FOURTH QUARTER 2010 GROUNDWATER MONITORING AND ANNUAL SUMMARY REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

January 2011

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

Prepared by:

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January 28, 2011

Project No. 2010-02

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January 28, 2011

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 2010 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, 2010 (Fourth Quarter 2010). This report also evaluates hydrochemical trends (including plume extent and stability) over the year of monitoring. In our professional opinion, continued groundwater monitoring can be reduced to semiannual monitoring based on the historical data collected and remediation completed. Groundwater monitoring and ongoing bioventing activities will be submitted in a semi-annual monitoring report and one annual monitoring report, respectively.

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. Matt Graul of the EBRPD, or contact me directly at (510) 644-3123.

Sincerely,

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

Matt Graul, Stewardship Manager
East Bay Regional Park District

cc: Carl Wilcox, California Department of Fish and Game
State of California GeoTracker database / ACEH ftp database

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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. (Stellar Environmental) between October 1 and December 31, 2010 (Fourth Quarter 2010):

- 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 Annual 2010 bioventing status report)

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

Previous Stellar Environmental 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 (Stellar Environmental, 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 Stellar Environmental 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 ORC™ injection pilot test, conducted by Stellar Environmental on March 10, 2009, to control historical high levels of hydrocarbons contamination that began to appear in September 2007 in source well MW-2.
- A Remedial Action Workplan (RAW), dated August 20, 2009, prepared by Stellar Environmental in response to a letter from ACEH. ACEH approved the RAW in a letter (dated October 2, 2009) to the EBRPD.
- An ORC™ injection conducted over the full footprint of plume during First Quarter 2010 (on February 1-2), followed by 30-day post-injection monitoring and sampling of key site wells (on March 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	

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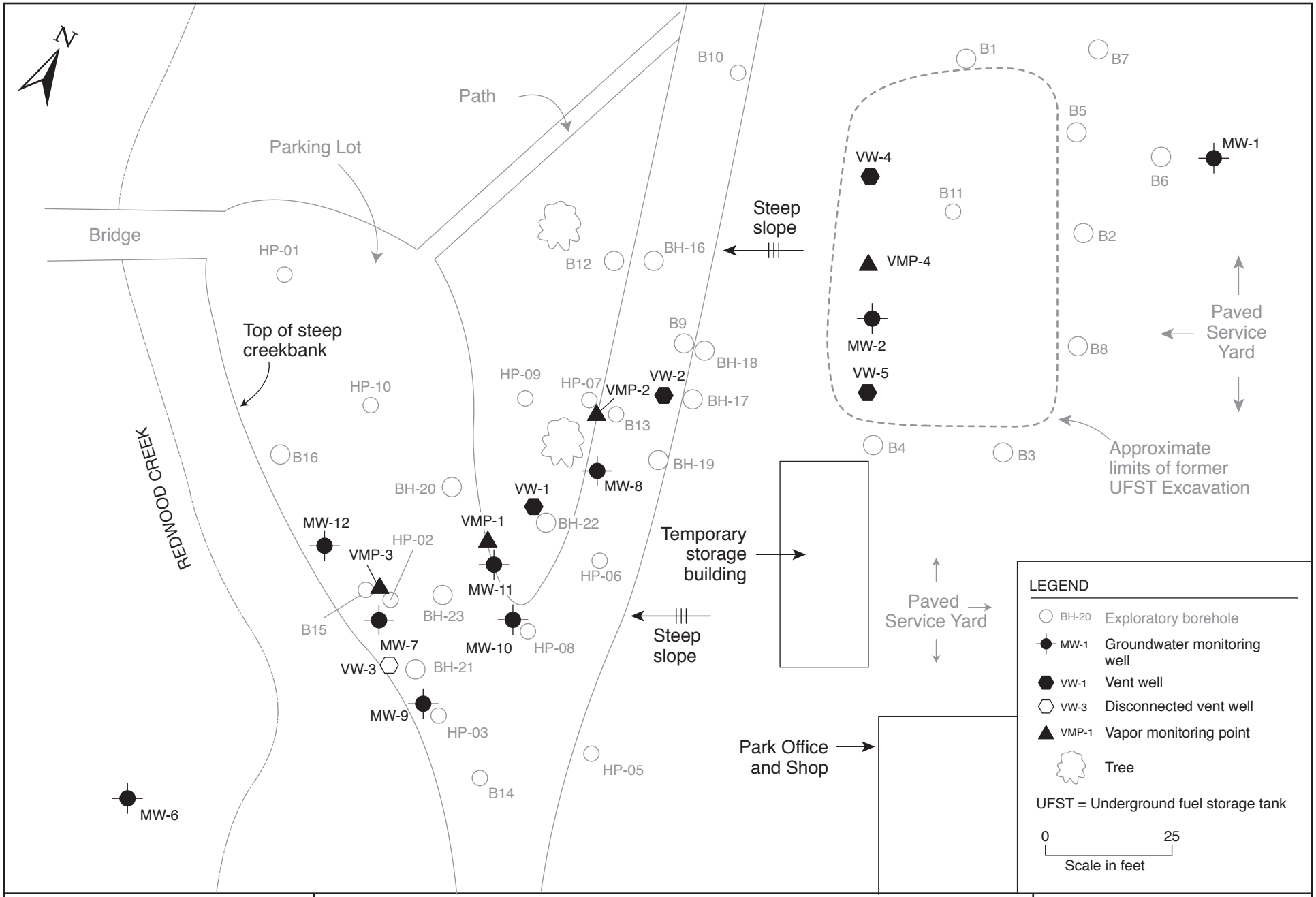
2006-17-01



