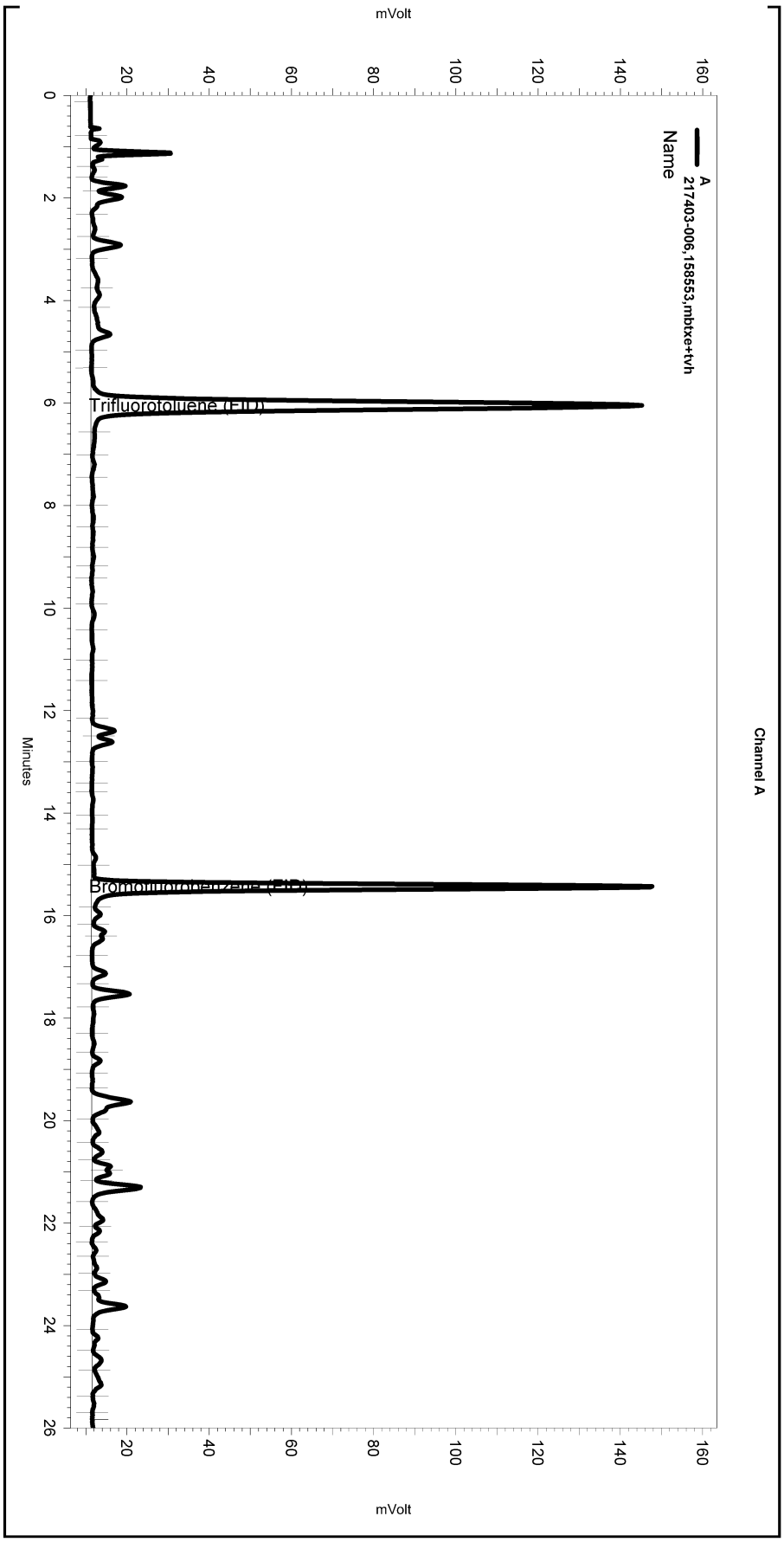
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_022

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	5.78	0	0
Yes	Split Peak	6.32	0	0
Yes	Split Peak	15.637	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-006,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_023**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/23/2009 12:54:04 AM
Analysis Date: 12/23/2009 9:43:28 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

Manual Integration Fixes

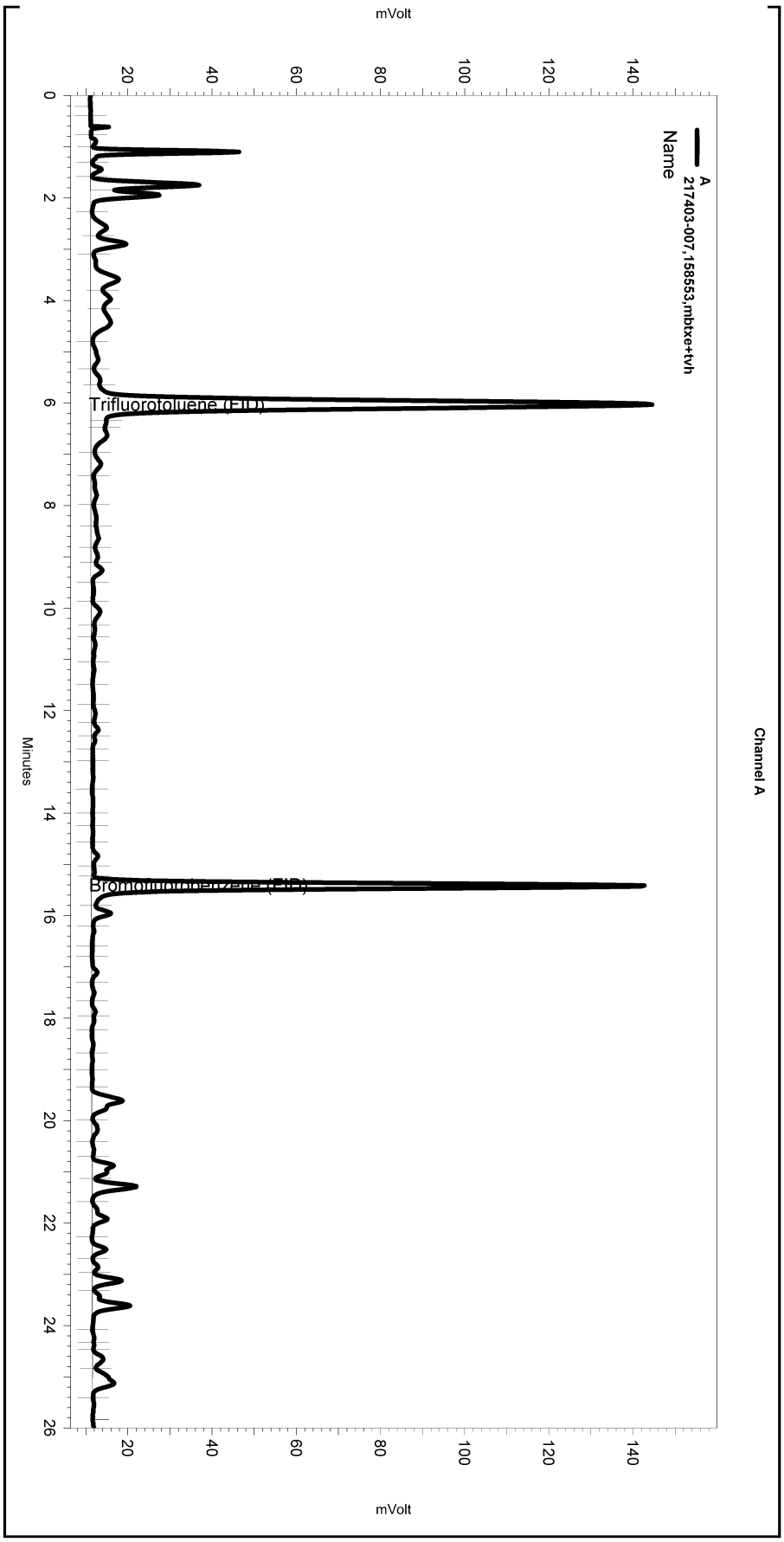
Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **217403-007,158553,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_024**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/23/2009 1:30:08 AM
Analysis Date: 12/23/2009 9:50:27 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

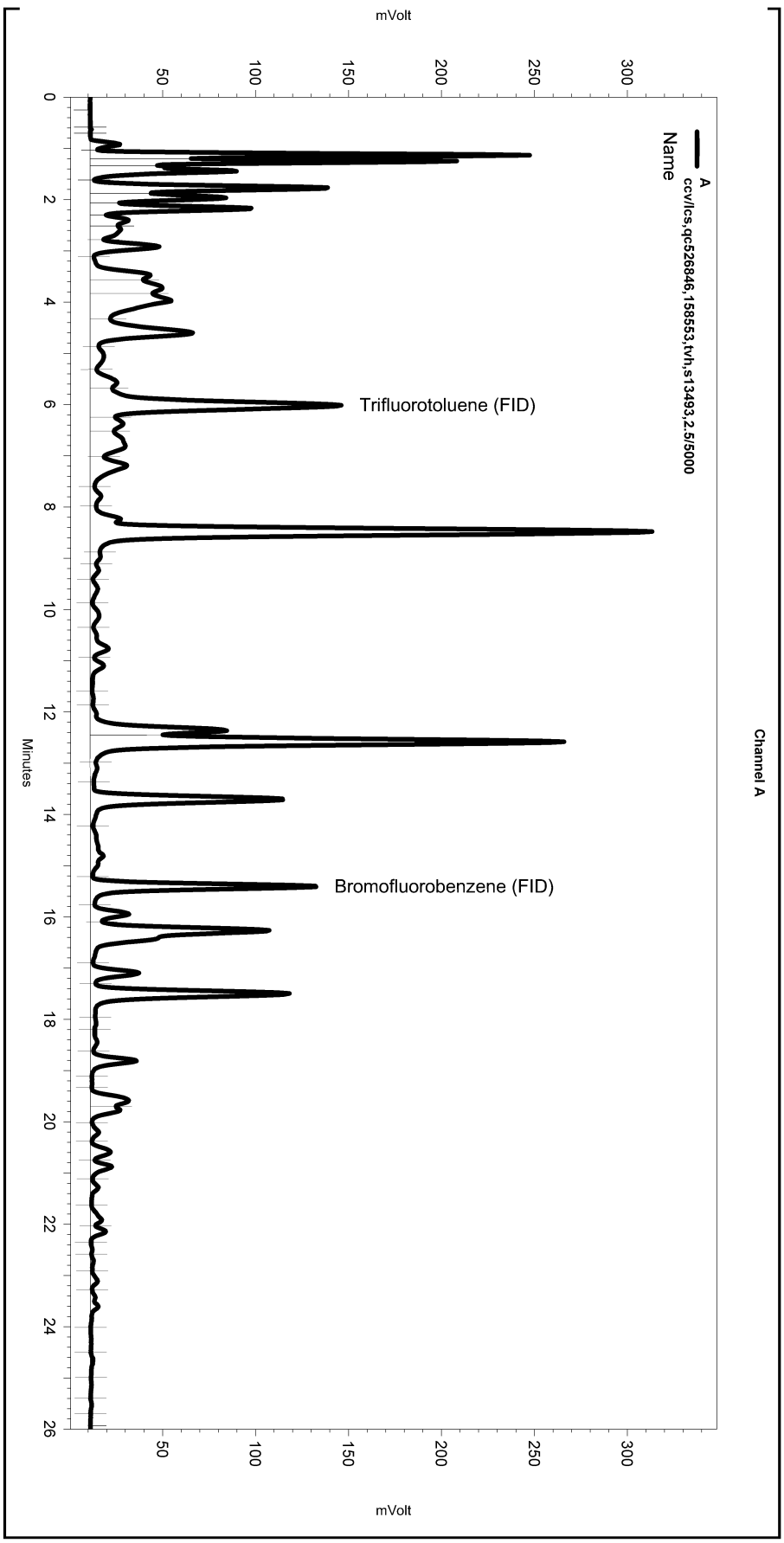
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_024

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	6.33	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\356.seq**
Sample Name: **ccv/lcs,qc526846,158553,tvh,s13493,2.5/5000**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC07\Data\356_003**
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/22/2009 11:26:27 AM
Analysis Date: 12/23/2009 8:37:14 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\356_003

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-12	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000	Prepared:	12/22/09
Batch#:	158563		

Field ID:	MW-7	Lab ID:	217403-001
Type:	SAMPLE	Analyzed:	12/23/09

Analyte	Result	RL
Diesel C10-C24	4,500 Y	50

Surrogate	%REC	Limits
o-Terphenyl	91	39-150

Field ID:	MW-8	Lab ID:	217403-002
Type:	SAMPLE	Analyzed:	12/23/09

Analyte	Result	RL
Diesel C10-C24	540 Y	50

Surrogate	%REC	Limits
o-Terphenyl	87	39-150

Field ID:	MW-11	Lab ID:	217403-003
Type:	SAMPLE	Analyzed:	12/23/09

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

Surrogate	%REC	Limits
o-Terphenyl	81	39-150

Field ID:	MW-9	Lab ID:	217403-004
Type:	SAMPLE	Analyzed:	12/23/09

Analyte	Result	RL
Diesel C10-C24	4,000 Y	50

Surrogate	%REC	Limits
o-Terphenyl	87	39-150

Field ID:	MW-2	Lab ID:	217403-005
Type:	SAMPLE	Analyzed:	12/23/09

Analyte	Result	RL
Diesel C10-C24	1,800 Y	50

Surrogate	%REC	Limits
o-Terphenyl	94	39-150

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-12	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000	Prepared:	12/22/09
Batch#:	158563		

Field ID: MW-10 Lab ID: 217403-006
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL
Diesel C10-C24	150 Y	50

Surrogate	%REC	Limits
o-Terphenyl	104	39-150

Field ID: MW-12 Lab ID: 217403-007
Type: SAMPLE Analyzed: 12/23/09

Analyte	Result	RL
Diesel C10-C24	170 Y	50

Surrogate	%REC	Limits
o-Terphenyl	98	39-150

Type: BLANK Analyzed: 12/24/09
Lab ID: QC526886

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	109	39-150

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-12	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC526887	Batch#:	158563
Matrix:	Water	Prepared:	12/22/09
Units:	ug/L	Analyzed:	12/24/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,000	80	34-144

Surrogate	%REC	Limits
o-Terphenyl	89	39-150

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	217403	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-12	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158563
MSS Lab ID:	217343-007	Sampled:	12/17/09
Matrix:	Water	Received:	12/17/09
Units:	ug/L	Prepared:	12/22/09
Diln Fac:	1.000	Analyzed:	12/24/09

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC526888

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<12.24	2,500	2,013	81	21-160

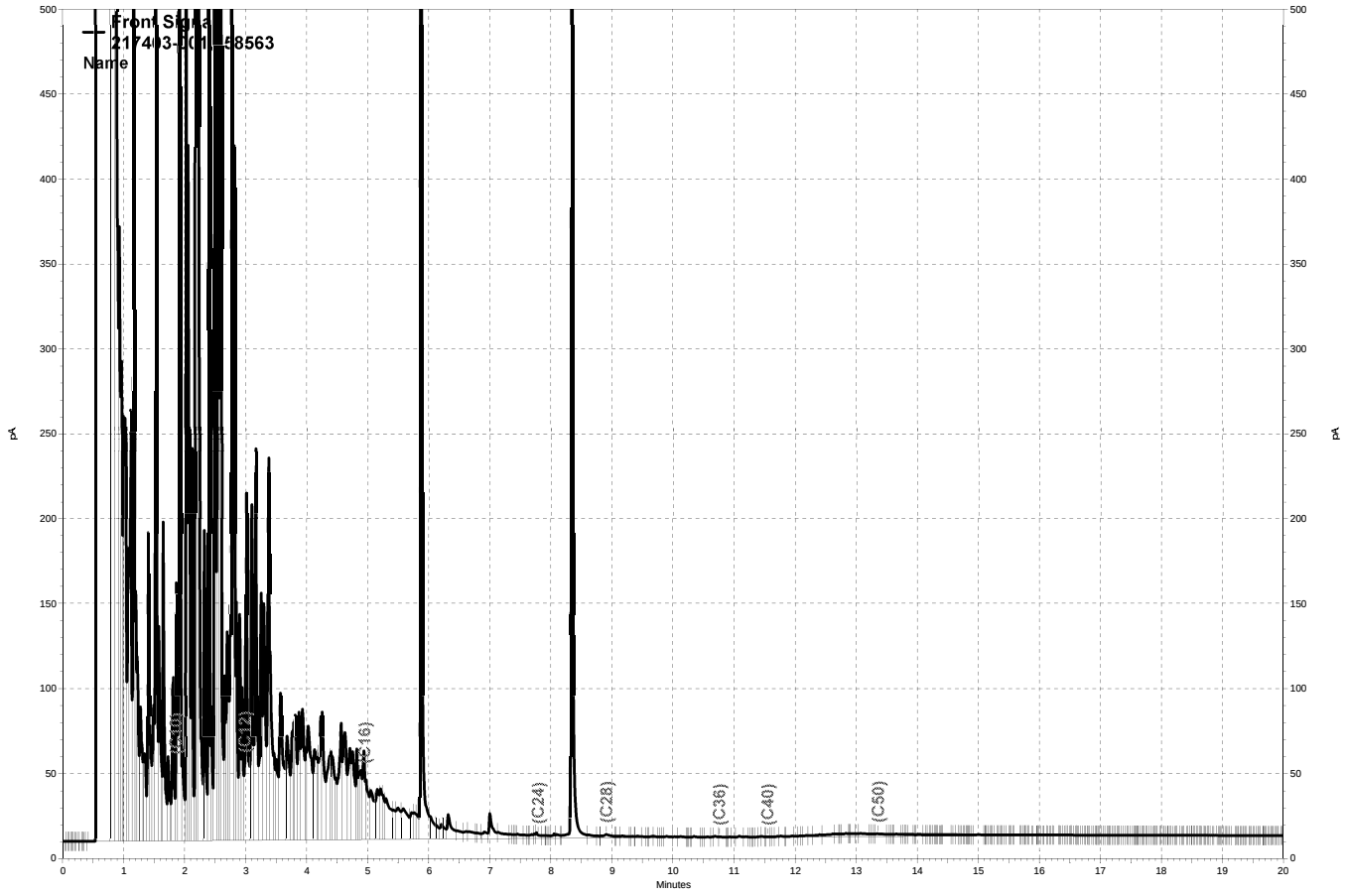
Surrogate	%REC	Limits
o-Terphenyl	89	39-150

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC526889

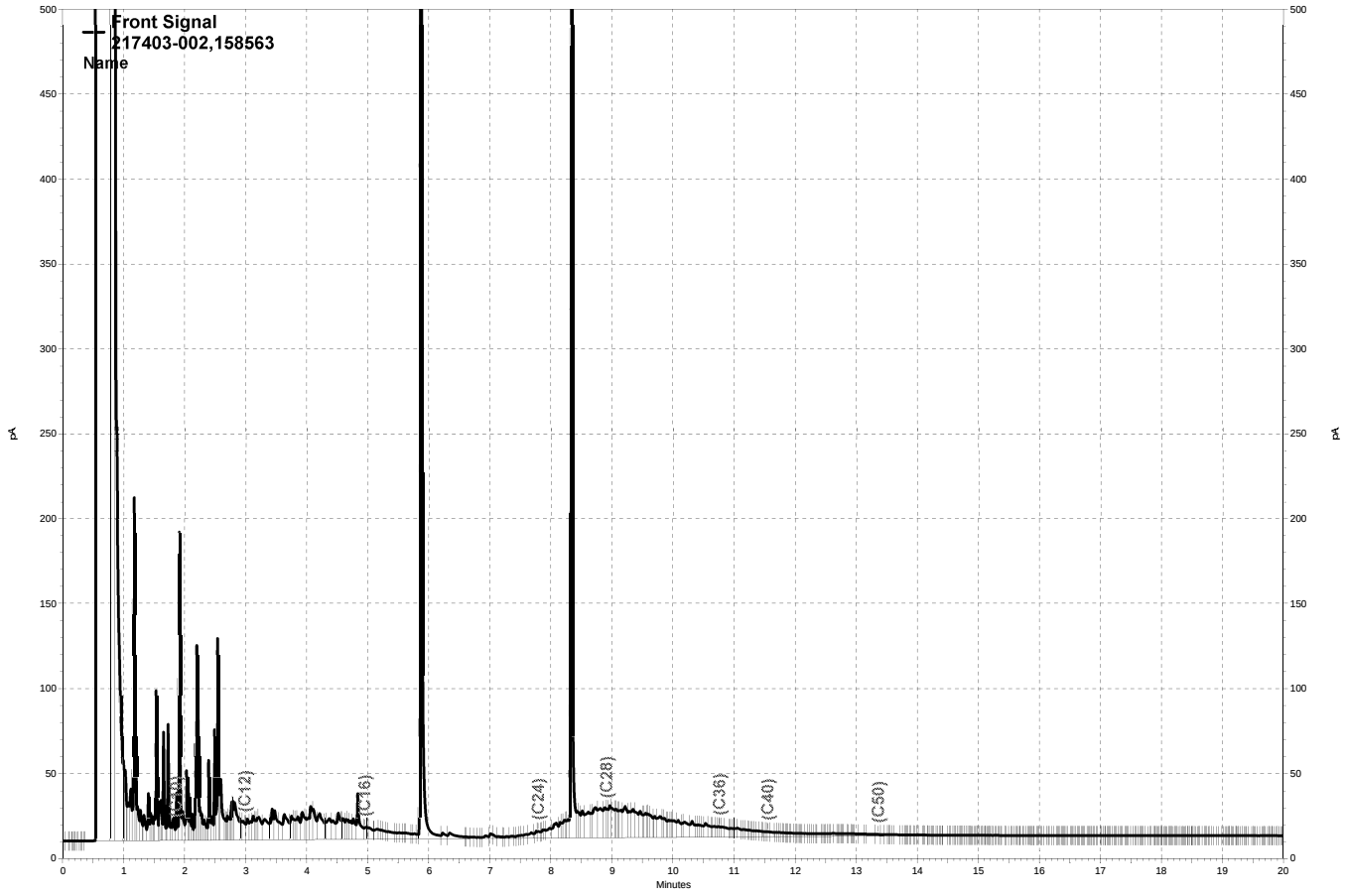
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,393	96	21-160	17	58