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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.

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

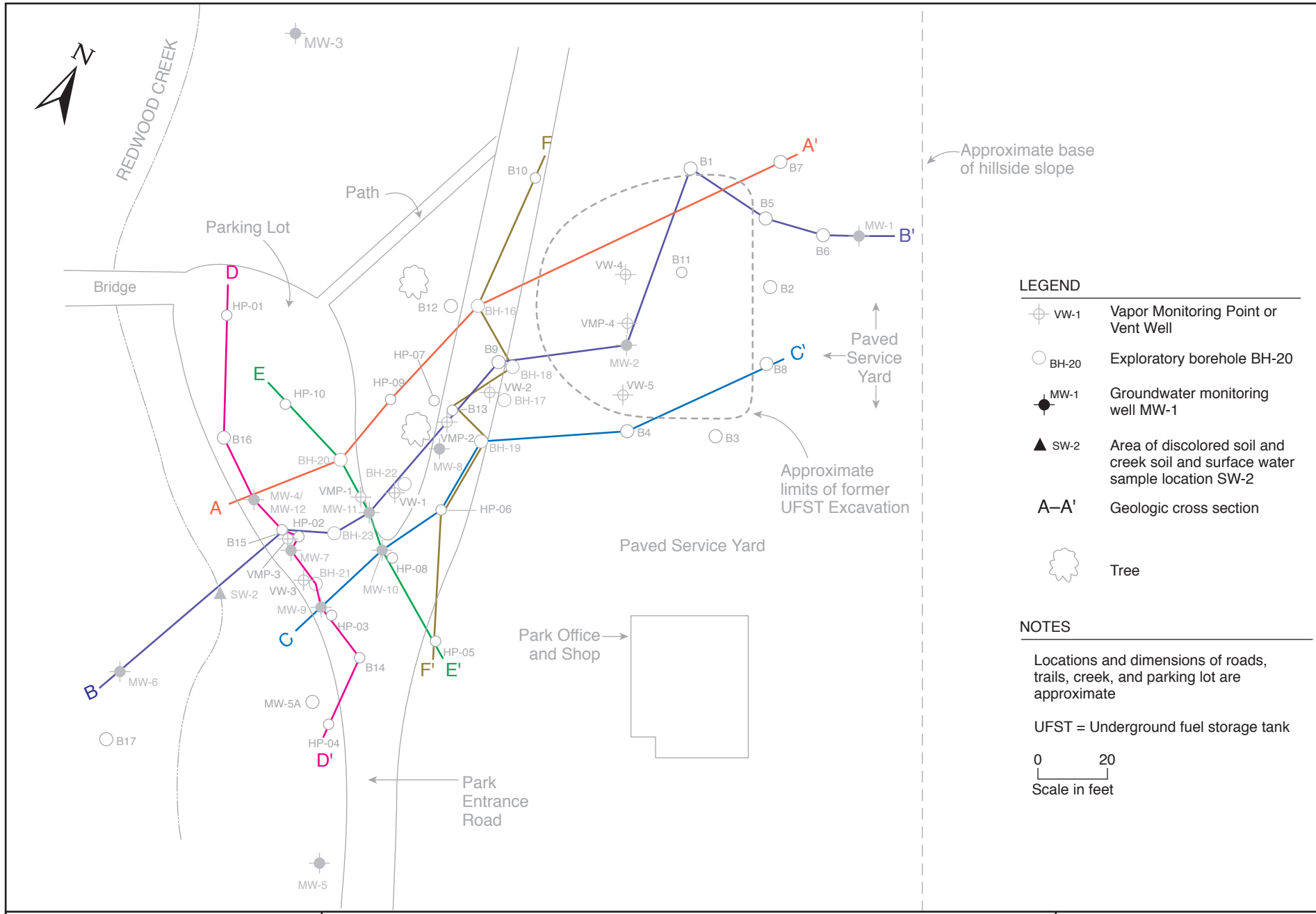
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous Stellar Environmental reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, ACEH requested, 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 (Stellar Environmental, 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 Stellar Environmental report (Stellar Environmental, 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