Surrogate	%REC	Limits
o-Terphenyl	105	39-150

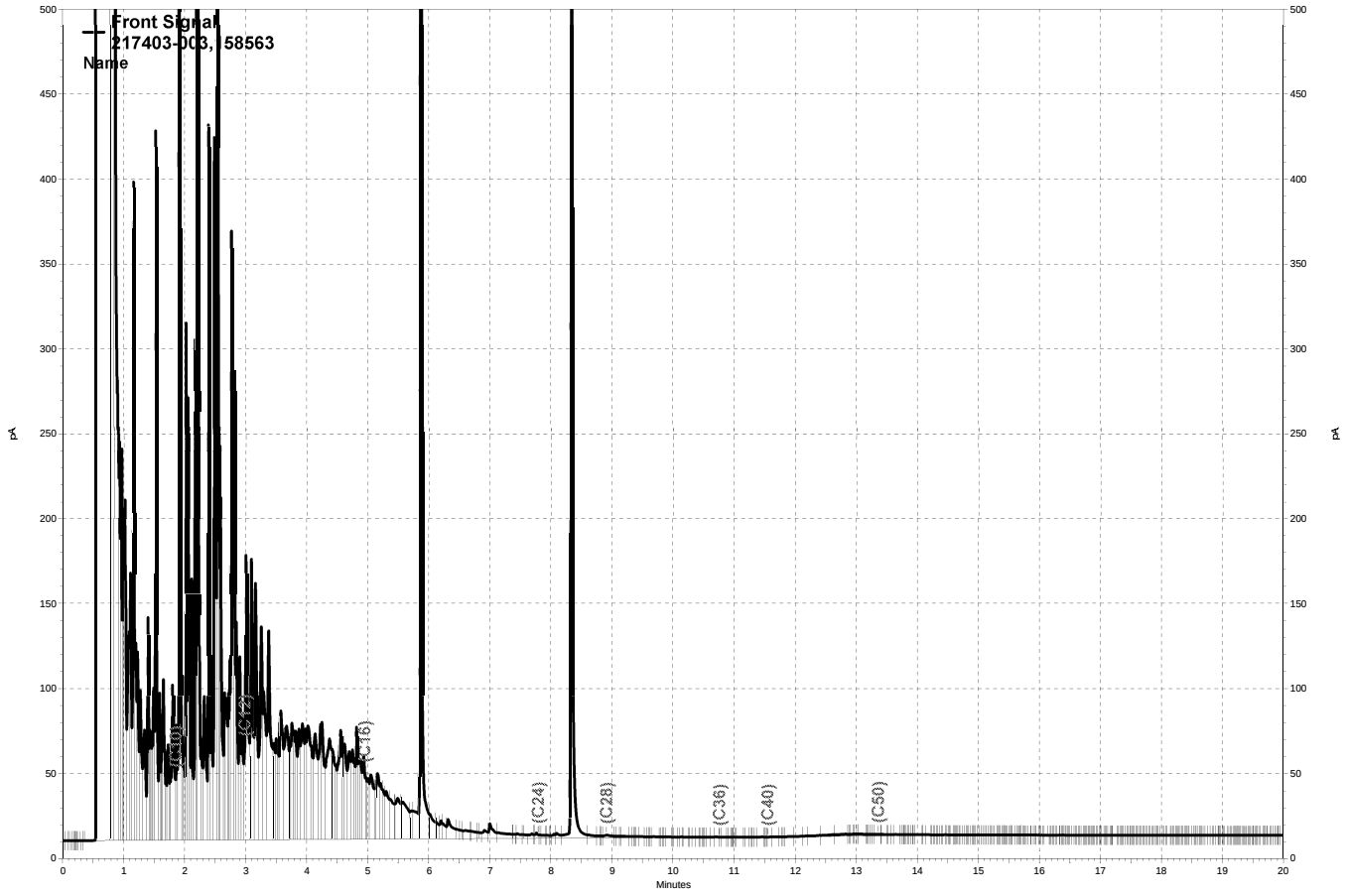
RPD= Relative Percent Difference



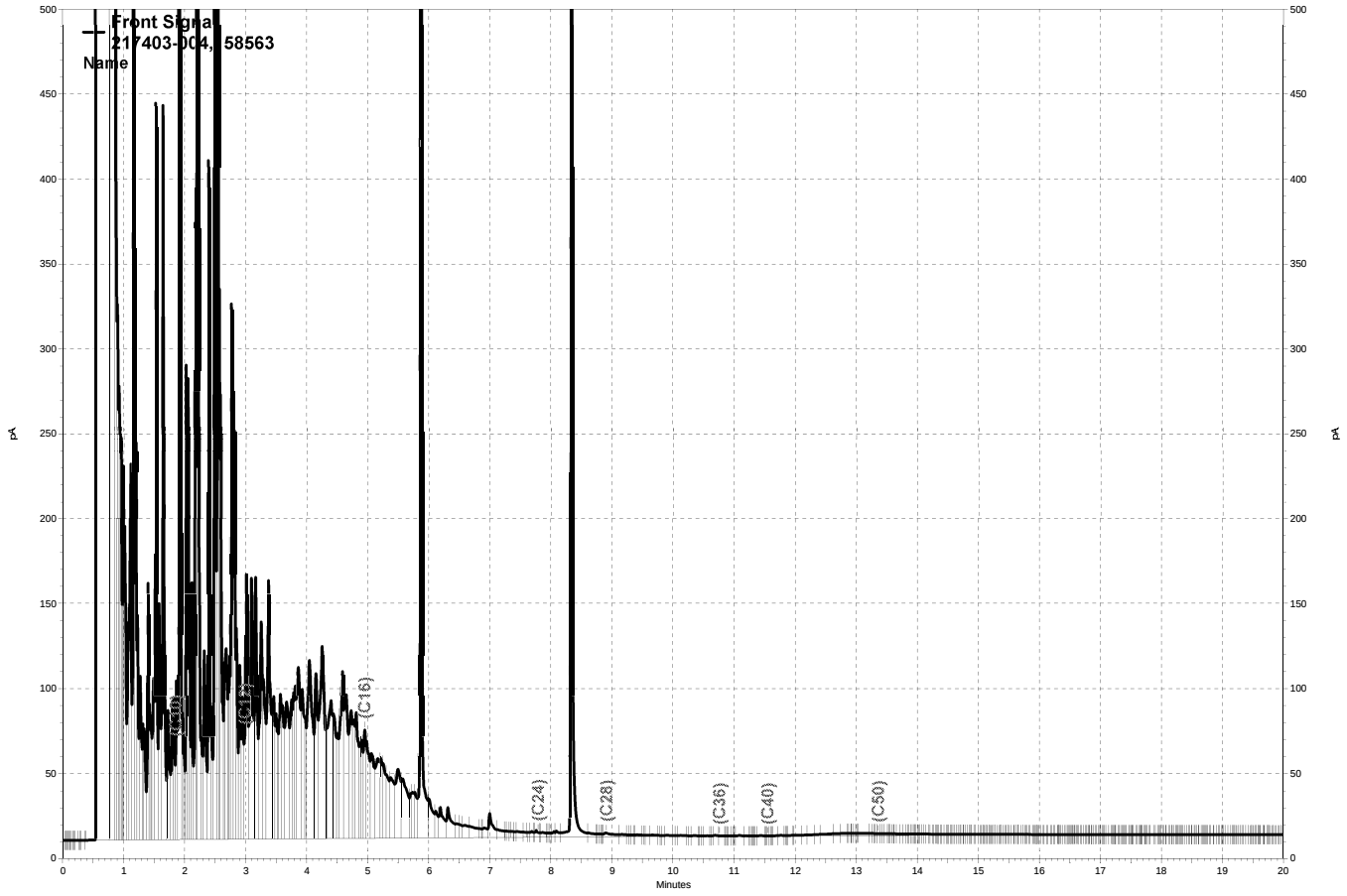
G:\ezchrom\Projects\GC27\Data\357a009.dat, Front Signal



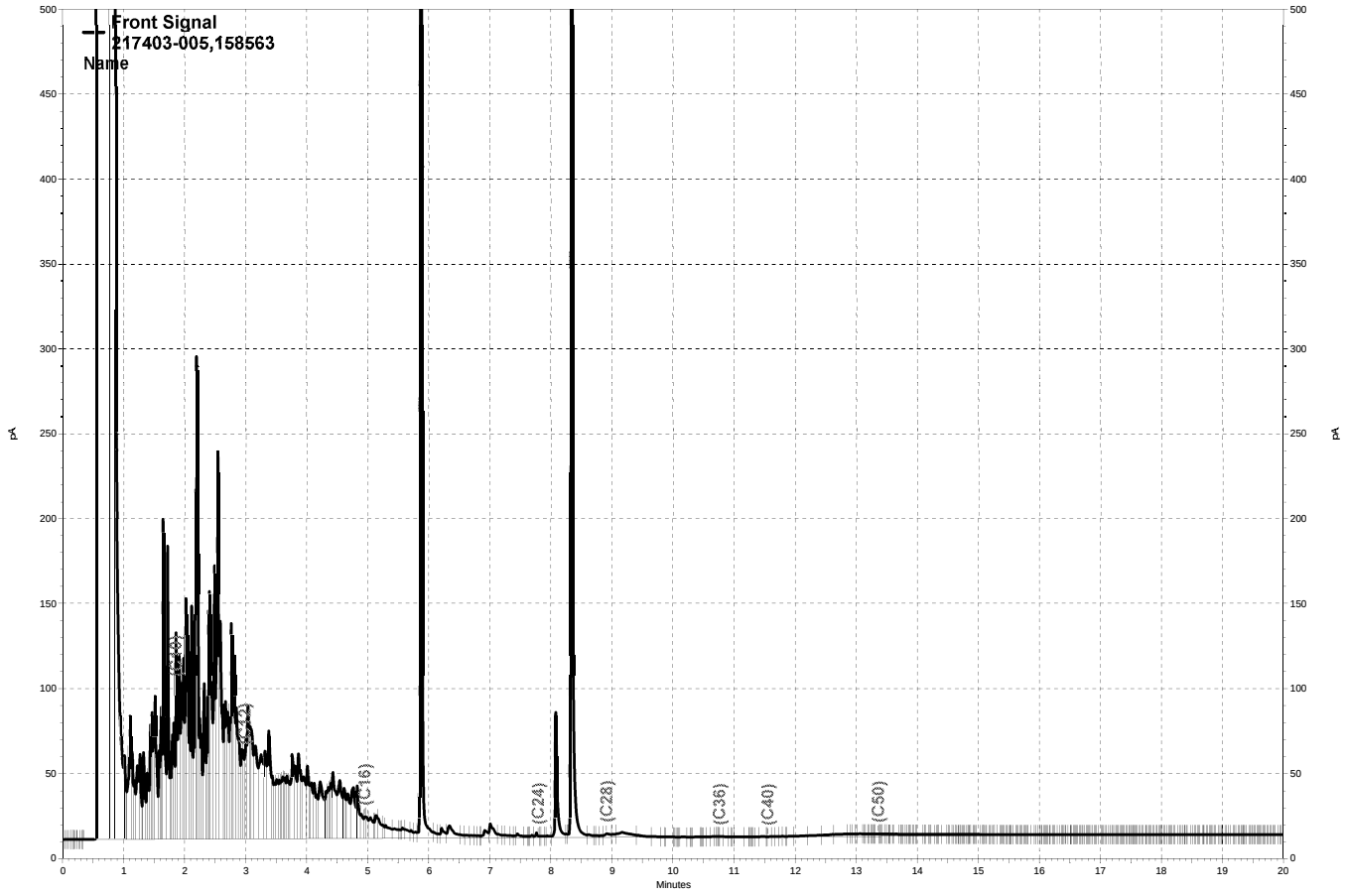
G:\ezchrom\Projects\GC27\Data\357a010.dat, Front Signal



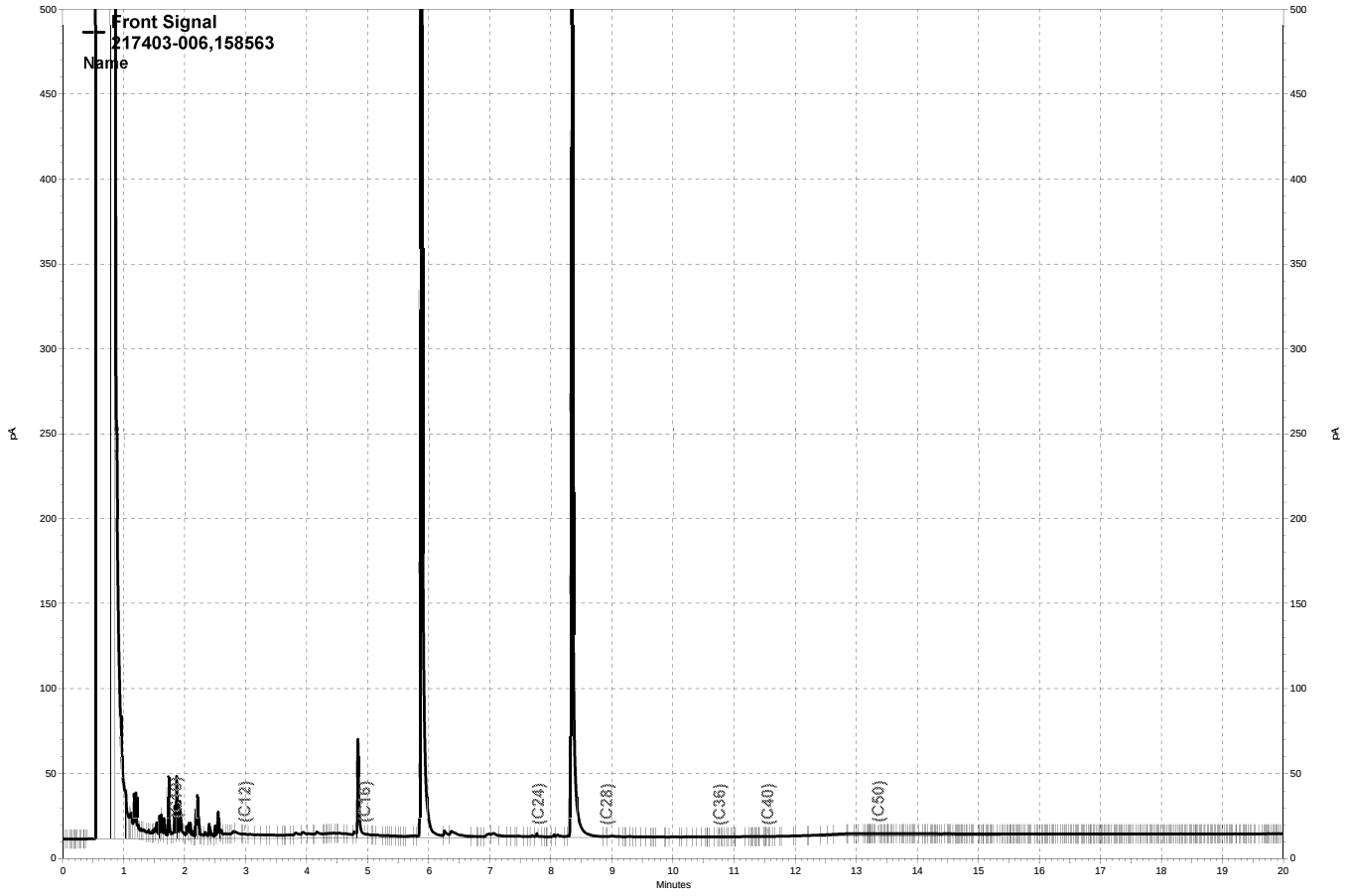
G:\ezchrom\Projects\GC27\Data\357a011.dat, Front Signal