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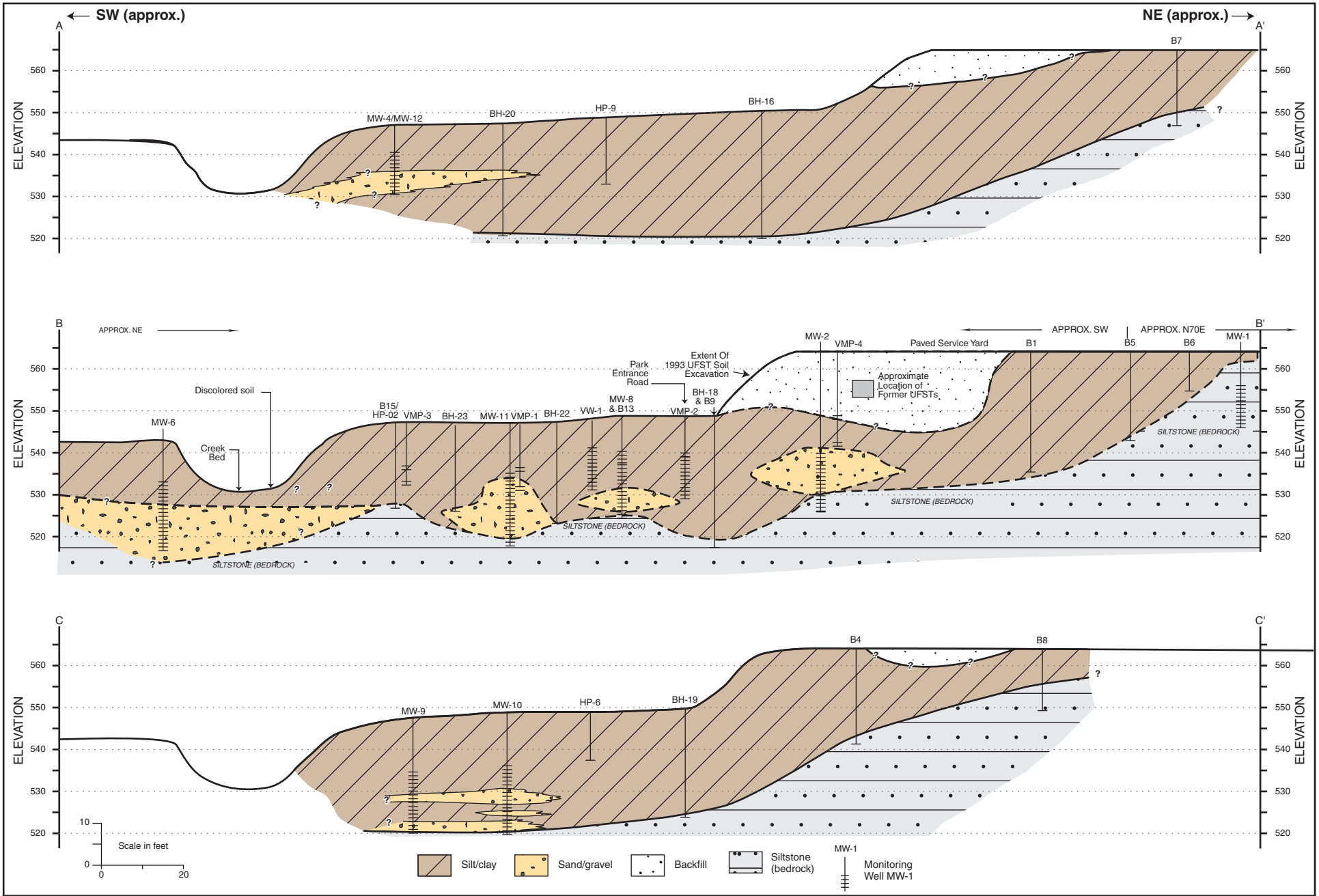
GEOLOGIC CROSS-SECTION LOCATIONS
Redwood Regional Park Service Yard, Oakland, CA