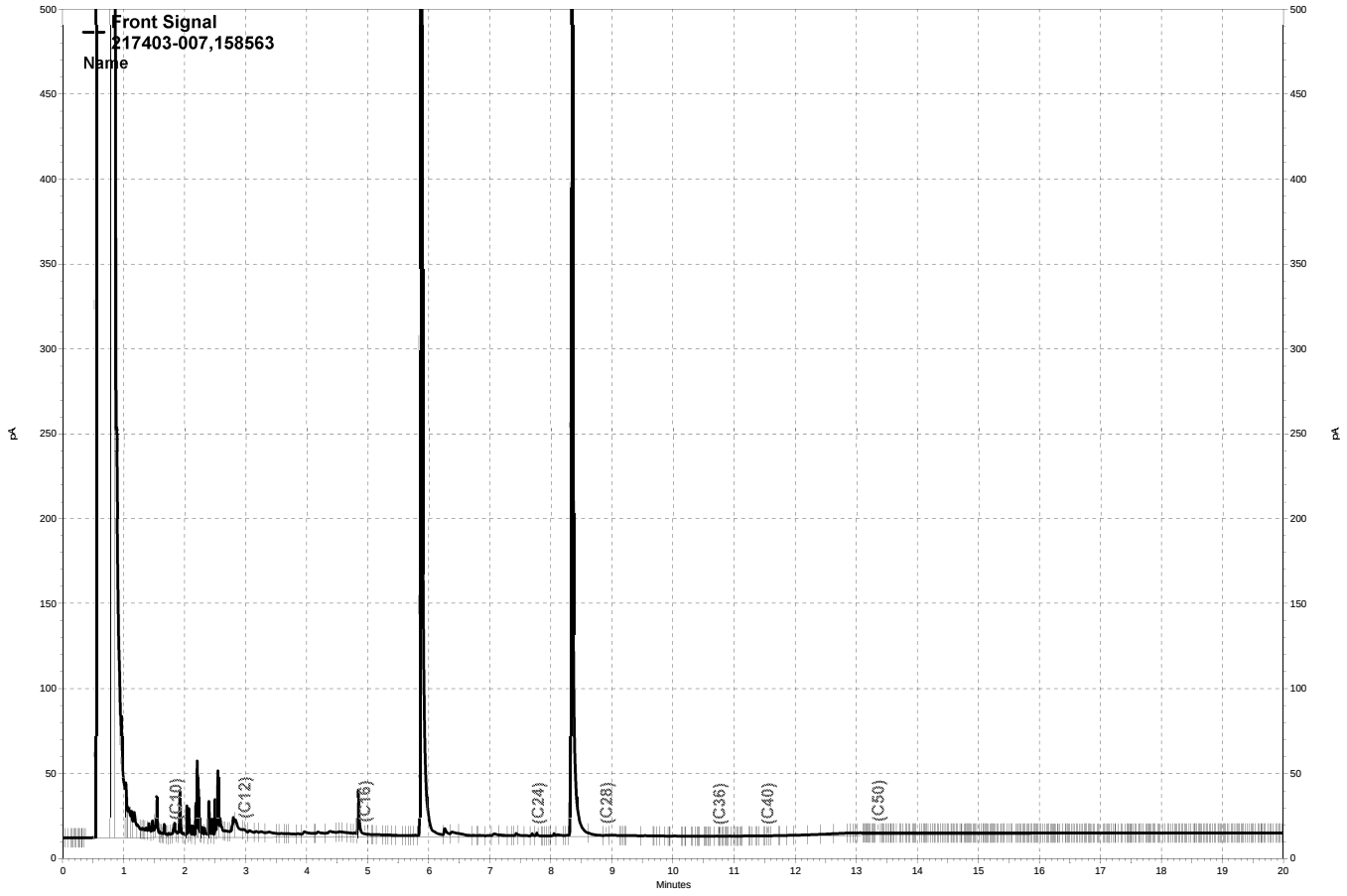
G:\ezchrom\Projects\GC27\Data\357a012.dat, Front Signal



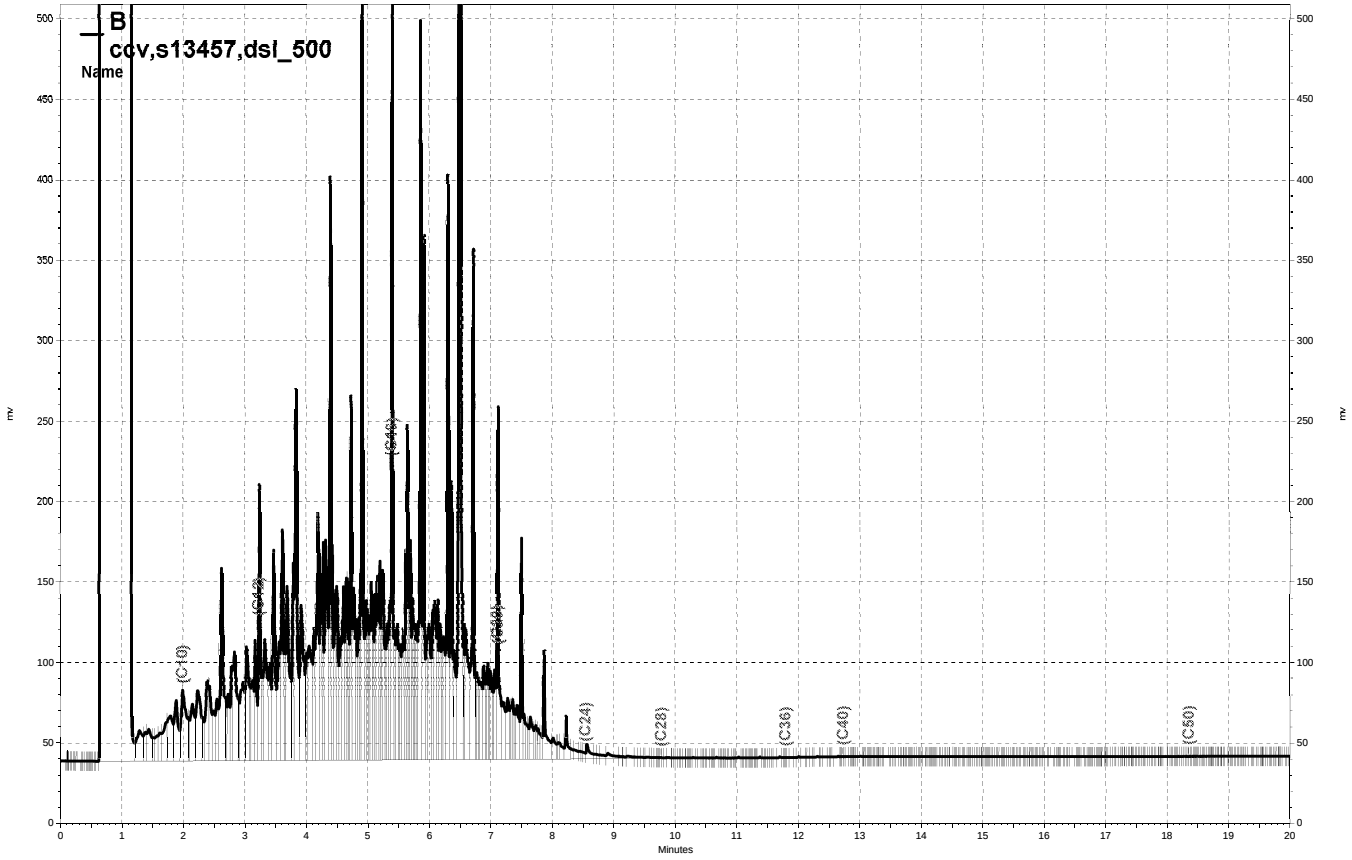
G:\ezchrom\Projects\GC27\Data\357a013.dat, Front Signal



G:\ezchrom\Projects\GC27\Data\357a014.dat, Front Signal



G:\ezchrom\Projects\GC27\Data\357a015.dat, Front Signal



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\357b017, B


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 217404
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2009-02
2198 6th Street	Location : Redwood Regional Park
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
SW-2	217404-001
SW-3	217404-002

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

Signature: _____ Date: 12/30/2009
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**217404**
Client:	**Stellar Environmental Solutions**
Project:	**2009-02**
Location:	**Redwood Regional Park**
Request Date:	**12/21/09**
Samples Received:	**12/21/09**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 12/21/09. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
High responses were observed for MTBE in the CCV analyzed 12/22/09 12:38 and the CCV analyzed 12/22/09 20:42; affected data was qualified with "b". High recovery was observed for MTBE in the BS for batch 158553; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples. No other analytical problems were encountered.

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

21740Y

Chain of Custody Record

Lab job no. _____
Date 12/21/09
Page 1 of 1

Laboratory Curtis and Tompkins, Ltd.
Address 2323 Fifth Street
Berkeley, California 94710
510-486-0900

Project Owner East Bay Regional Park District
Site Address 7867 Redwood Road
Oakland, California
Project Name Redwood Regional Park
Project Number 2009-02

Method of Shipment Hand Delivery
Shipment No. _____
Airbill No. _____
Cooler No. _____
Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature) _____

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TPH g MBTEX	TPH d	MO	Remarks
SW-2	Creek	12-21-09		W	3VOA, 250 mL	Y	Yes (a)	N	5	X	X		
SW-3	Creek	12-21-09		W	↓	Y	Yes (a)	↓	5	X	X		

Analysis Required

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	~~12-18-09~~ 12/21/09	Signature	~~12-18-09~~ 12/21/09	Signature		Signature	12/21/09
Printed Teal Glass	Time 1040	Printed Devin Rayna	Time 1045	Printed Devin Rayna	Time	Printed Pat Gonzalez	Time 2:55
Company Stellar Environmental		Company Blaine Tech		Company Blaine Tech		Company C&T	

Turnaround Time: Standard - 5 Day
Comments: (a) VOA w/ HCL

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

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 217404 Date Received 12-21-9 Number of coolers 1
Client STELLAR ENV. Project REDWOOD REGIONAL PARK

Date Opened 12-21-9 By (print) S. EVANS (sign) [signature]
Date Logged in [illegible] By (print) [illegible] (sign) [illegible]

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

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

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

7. Temperature documentation:

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

_____
_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02		
Matrix:	Water	Batch#:	158553
Units:	ug/L	Sampled:	12/21/09
Diln Fac:	1.000	Received:	12/21/09

Field ID: SW-2 Lab ID: 217404-001
Type: SAMPLE Analyzed: 12/23/09

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)	104	48-162	EPA 8015B
Bromofluorobenzene (FID)	102	52-158	EPA 8015B
Trifluorotoluene (PID)	92	21-180	EPA 8021B
Bromofluorobenzene (PID)	89	26-167	EPA 8021B

Field ID: SW-3 Lab ID: 217404-002
Type: SAMPLE Analyzed: 12/23/09

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)	102	48-162	EPA 8015B
Bromofluorobenzene (FID)	101	52-158	EPA 8015B
Trifluorotoluene (PID)	89	21-180	EPA 8021B
Bromofluorobenzene (PID)	87	26-167	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02		
Matrix:	Water	Batch#:	158553
Units:	ug/L	Sampled:	12/21/09
Diln Fac:	1.000	Received:	12/21/09

Type: BLANK Analyzed: 12/22/09
Lab ID: QC526843

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)	102	48-162	EPA 8015B
Bromofluorobenzene (FID)	99	52-158	EPA 8015B
Trifluorotoluene (PID)	90	21-180	EPA 8021B
Bromofluorobenzene (PID)	87	26-167	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	158553
Units:	ug/L	Analyzed:	12/22/09
Diln Fac:	1.000		

Type: BS Lab ID: QC526844

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	19.72 b	197 *	36-168
Benzene	10.00	10.59	106	69-121
Toluene	10.00	9.340	93	64-132
Ethylbenzene	10.00	9.871	99	64-136
m,p-Xylenes	10.00	9.761	98	63-138
o-Xylene	10.00	10.15	101	64-135

Surrogate	%REC	Limits
Trifluorotoluene (PID)	96	21-180
Bromofluorobenzene (PID)	91	26-167

Type: BSD Lab ID: QC526845

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	16.04 b	160	36-168	21	35
Benzene	10.00	10.62	106	69-121	0	24
Toluene	10.00	11.15	111	64-132	18	27
Ethylbenzene	10.00	11.45	115	64-136	15	27
m,p-Xylenes	10.00	11.75	117	63-138	18	32
o-Xylene	10.00	11.99	120	64-135	17	27

Surrogate	%REC	Limits
Trifluorotoluene (PID)	84	21-180
Bromofluorobenzene (PID)	89	26-167

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC526846	Batch#:	158553
Matrix:	Water	Analyzed:	12/22/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	994.7	99	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	48-162
Bromofluorobenzene (FID)	91	52-158

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158553
MSS Lab ID:	217401-001	Sampled:	12/21/09
Matrix:	Water	Received:	12/21/09
Units:	ug/L	Analyzed:	12/22/09
Diln Fac:	1.000		

Type: MS Lab ID: QC526847

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	12.05	2,000	2,265	113	49-129

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	48-162
Bromofluorobenzene (FID)	103	52-158

Type: MSD Lab ID: QC526848

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,286	114	49-129	1	19

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	48-162
Bromofluorobenzene (FID)	108	52-158

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/21/09
Units:	ug/L	Received:	12/21/09
Diln Fac:	1.000	Prepared:	12/22/09
Batch#:	158563	Analyzed:	12/24/09

Field ID: SW-2 Lab ID: 217404-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	100 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	67	39-150

Field ID: SW-3 Lab ID: 217404-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	54 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	105	39-150

Type: BLANK Lab ID: QC526886

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	109	39-150

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC526887	Batch#:	158563
Matrix:	Water	Prepared:	12/22/09
Units:	ug/L	Analyzed:	12/24/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,000	80	34-144

Surrogate	%REC	Limits
o-Terphenyl	89	39-150

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	217404	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158563
MSS Lab ID:	217343-007	Sampled:	12/17/09
Matrix:	Water	Received:	12/17/09
Units:	ug/L	Prepared:	12/22/09
Diln Fac:	1.000	Analyzed:	12/24/09

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC526888

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<12.24	2,500	2,013	81	21-160