Figure 3

by: MJC | MARCH 2008

2008-02-05



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

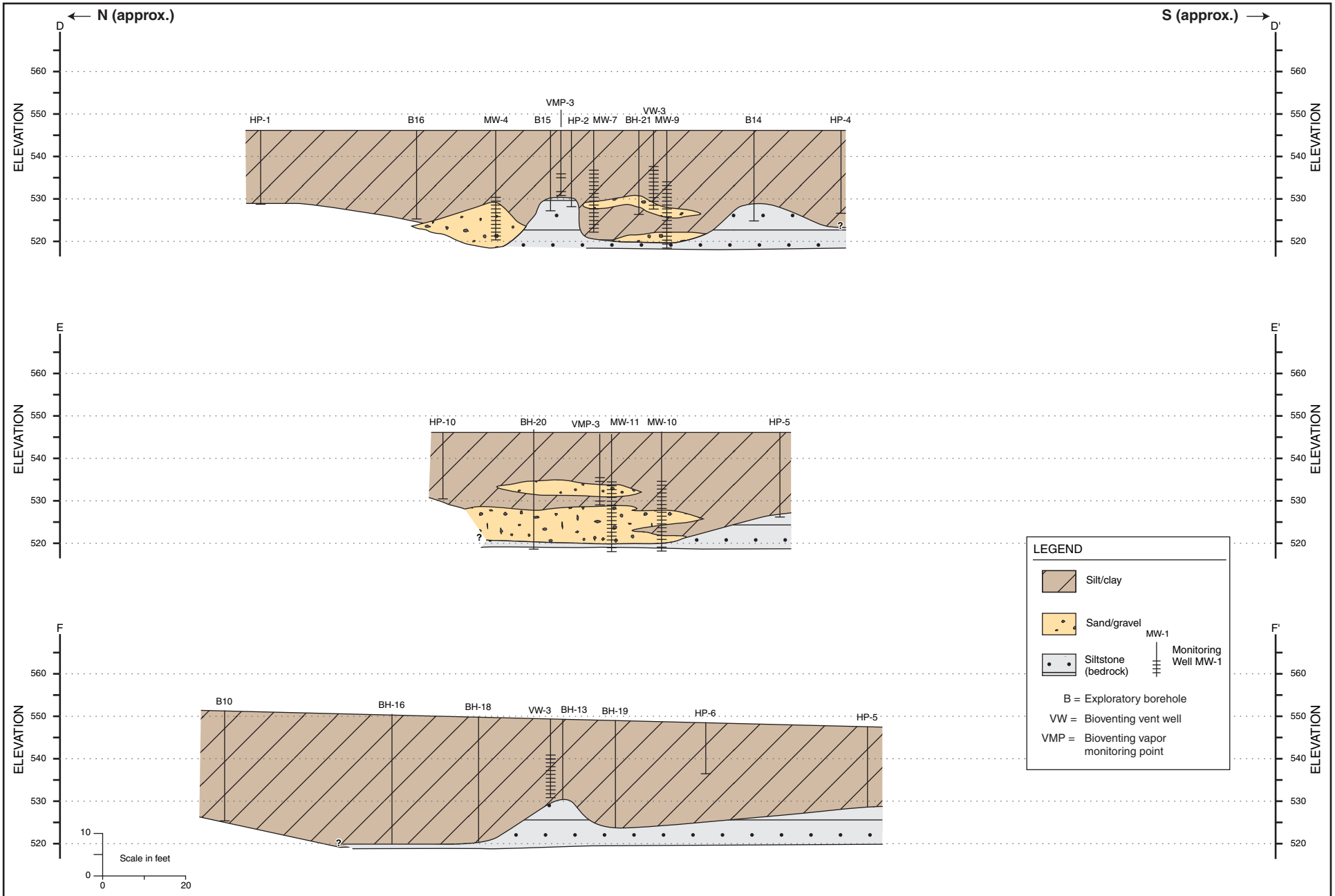
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2007