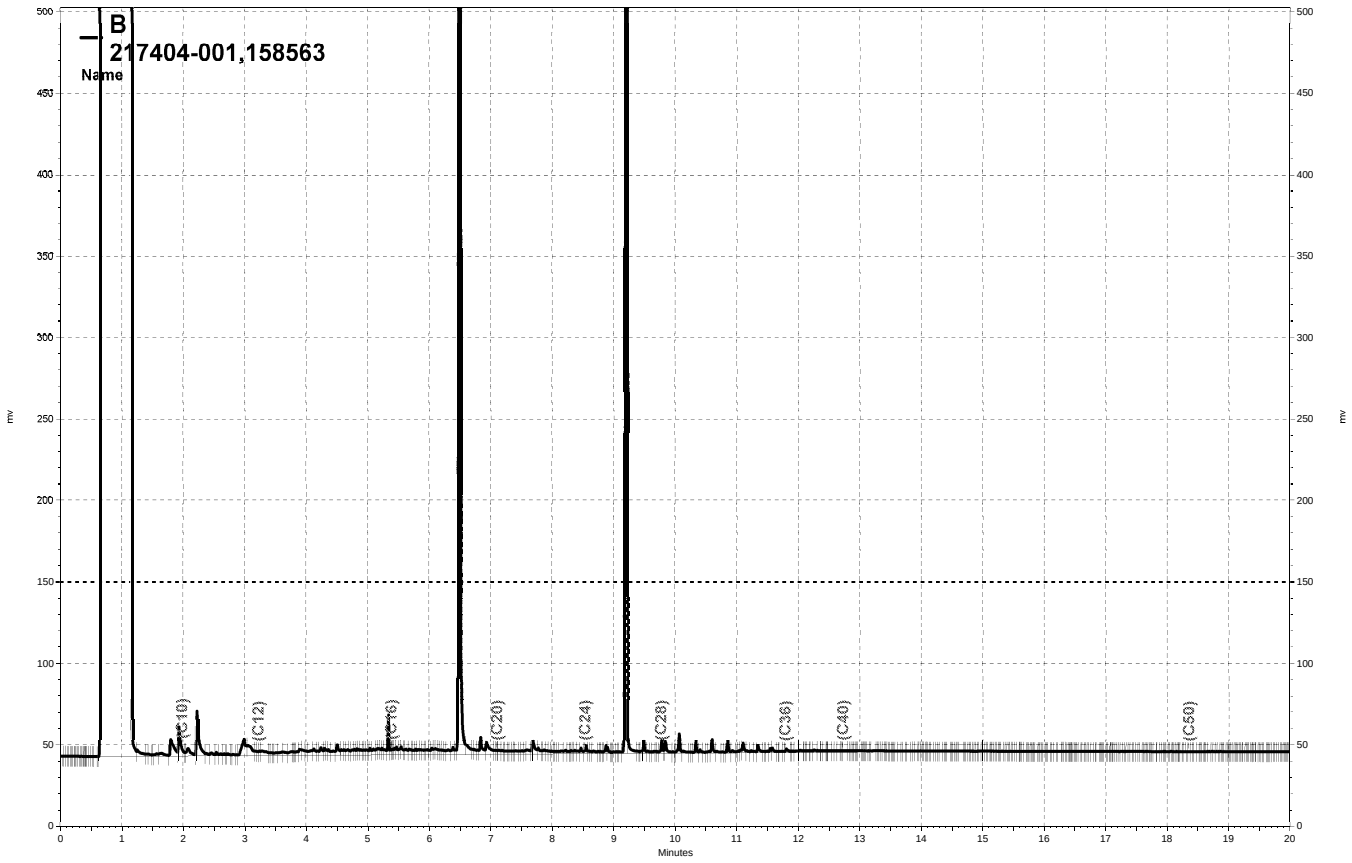
Surrogate	%REC	Limits
o-Terphenyl	89	39-150

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC526889

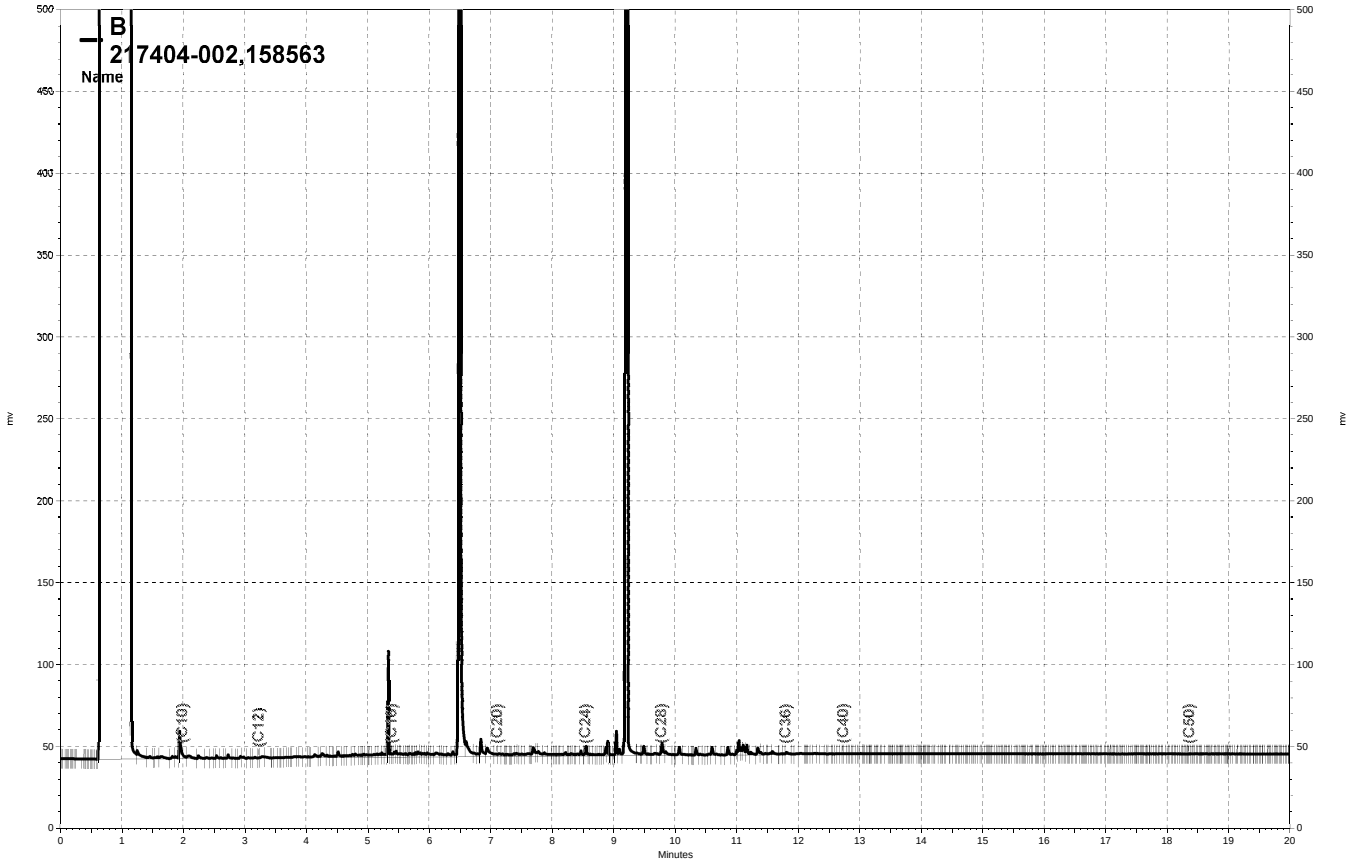
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,393	96	21-160	17	58

Surrogate	%REC	Limits
o-Terphenyl	105	39-150

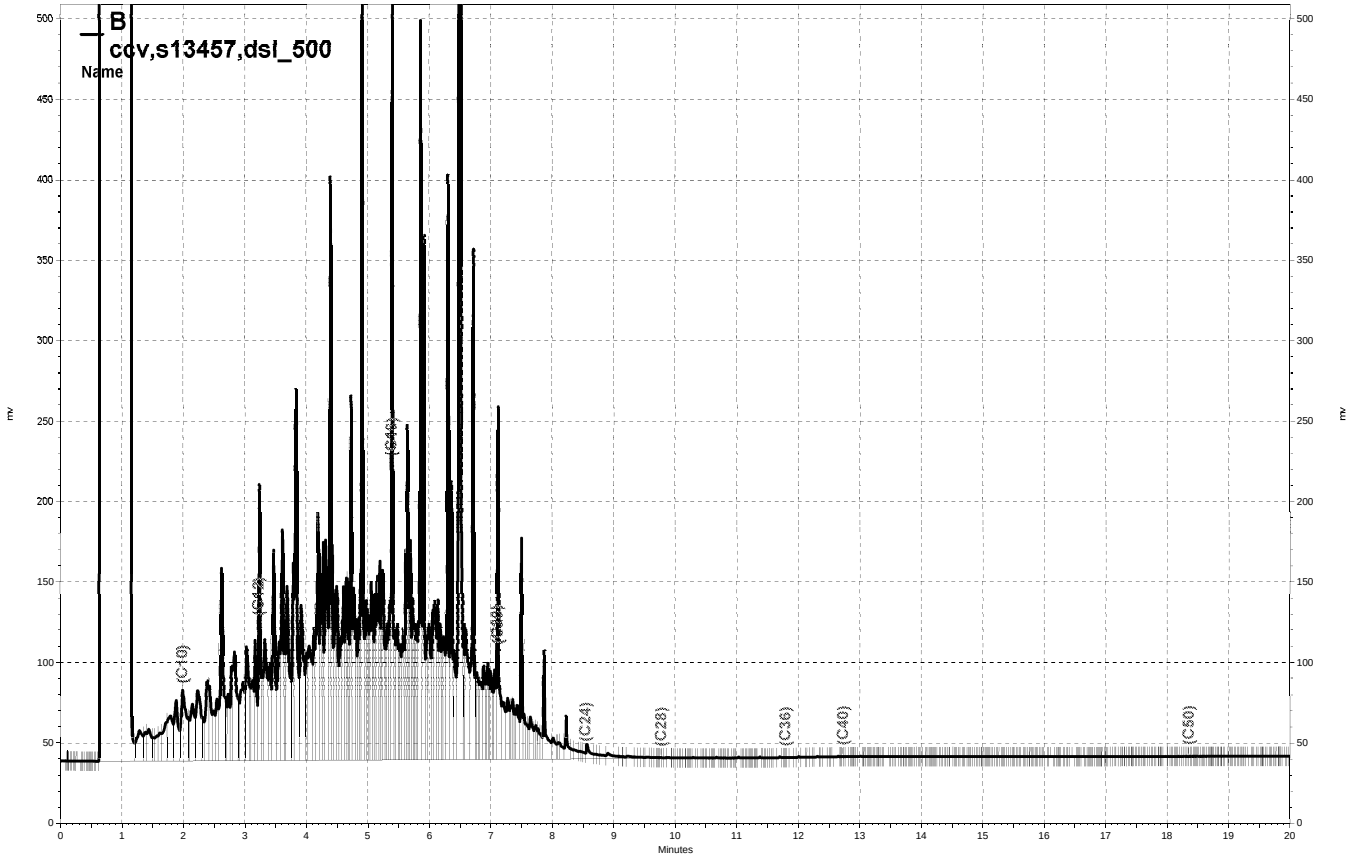
RPD= Relative Percent Difference



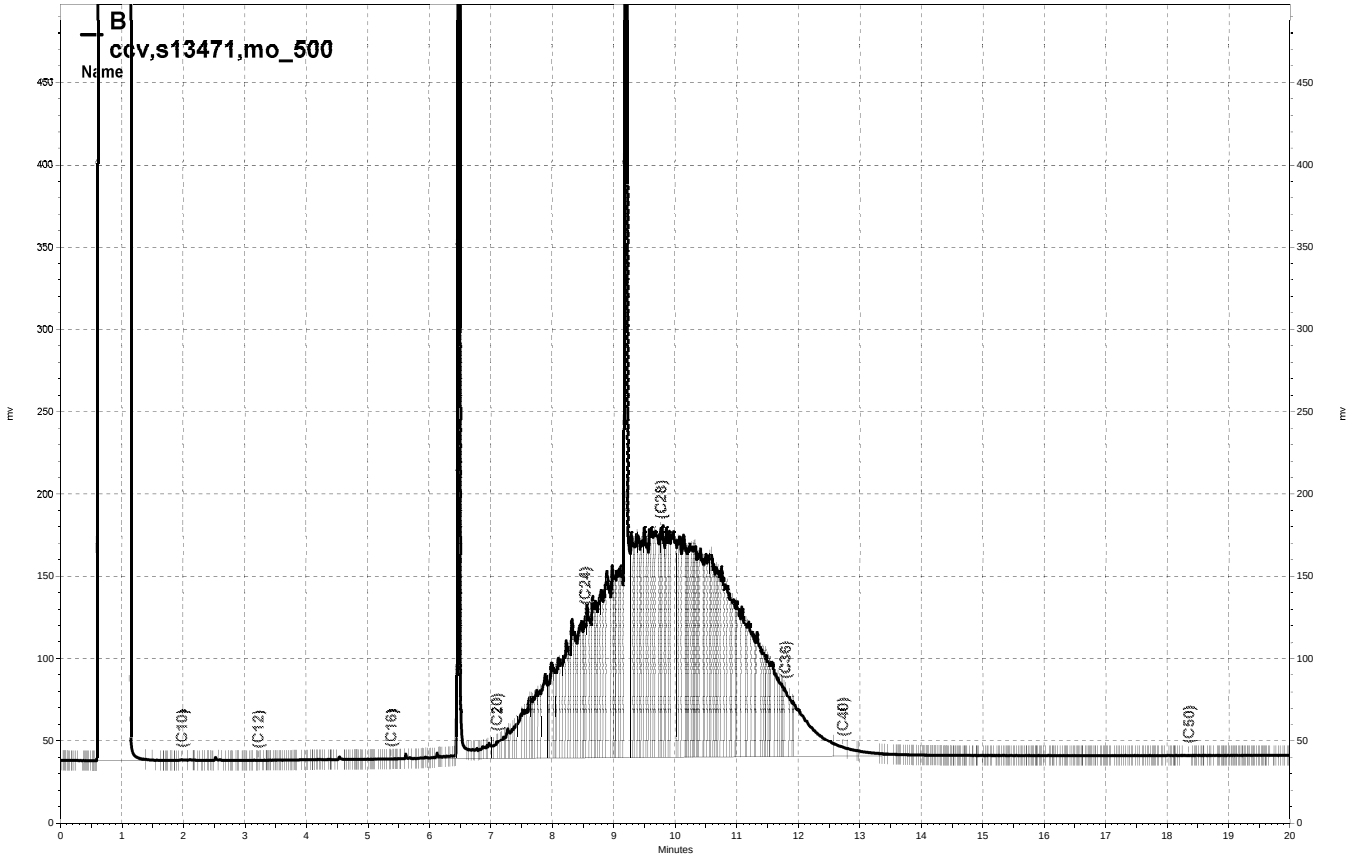
\\Lims\gdrive\ezchrom\Projects\GC15B\Data\357b026, B



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\357b027, B



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\357b017, B



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\357b016, B

APPENDIX D

Historical Analytical Results

HISTORICAL GROUNDWATER MONITORING WELLS ANALYTICAL RESULTS

REDWOOD REGIONAL PARK SERVICE YARD, OAKLAND, CALIFORNIA

(all concentrations in ug/L, equivalent to parts per billion [ppb])

Well MW-2									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Nov-94	**66**	*< 50*	**3.4**	*< 0.5*	*< 0.5*	**0.9**	**4.3**	*NA*
2	Feb-95	**89**	*< 50*	**18**	**2.4**	**1.7**	**7.5**	**30**	*NA*
3	May-95	*< 50*	*< 50*	**3.9**	*< 0.5*	**1.6**	**2.5**	**8.0**	*NA*
4	Aug-95	*< 50*	*< 50*	**5.7**	*< 0.5*	*< 0.5*	*< 0.5*	**5.7**	*NA*
5	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
6	Aug-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
7	Dec-96	*< 50*	*< 50*	**6.3**	*< 0.5*	**1.6**	*< 0.5*	**7.9**	*NA*
8	Feb-97	*< 50*	*< 50*	**0.69**	*< 0.5*	**0.55**	*< 0.5*	**1.2**	*NA*
9	May-97	**67**	*< 50*	**8.9**	*< 0.5*	**5.1**	*< 1.0*	**14**	*NA*
10	Aug-97	*< 50*	*< 50*	**4.5**	*< 0.5*	**1.1**	*< 0.5*	**5.6**	*NA*
11	Dec-97	**61**	*< 50*	**21**	*< 0.5*	**6.5**	**3.9**	**31**	*NA*
12	Feb-98	**2,000**	**200**	**270**	**92**	**150**	**600**	**1,112**	*NA*
13	Sep-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**7.0**
14	Apr-99	**82**	**710**	**4.2**	*< 0.5*	**3.4**	**4.0**	**12**	**7.5**
15	Dec-99	**57**	*< 50*	**20**	**0.6**	**5.9**	*<0.5*	**27**	**4.5**
16	Sep-00	*< 50*	*< 50*	**0.72**	*< 0.5*	*< 0.5*	*< 0.5*	**0.7**	**7.9**
17	Jan-01	**51**	*< 50*	**8.3**	*< 0.5*	**1.5**	*< 0.5*	**9.8**	**8.0**
18	Apr-01	**110**	*< 50*	**10**	*< 0.5*	**11**	**6.4**	**27**	**10**
19	Aug-01	**260**	**120**	**30**	**6.7**	**1.6**	**6.4**	**45**	**27**
20	Dec-01	**74**	**69**	**14**	**0.8**	**3.7**	**3.5**	**22**	**6.6**
21	Mar-02	*< 50*	*< 50*	**2.3**	**0.51**	**1.9**	**1.3**	**8.3**	**8.2**
22	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**7.7**
23	Sep-02	**98**	*< 50*	**5.0**	*< 0.5*	*< 0.5*	*< 0.5*	—	**13**
24	Dec-02	*< 50*	*< 50*	**4.3**	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
25	Mar-03	**130**	**82**	**39**	*< 0.5*	**20**	**4.1**	**63**	**16**
26	Jun-03	*< 50*	*< 50*	**1.9**	*< 0.5*	*< 0.5*	*< 0.5*	**1.9**	**8.7**
27	Sep-03	**120**	*< 50*	**8.6**	**0.51**	**0.53**	*< 0.5*	**9.6**	**23**
28	Dec-03	**282**	*<100*	**4.3**	**1.6**	**1.3**	**1.2**	**8.4**	**9.4**
29	Mar-04	**374**	*<100*	**81**	**1.2**	**36**	**7.3**	**126**	**18**
30	Jun-04	*< 50*	*< 50*	**0.75**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**15**
31	Sep-04	**200**	*< 50*	**23**	*< 0.5*	*< 0.5*	**0.70**	**24**	**16**
32	Dec-04	**80**	*< 50*	**14**	*< 0.5*	*2.9*	**0.72**	**18**	**20**
33	Mar-05	**190**	**68**	**27**	*<0.5*	**14**	**11**	**52**	**26**
34	Jun-05	**68**	*< 50*	**7.1**	*< 0.5*	**6.9**	**1.8**	**16**	**24**
35	Sep-05	*< 50*	*< 50*	**2.5**	*< 0.5*	*< 0.5*	*< 1.0*	**2.5**	**23**
36	Dec-05	*< 50*	*< 50*	**3.9**	*< 0.5*	*< 0.5*	*< 1.0*	**3.9**	**23**
37	Mar-06	**1300**	**300**	**77**	**4.4**	**91**	**250**	**422**	**18**
38	Jun-06	*< 50*	**60**	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	**17**
39	Sep-06	**270**	**52**	**31**	*< 0.5*	**15**	**6.69**	**53**	**17**
40	Dec-06	*< 50*	*< 50*	**2.1**	*< 0.5*	*< 0.5*	*< 0.5*	**2**	**16**
41	Mar-07	**59**	*< 50*	**4**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**14**
42	Jun-07	*<50*	*<50*	**3.5**	*<0.5*	*<0.5*	*<0.5*	**3.5**	**8**
43	Sep-07	**2,600**	**260**	**160**	**44**	**86**	**431**	**721**	**15**
44	Dec-07	**16,000**	**5,800**	**23**	**91**	**230**	**2,420**	**2764**	**16**
44a	Jan-08	**480**	**200**	**1.1**	**3.2**	**5.5**	**68**	**77.8**	**11**
45	Mar-08	**20,000**	**24,000**	**21**	**39**	**300**	**2,620**	**2980**	**13**
45a	Apr-08	**800**	**640**	**2.6**	**2.1**	**13**	**155**	**172.7**	**13**
46a	May-08	**7,100**	**3,900**	**14**	**8.8**	**140**	**710**	**872.8**	**11**
46	Jun-08	**5,700**	**1,000**	**9.4**	**5.2**	**80**	**550**	**644.6**	**11**
46a	Jul-08	**6,400**	**2,200**	**13**	**5.1**	**140**	**570**	**728.1**	**2.9**
46b	Jul-08	**390**	**55**	**1.3**	**0.77**	**4.6**	**44.4**	**51.07**	**9**
46c	Aug-08	**28,000**	**7,100**	**12**	**19**	**260**	**2,740**	**3031**	*<20*
46d	Aug-08	**8,700**	**2,700**	**5.7**	**7.4**	**130**	**900.0**	**1043.1**	**3.5**
47	Sep-08	**40,000**	**9,100**	**1.6**	*<0.5*	**110**	**910.0**	**1021.6**	**9.5**
48	Dec-08	**9,200**	**2,200**	**0.52**	*<0.5*	*<0.5*	**201.0**	**201.52**	**12**
49	Mar-09	**3,100**	**37,000**	**1.1**	**1.4**	**7.9**	**35.0**	**45.4**	**14**
50	May-09	**5,000**	**15,000**	**1.5**	*<0.5*	**9.8**	**39.0**	**50**	**13**
51	Jun-09	**2,400**	**8,000**	**5.4**	*<0.5*	**11**	**20.2**	**36.6**	**13**
52	Aug-09	**1,900**	**3,100**	**1.6**	**1.8**	**11**	**23.8**	**38.2**	**7.1**
53	Sep-09	**1,400**	**1,800**	*<0.5*	*<0.5*	*<0.5*	**4.2**	**4.24**	**12**
54	Dec-09	**590**	**1,800**	*<0.5*	*<0.5*	**1.2**	**1.2**	**2.4**	**3.6**

Well MW-4									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Nov-94	**2,600**	**230**	**120**	**4.8**	**150**	**88**	**363**	*NA*
2	Feb-95	**11,000**	**330**	**420**	**17**	**440**	**460**	**1,337**	*NA*
3	May-95	**7,200**	**440**	**300**	**13**	**390**	**330**	**1,033**	*NA*
4	Aug-95	**1,800**	**240**	**65**	**6.8**	**89**	**67**	**227**	*NA*
5	May-96	**1,100**	**140**	**51**	*< 0.5*	*< 0.5*	**47**	**98**	*NA*
6	Aug-96	**3,700**	**120**	**63**	**2.0**	**200**	**144**	**409**	*NA*
7	Dec-96	**2,700**	**240**	**19**	*< 0.5*	**130**	**93**	**242**	*NA*
8	Feb-97	**3,300**	*< 50*	**120**	**1.0**	**150**	**103**	**374**	*NA*
9	May-97	**490**	*< 50*	**2.6**	**6.7**	**6.4**	**6.7**	**22**	*NA*
10	Aug-97	**1,900**	**150**	**8.6**	**3.5**	**78**	**53**	**143**	*NA*
11	Dec-97	**1,000**	**84**	**4.6**	**2.7**	**61**	**54**	**123**	*NA*
12	Feb-98	**5,300**	**340**	**110**	**24**	**320**	**402**	**856**	*NA*
13	Sep-98	**1,800**	*< 50*	**8.9**	*< 0.5*	**68**	**27**	**104**	**23**
14	Apr-99	**2,900**	**710**	**61**	**1.2**	**120**	**80**	**263**	**32**
15	Dec-99	**1,000**	**430**	**4.0**	**2.0**	**26**	**14**	**46**	*< 2.0*
16	Sep-00	**570**	**380**	*< 0.5*	*< 0.5*	**16**	**4.1**	**20**	**2.4**
17	Jan-01	**1,600**	**650**	**4.2**	**0.89**	**46**	**13.8**	**65**	**8.4**
18	Apr-01	**1,700**	**1,100**	**4.5**	**2.8**	**48**	**10.7**	**66**	**5.0**
19	Aug-01	**1,300**	**810**	**3.2**	**4.0**	**29**	**9.7**	**46**	*< 2.0*
20	Dec-01	*< 50*	**110**	*< 0.5*	*< 0.5*	*< 0.5*	**1.2**	**1.2**	*< 2.0*
21	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
22	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
23	Sep-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
24	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
25	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
26	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
27	Sep-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
28	Dec-03	*<50*	*<100*	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*
29	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*
30	Jun-04	*<50*	**2,500**	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*
31	Sep-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*
32	Dec-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*
33	Mar-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*
34	Jun-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*
35	Sep-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*
Groundwater monitoring in this well discontinued with Alameda County Health Care Services Agency approval.									

Well MW-5									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Nov-94	**50**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
2	Feb-95	**70**	*< 50*	**0.6**	*< 0.5*	*< 0.5*	*< 0.5*	**0.6**	*NA*
3	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
4	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
5	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
6	Aug-96	**80**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
7	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
8	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
9	May-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
10	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
11	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
12	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
13	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2*
Groundwater monitoring in this well discontinued in 1998 with Alameda County Health Care Services Agency approval. Subsequent groundwater monitoring conducted to confirm plume's southern limit									
14	Jun-04	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**5.9**
15	Sep-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*

Well MW-7									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Jan-01	**13,000**	**3,100**	**95**	**4**	**500**	**289**	**888**	**95**
2	Apr-01	**13,000**	**3,900**	**140**	*< 0.5*	**530**	**278**	**948**	**52**
3	Aug-01	**12,000**	**5,000**	**55**	**25**	**440**	**198**	**718**	**19**
4	Dec-01	**9,100**	**4,600**	**89**	*< 2.5*	**460**	**228**	**777**	*< 10*
5	Mar-02	**8,700**	**3,900**	**220**	**6.2**	**450**	**191**	**867**	**200**
6	Jun-02	**9,300**	**3,500**	**210**	**6.3**	**380**	**155**	**751**	**18**
7	Sep-02	**9,600**	**3,900**	**180**	*< 0.5*	**380**	**160**	**720**	*< 2.0*
8	Dec-02	**9,600**	**3,700**	**110**	*< 0.5*	**400**	**189**	**699**	*< 2.0*
9	Mar-03	**10,000**	**3,600**	**210**	**12**	**360**	**143**	**725**	**45**
10	Jun-03	**9,300**	**4,200**	**190**	*< 10*	**250**	**130**	**570**	**200**
11	Sep-03	**10,000**	**3,300**	**150**	**11**	**300**	**136**	**597**	*< 2.0*
12	Dec-03	**9,140**	**1,100**	**62**	**45**	**295**	**184**	**586**	**89**
13	Mar-04	**8,170**	**600**	**104**	**41**	**306**	**129**	**580**	**84**
14	Jun-04	**9,200**	**2,700**	**150**	*< 0.5*	**290**	**91**	**531**	*< 2.0*
15	Sep-04	**9,700**	**3,400**	**98**	*< 0.5*	**300**	**125**	**523**	*< 2.0*
16	Dec-04	**8200**	**4,000**	**95**	*< 0.5*	**290**	**124**	**509**	*< 2.0*
17	Mar-05	**10,000**	**4,300**	**150**	*<0.5*	**370**	**71**	**591**	*<2.0*
18	Jun-05	**10,000**	**3,300**	**210**	*<1.0*	**410**	**56**	**676**	*<4.0*
19	Sep-05	**7,600**	**2,700**	**110**	*<1.0*	**310**	**54**	**474**	*<4.0*
20	Dec-05	**2,900**	**3,300**	**31**	*<1.0*	**140**	**41**	**212**	*<4.0*
21	Mar-06	**6,800**	**3,000**	**110**	*< 1.0*	**280**	**42**	**432**	**110**
22	Jun-06	**6,900**	**3,600**	**63**	*< 2.5*	**290**	**43**	**396**	*< 10*
23	Sep-06	**7,900**	**3,600**	**64**	*< 0.5*	**260**	**58**	**382**	49
24	Dec-06	**7,300**	**2,400**	**50**	*< 0.5*	**220**	**42**	**312**	*< 2.0*
25	Mar-07	**6,200**	**2,900**	**34**	*< 0.5*	**190**	**15**	**239**	*< 2.0*
26	Jun-07	**6,800**	**3,000**	**30**	*<1.0*	**160**	**27**	**217**	*<4.0*
27	Sep-07	**6,400**	**3,000**	*<0.5*	*<0.5*	**170**	**43**	**213**	*<2.0*
28	Dec-07	**4,800**	**2,800**	*<0.5*	*<0.5*	**100**	**26.5**	**126.5**	*2.7*
30	Mar-08	**5,400**	**5,900**	**21**	*<0.5*	**150**	**15**	**186**	**51**
31	Jun-08	**4,800**	**3,500**	**55**	*<0.5*	**140**	**7.03**	**202**	*<2.0*
32	Sep-08	**6,400**	**2,800**	**22**	*<0.5*	**100**	**9.30**	**131**	*<2.0*
33	Dec-08	**3,500**	**3,600**	**5**	*<0.5*	**100**	**9.10**	**114**	*<2.0*
34	Mar-09	**5,100**	**6,700**	**19**	*<0.5*	**140**	**12.30**	**171**	**51**
35	Jun-09	**4,600**	**5,400**	**40**	*< 0.5*	**140**	**5.12**	**185**	**260**
36	Sep-09	**4,400**	**4,700**	*<0.5*	*<0.5*	**96**	**5.60**	**102**	**3.5**
37	Dec-09	**4,900**	**4,500**	*< 0.5*	*< 0.5*	**90**	**2.90**	**93**	**57.0**

Well MW-8									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Jan-01	**14,000**	**1,800**	**430**	**17**	**360**	**1230**	**2,037**	**96**
2	Apr-01	**11,000**	**3,200**	**320**	**13**	**560**	**1,163**	**2,056**	**42**
3	Aug-01	**9,600**	**3,200**	**130**	**14**	**470**	**463**	**1,077**	**14**
4	Dec-01	**3,500**	**950**	**69**	**2.4**	**310**	**431**	**812**	*< 4.0*
5	Mar-02	**14,000**	**3,800**	**650**	**17**	**1,200**	**1,510**	**3,377**	**240**
6	Jun-02	**2,900**	**1,100**	**70**	**2.0**	**170**	**148**	**390**	**19**
7	Sep-02	**1,000**	**420**	**22**	*< 0.5*	**64**	**50**	**136**	*< 2.0*
8	Dec-02	**3,300**	**290**	**67**	*< 0.5*	**190**	**203**	**460**	*< 2.0*
9	Mar-03	**13,000**	**3,500**	**610**	**12**	**1,100**	**958**	**2,680**	*< 10*
10	Jun-03	**7,900**	**2,200**	**370**	**7.4**	**620**	**562**	**1,559**	*< 4.0*
11	Sep-03	**3,600**	**400**	**120**	**3.3**	**300**	**221**	**644**	*< 2.0*
12	Dec-03	**485**	**100**	**19**	**1.5**	**26**	**36**	**83**	*< 5.0*
13	Mar-04	**16,000**	**900**	**592**	**24**	**1,060**	**1,870**	**3,546**	**90**
14	Jun-04	**5,900**	**990**	**260**	**9.9**	**460**	**390**	**1,120**	*< 10*
15	Sep-04	**2,000**	**360**	**100**	*< 2.5*	**180**	**102**	**382**	*< 10*
16	Dec-04	**15,000**	**4,000**	**840**	**21**	**1,200**	**1,520**	**3,581**	*< 10*
17	Mar-05	**24,000**	**7,100**	**840**	**51**	**1,800**	**2,410**	**5,101**	*<10*
18	Jun-05	**33,000**	**5,700**	**930**	**39**	**2,500**	**3,860**	**7,329**	*<20*
19	Sep-05	**5,600**	**1,200**	**270**	**6.6**	**400**	**390**	**1,067**	*<20*
20	Dec-05	**3,700**	**1,300**	**110**	*< 5.0*	**320**	**356**	**786**	*<20*
21	Mar-06	**22,000**	**4,300**	**550**	**30**	**1,800**	**2,380**	**4,760**	*<20*
22	Jun-06	**19,000**	**5,000**	**500**	**28**	**1,800**	**1,897**	**4,225**	*<20*
23	Sep-06	**9,000**	**820**	**170**	**7.7**	**730**	**539**	**1,447**	*<10*
24	Dec-06	**4,400**	**800**	**75**	**4.2**	**320**	**246**	**645**	*< 2.0*
25	Mar-07	**15,000**	**4,500**	**340**	**19**	**1,300**	**1,275**	**2,934**	*< 20*
26	Jun-07	**10,000**	**3,500**	**220**	**11**	**670**	**675**	**1,576**	*<4.0*
27	Sep-07	**9,400**	**3,400**	**200**	**6.9**	**1,000**	**773**	**1,980**	*<8.0*
28	Dec-07	**1,200**	**500**	**15**	**0.88**	**95**	**57.7**	**168.58**	*<2.0*
30	Mar-08	**11,000**	**13,000**	**150**	**13**	**1,100**	**950.0**	**2,213**	**76**
31	Jun-08	**2,000**	**1,700**	**27**	**2.5**	**190**	**113.2**	**333**	*<2.0*
32	Sep-08	**5,500**	**4,400**	**89**	**3.9**	**630**	**194.4**	**917**	*<2.0*
33	Dec-08	**520**	**400**	**1.5**	*<0.5*	**20**	**4.4**	**26**	**4.5**
34	Mar-09	**4,600**	**7,300**	**55**	*<5.0*	**410**	**639.0**	**1,104**	*<20*
35	Jun-09	**2,100**	**3,400**	**32**	*< 0.5*	**260**	**80.8**	**373**	**55**
36	Sep-09	**440**	**1,700**	**2.8**	*<0.5*	**33**	**2.7**	**39**	**3.7**
37	Dec-09	**560**	**540**	**1.5**	*< 0.5*	**39**	**7.1**	**48**	**4.2**

Well MW-9									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Aug-01	**11,000**	**170**	**340**	**13**	**720**	**616**	**1,689**	**48**
2	Dec-01	**9,400**	**2,700**	**250**	**5.1**	**520**	**317**	**1,092**	*< 10*
3	Mar-02	**1,700**	**300**	**53**	**4.2**	**120**	**67**	**244**	**20**
4	Jun-02	**11,000**	**2,500**	**200**	**16**	**600**	**509**	**1,325**	**85**
5	Sep-02	**3,600**	**2,800**	**440**	**11**	**260**	**39**	**750**	*< 4.0*
6	Dec-02	**7,000**	**3,500**	**380**	**9.5**	**730**	**147**	**1,266**	*< 10*
7	Mar-03	**4,400**	**1,400**	**320**	**6.9**	**400**	**93**	**820**	*< 2.0*
8	Jun-03	**7,600**	**1,600**	**490**	**10**	**620**	**167**	**1,287**	*< 4.0*
9	Sep-03	**8,300**	**2,900**	**420**	**14**	**870**	**200**	**1,504**	*< 10*
10	Dec-03	**7,080**	**700**	**287**	**31**	**901**	**255**	**1,474**	*< 10*
11	Mar-04	**3,550**	**600**	**122**	**15**	**313**	**84**	**534**	**35**
12	Jun-04	**6,800**	**1,700**	**350**	*< 2.5*	**620**	**99**	**1,069**	*< 10*
13	Sep-04	**7,100**	**1,900**	**160**	*8.1*	**600**	**406**	**1,174**	*< 10*
14	Dec-04	**4,700**	**2,800**	**160**	*< 2.5*	**470**	*< 0.5*	**630**	*< 10*
15	Mar-05	**4,200**	**1,600**	**97**	*<2.5*	**310**	**42**	**449**	*< 10*
16	Jun-05	**9,900**	**2,000**	**170**	*<2.5*	**590**	**359**	**1,119**	*< 10*
17	Sep-05	**3,600**	**1,200**	**250**	*<0.5*	**330**	**36**	**616**	*< 2.0*
18	Dec-05	**8,700**	**1,500**	**150**	**4**	**650**	**551**	**1,355**	*< 4.0*
19	Mar-06	**3,600**	**880**	**37**	*<1.0*	**210**	**165**	**412**	*< 4.0*
20	Jun-06	**3,200**	**1,300**	**39**	*<1.0*	**220**	**144**	**403**	**4.2**
21	Sep-06	**12,000**	**3,300**	**130**	**8**	**850**	**604**	**1,592**	*<1.0*
22	Dec-06	**12,000**	**2,800**	**140**	**9.4**	**880**	**634**	**1,663**	*< 10*
23	Mar-07	**9,600**	**2,900**	**120**	**8.7**	**780**	**453**	**1,362**	*< 10*
24	Jun-07	**7,100**	**2,200**	**75**	**5.2**	**480**	**298**	**858**	*<4.0*
25	Sep-07	**4,500**	**2,100**	**60**	**3.8**	**420**	**227**	**710**	*<4.0*
26	Dec-07	**6,200**	**2,000**	**51**	*<0.5*	**340**	**128.8**	**519.8**	*<2.0*
27	Mar-08	**6,400**	**3,500**	**67**	**5.2**	**480**	**177.6**	**724.6**	**38**
28	Jun-08	**10,000**	**3,400**	**89**	*<2.5*	**510**	**231.0**	**830.0**	*<10*
29	Sep-08	**4,800**	**2,700**	**53**	*<0.5*	**250**	**66.4**	**369.4**	*<2.0*
30	Dec-08	**4,300**	**2,300**	**45**	*<0.5*	**330**	**39.1**	**414.1**	*<2.0*
31	Mar-09	**4,000**	**2,200**	*<2.0*	*<0.5*	**160**	**34.9**	**194.9**	*<2.0*
32	Jun-09	**4,100**	**3,600**	**62**	*< 0.5*	**280**	**41.7**	**383.7**	**160**
33	Sep-09	**2,200**	**2,900**	**15**	*<0.5*	**110**	**11.8**	**136.8**	*<2.0*
34	Dec-09	**2,500**	**4,000**	**27**	*<0.5*	**170**	**8.7**	**205.7**	*<2.0*

Well MW-10									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Aug-01	**550**	**2,100**	**17**	*< 0.5*	**31**	**44**	**92**	**40**
2	Dec-01	*< 50*	**81**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**25**
3	Mar-02	*< 50*	*< 50*	**0.61**	*< 0.5*	*< 0.5*	*< 0.5*	**0.61**	**6.0**
4	Jun-02	*< 50*	*< 50*	**0.59**	*< 0.5*	**0.58**	*< 0.5*	**1.2**	**9.0**
5	Sep-02	**160**	**120**	**10**	*< 0.5*	**6.7**	**3.6**	**20**	**26**
6	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**16**
7	Mar-03	**110**	*< 50*	**11**	*< 0.5*	**12**	**1.3**	**24**	**15**
8	Jun-03	**110**	*< 50*	**9.6**	*< 0.5*	**6.8**	*< 0.5*	**16**	**9.0**
9	Sep-03	*< 50*	*< 50*	**1.1**	*< 0.5*	**1.5**	*< 0.5*	**2.6**	**7.0**
10	Dec-03	**162**	*<100*	**6.9**	*<0.3*	**8.0**	*<0.6*	**15**	**9.9**
11	Mar-04	**94**	*<100*	**2.8**	*<0.3*	**5.7**	**7.0**	**16**	*<5.0*
12	Jun-04	**150**	**56**	**11**	*< 0.5*	**12**	*< 0.5*	**23**	**15**
13	Sep-04	*< 50*	*< 50*	**1.6**	*< 0.5*	**1.9**	*< 1.0*	**3.5**	**5.8**
14	Dec-04	**64**	*< 50*	**3.7**	*< 0.5*	**3.7**	**0.7**	**8.1**	**10**
15	Mar-05	**95**	**98**	**8.3**	*<0.5*	**7.7**	**0.77**	**17**	**13**
16	Jun-05	**150**	**57**	**14**	*<0.5*	**10**	**1.0**	**25**	*<2.0*
17	Sep-05	**87**	*< 50*	**5.0**	*<0.5*	**3.6**	*<1.0*	**8.6**	*<2.0*
18	Dec-05	*< 50*	*< 50*	**1.2**	*<0.5*	*<0.5*	*<1.0*	**1.2**	**7.8**
19	Mar-06	**58**	**71**	**3.2**	*<0.5*	**2.2**	*<1.0*	**5.4**	**8.8**
20	Jun-06	**73**	**140**	**4.9**	*<0.5*	**2.5**	*<1.0*	**7.4**	**5.3**
21	Sep-06	**88**	**51**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**9.6**
22	Dec-06	*<50*	*<50*	**0.61**	*<0.5*	**0.55**	*<0.5*	**1.2**	**3.7**
23	Mar-07	**57**	*<50*	**3.6**	*<0.5*	**2.2**	*<0.5*	**5.8**	**3.1**
24	Jun-07	**60**	**65**	**2.4**	*<0.5*	**1.6**	*<0.5*	**4.0**	**4.0**
25	Sep-07	**84**	*<50*	**3.6**	*<0.5*	**2.3**	**0.52**	**6.4**	**3.6**
26	Dec-07	**130**	**67**	**0.77**	*<0.5*	**340**	**0.83**	**341.6**	*<2.0*
27	Mar-08	**78**	**170**	**1.7**	*<0.5*	**3.1**	**0.97**	**5.8**	**2.4**
28	Jun-08	**230**	**320**	**12**	*<0.5*	**9.9**	**3.50**	**25.4**	*<2.0*
29	Sep-08	**80**	*<50*	**1.6**	*<0.5*	**0.52**	*<0.5*	**2.1**	**3.0**
30	Dec-08	*<50*	**66**	**0.89**	*<0.5*	*<0.5*	*<0.5*	**0.9**	**2.1**
31	Mar-09	**76**	**230**	*<2.0*	*<0.5*	**1.4**	*<0.5*	**1.4**	*<2.0*
32	Jun-09	**72**	**120**	**2.0**	*< 0.5*	**4.4**	**1.3**	**7.7**	*<2.0*
33	Sep-09	**74**	**220**	**1.6**	*<0.5*	*<0.5*	*<0.5*	**1.6**	*<2.0*
34	Dec-09	**72**	**150**	**0.6**	*<0.5*	**1.6**	**1.2**	**3.4**	*<2.0*

Well MW-11									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Aug-01	**17,000**	**7,800**	**390**	**17**	**820**	**344**	**1,571**	*< 10*
2	Dec-01	**5,800**	**2,800**	**280**	**7.8**	**500**	**213**	**1,001**	*< 10*
3	Mar-02	**100**	**94**	*< 0.5*	*< 0.5*	**0.64**	*< 0.5*	**0.64**	**2.4**
4	Jun-02	**8,200**	**2,600**	**570**	**13**	**560**	**170**	**1,313**	*< 4*
5	Sep-02	**12,000**	**4,400**	**330**	**13**	**880**	**654**	**1,877**	*< 10*
6	Dec-02	**18,000**	**4,500**	**420**	*< 2.5*	**1,100**	**912**	**2,432**	*< 10*
7	Mar-03	**7,800**	**2,600**	**170**	**4.7**	**530**	**337**	**1,042**	**53**
8	Jun-03	**14,000**	**3,800**	**250**	*< 2.5*	**870**	**693**	**1,813**	*< 10*
9	Sep-03	**10,000**	**3,000**	**250**	**9.9**	**700**	**527**	**1,487**	*< 4*
10	Dec-03	**15,000**	**1,100**	**314**	**60**	**1,070**	**802**	**2,246**	**173**
11	Mar-04	**4,900**	**400**	**72**	**17**	**342**	**233**	**664**	**61**
12	Jun-04	**10,000**	**2,300**	**210**	**2.8**	**690**	**514**	**1,417**	*< 10*
13	Sep-04	**7,200**	**2,300**	**340**	*< 2.5*	**840**	**75**	**1,255**	*< 10*
14	Dec-04	**11,000**	**3,900**	**180**	**5.1**	**780**	**695**	**1,660**	*< 10*
15	Mar-05	**4,600**	**1,900**	**69**	*<2.5*	**300**	**206**	**575**	*< 10*
16	Jun-05	**1,400**	**590**	**85**	*<0.5*	**110**	**8.2**	**203**	*< 2.0*
17	Sep-05	**12,000**	**3,100**	**220**	*< 1.0*	**840**	**762**	**1,822**	*< 4.0*
18	Dec-05	**2,500**	**2,100**	**120**	*< 2.5*	**260**	**16**	**396**	*< 10*
19	Mar-06	**2,200**	**1,300**	**27**	*<2.5*	**130**	**5.2**	**162**	*< 10*
20	Jun-06	**3,700**	**1,900**	**170**	*<1.0*	**230**	**14**	**414**	*< 4.0*
21	Sep-06	**3,600**	**2,100**	**80**	*<0.5*	**230**	**8.8**	**319**	*< 2.0*
22	Dec-06	**6,000**	**3,500**	**83**	*<1.0*	**260**	**16.4**	**359**	*< 4.0*
23	Mar-07	**4,500**	**1,900**	**110**	*< 0.5*	**170**	**7.9**	**288**	*< 2.0*
24	Jun-07	**4**	**2,200**	**120**	*<0.5*	**140**	**6.6**	**267**	*<4.0*
25	Sep-07	**5,500**	**2,700**	**86**	*<0.5*	**180**	**16.1**	**282**	*<2.0*
26	Dec-07	**7,100**	**4,000**	**68**	*<0.5*	**140**	**14**	**222**	**35**
27	Mar-08	**5,300**	**4,000**	**130**	*<0.5*	**120**	**13**	**263**	**8.8**
28	Jun-08	**3,600**	**4,200**	**190**	*<0.5*	**140**	**11**	**341**	*<2.0*
29	Sep-08	**7,300**	**4,600**	**130**	*<0.5*	**110**	**4.5**	**245**	*<2.0*
30	Dec-08	**2,800**	**1,600**	**93**	*<0.5*	**82**	**0.69**	**176**	*<2.0*
31	Mar-09	**4,100**	**4,600**	**18**	*<0.5*	**82**	**8**	**108**	**8.0**
32	Jun-09	**2,100**	**2,700**	**38**	*< 0.5*	**80**	**3.3**	**121**	**3.3**
33	Sep-09	**830**	**2,400**	**11**	*<0.5*	**19**	**<0.5**	**30**	*<2.0*
34	Dec-09	**2,200**	**3,100**	**19**	*<0.5*	**46**	**0.78**	**66**	**14.0**

Well MW-12									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Dec-05	**1,300**	**700**	*< 0.5*	*< 0.5*	**33**	**5.6**	**39**	*< 2.0*
2	Mar-06	**1,100**	**540**	*<0.5*	*<0.5*	**8.5**	**1.5**	**10**	**49**
3	Jun-06	**680**	**400**	*<0.5*	*<0.5*	**5.8**	**1.4**	**7.2**	*< 2.0*
4	Sep-06	**910**	**480**	*<0.5*	*<0.5*	**9.9**	**1.5**	**11.4**	**21**
5	Dec-06	**770**	**230**	*< 0.5*	*< 0.5*	**7.4**	**2.0**	**9.4**	*< 2.0*
6	Mar-07	**390**	**110**	*< 0.5*	*< 0.5*	**1.7**	**1.7**	**3.4**	*< 2.0*
7	Jun-07	**590**	**280**	*<0.5*	*<0.5*	**4.5**	**0.9**	**5.4**	*<2.0*
8	Sep-07	**390**	**180**	*<0.5*	*<0.5*	**2.4**	**2.4**	**4.8**	*<2.0*
9	Dec-07	**210**	**140**	*<0.5*	*<0.5*	**2.1**	**1.3**	**3.4**	*<2.0*
10	Mar-08	**720**	**500**	*<0.5*	**4.4**	**9.0**	**2.8**	**16.2**	*<2.0*
11	Jun-08	**220**	**50**	*<0.5*	*<0.5*	**2.0**	*<0.5*	**2.0**	*<2.0*
12	Sep-08	**370**	**95**	*<0.5*	*<0.5*	**2.8**	**0.98**	**3.8**	*<2.0*
13	Dec-08	**93**	**170**	*<0.5*	*<0.5*	**0.76**	*<0.5*	**0.8**	*<2.0*
14	Mar-09	**180**	**130**	*<0.5*	*<0.5*	**1.70**	*<0.5*	**1.7**	*<2.0*
15	Jun-09	**300**	**280**	*< 0.5*	*< 0.5*	**4.60**	*< 0.5*	**4.6**	*<2.0*
16	Sep-09	**330**	**270**	*<0.5*	*<0.5*	**2.30**	*<0.5*	**2.3**	*<2.0*
17	Dec-09	**76**	**170**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**0.0**	*<2.0*

HISTORICAL SURFACE WATER ANALYTICAL RESULTS
REDWOOD REGIONAL PARK SERVICE YARD, OAKLAND, CALIFORNIA

(all concentrations in ug/L, equivalent to parts per billion [ppb])

Sampling Location SW-1 (Upstream of Contaminated Groundwater Discharge Location SW-2)									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Feb-94	**50**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
2	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
3	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
4	Aug-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
5	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
6	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
7	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
8	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
9	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*
10	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
11	Apr-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*
Sampling at this location discontinued after April 1999 with Alameda County Health Services Agency approval.									

Sampling Location SW-2 (Area of Historical Contaminated Groundwater Discharge)									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	Feb-94	**130**	*< 50*	**1.9**	*< 0.5*	**4.4**	**3.2**	**9.5**	*NA*
2	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
3	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
4	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
5	Aug-96	**200**	*< 50*	**7.5**	*< 0.5*	**5.4**	*< 0.5*	**13**	*NA*
6	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
7	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
8	Aug-97	**350**	**130**	**13**	**0.89**	**19**	**11**	**44**	*NA*
9	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
10	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*
11	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
12	Apr-99	**81**	*<50*	**2.0**	*< 0.5*	**2.5**	**1.3**	**5.8**	**2.3**
13	Dec-99	**1,300**	**250**	**10**	**1.0**	**47**	**27**	**85**	**2.2**
14	Sep-00	**160**	**100**	**2.1**	*< 0.5*	**5.2**	**1.9**	**9.2**	**3.4**
15	Jan-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.53**	*< 0.5*	**0.5**	*< 2.0*
16	Apr-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
17	Sep-01	**440**	**200**	**2.1**	*< 0.5*	**17**	**1.3**	**20**	**10**
18	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
19	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
20	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
21	Sep-02	**220**	**590**	**10**	*< 0.5*	**13**	*< 0.5*	**23**	*< 2.0*
22	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
23	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.56**	*< 0.5*	**0.56**	**2.8**
24	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*
25	Sep-03	**190**	**92**	**2.1**	*< 0.5*	**4.2**	*< 0.5*	**6.3**	*< 2.0*
26	Dec-03	**86**	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*<0.6*	*< 5.0*
27	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	**1.1**	*<0.6*	**1.1**	*< 5.0*
28	Jun-04	*<50*	*<50*	*<0.5*	*<0.5*	**0.83**	*<0.5*	**0.83**	*< 2.0*
29	Sep-04	**260**	**370**	**4.4**	*<0.5*	**6.3**	*< 1.0*	**11**	*< 2.0*
30	Dec-04	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*1.0*	*< 2.0*
31	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
32	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
33	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
34	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
35	Mar-06	*<50*	**62**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
36	Jun-06	*<50*	**110**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
37	Sep-06	**62**	**94**	*<0.5*	*<0.5*	**0.81**	*<0.5*	**0.8**	*< 2.0*
38	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
39	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
40	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*
41	Sep-07	*<50*	**77**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	<1.0	*<2.0*
42	Dec-07	**130**	**430**	*<0.5*	*<0.5*	**1.5**	*<0.5*	**1.5**	*<2.0*
43	Mar-08	*<50*	**130**	*<0.5*	*<0.5*	*<0.5*	**0.61**	**0.61**	*<2.0*
44	Jun-08	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
45	Sep-08	**530**	**690**	*<0.5*	*<0.5*	**4.3**	*<0.5*	**4.3**	*<2.0*
46	Dec-08	*<50*	**83**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	**<0.5**	*<2.0*
47	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*
48	Jun-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
49	Sep-09	**110**	**220**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
50	Dec-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*

Sampling Location SW-3 (Downstream of Contaminated Groundwater Discharge Location SW-2)									
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**
1	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
2	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
3	May-96	*< 50*	**74**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
4	Aug-96	**69**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
5	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
6	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
7	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
8	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
9	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*
10	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
11	Apr-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
12	Dec-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
13	Sep-00	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
14	Jan-01	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
15	Apr-01	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
16	Sep-01	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*< 0.5*	*NS*
17	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
18	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
19	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**2.4**
20	Sep-02	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
21	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
22	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
23	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*
24	Sep-03	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
25	Dec-03	**60**	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*<0.6*	*< 5.0*
26	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	*<0.6*	*<0.6*	*<0.6*	*< 5.0*
27	Jun-04	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
28	Sep-04	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
29	Dec-04	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
30	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
31	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
32	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
33	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
34	Mar-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
35	Jun-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
36	Sep-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	**7.8**
37	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*
38	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	**3.3**
39	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*
40	Sep-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
41	Dec-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
42	Mar-08	*<50*	**200**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
43	Jun-08	*<50*	**55**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*
44	Sep-08	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
45	Dec-08	*<50*	**360**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<2.0*
46	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*
47	Jun-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<2.0*
48	Sep-09	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
49	Dec-09	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*

NS = Not Sampled (no surface water present during sampling event)