2005-66-14



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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.

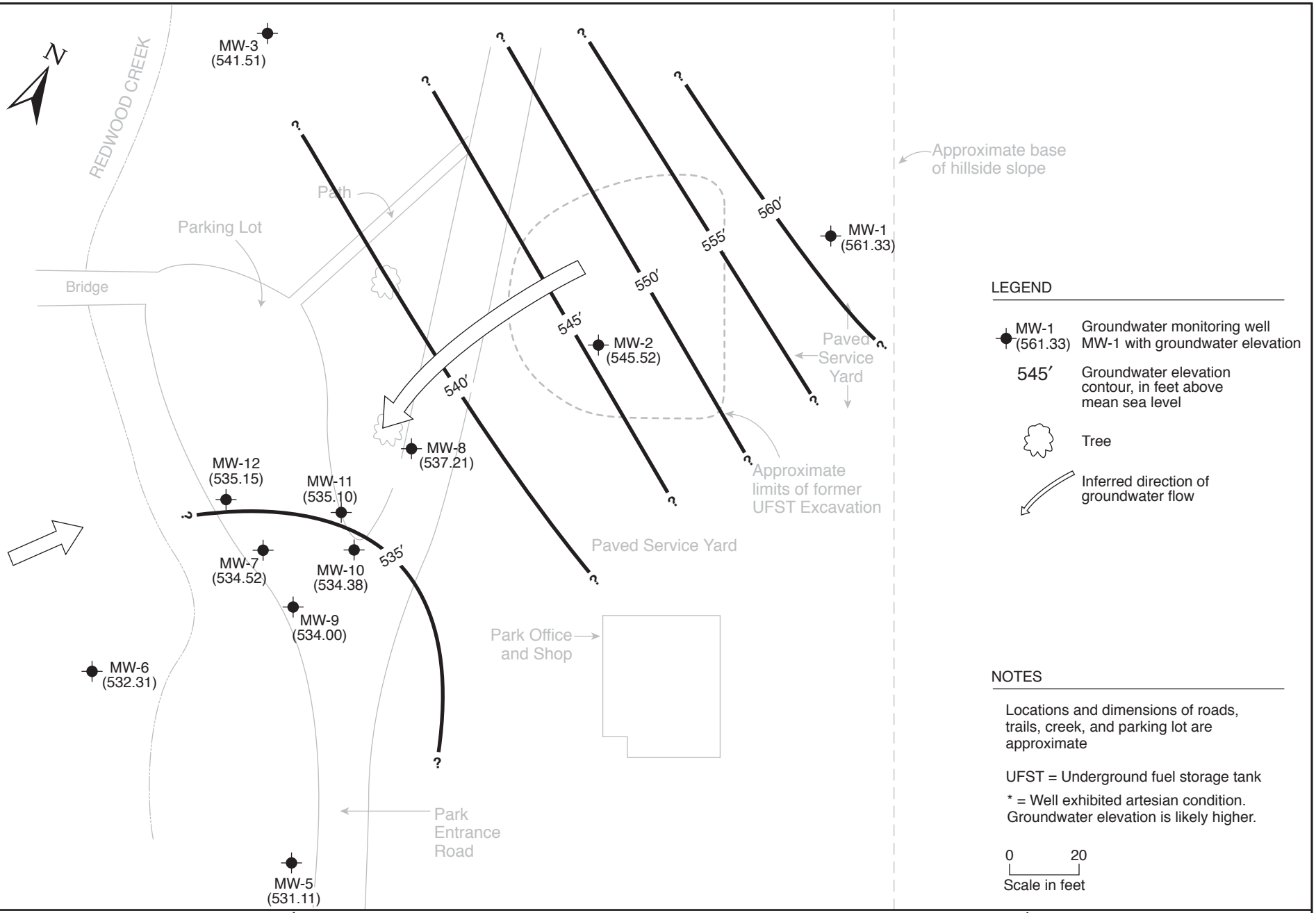
In the central and downgradient portions of the groundwater contaminant plume (under the entrance road and the parking area), the bedrock surface has local, fairly steep elevation highs and lows, expressing a hummocky surface. Bedrock elevations vary by up to 10 feet over distances of less than 20 feet 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.



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GROUNDWATER ELEVATION MAP–December 16, 2010
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | JANUARY 2011

2010-02-10

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 <u>is</u> a current or potential drinking water source; and 2) ESLs for residential sites where groundwater <u>is not</u> 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 2010 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q4 2010), conducted in December 2010. 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 Stellar Environmental technical workplan (Stellar Environmental, 2010).

The current (Q4 2010) 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 16, 2010. 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™ injections in March 2010, during this event Stellar Environmental also collected dissolved oxygen (DO) and alternate electron acceptors including nitrates, sulfates, biological oxygen demand (BOD), and chemical oxygen demand (COD) to determine the effect of the treatment.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
December 16, 2010 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (12/16/10)
MW-1	18	7 to17	565.83	561.33
MW-2	36	20 to 35	566.42	545.52
MW-3	42	7 to 41	560.81	541.51
MW-5	26	10 to 25	547.41	531.11
MW-6	26	10 to 25	545.43	532.31
MW-7	24	9 to24	547.56	534.52
MW-8	23	8 to 23	549.13	537.21
MW-9	26	11 to 26	549.28	534.00
MW-10	26	11 to 26	547.22	534.38
MW-11	26	11 to 26	547.75	535.10
MW-12	25	10 to 25	544.67	535.15

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 Stellar Environmental 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 Stellar Environmental 1998 workplan (Stellar Environmental, 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 52 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 Stellar Environmental personnel on December 21, 2010. 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 Stellar Environmental 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. Stellar Environmental 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. While these two wells had previously not shown any decrease in pressure (i.e. to indicate air was moving through the screen and into the soil), well VW-5 began showing a drop in pressure beginning in September 2010. This is discussed in more detail in the Annual 2010 Bioventing Report.

ORC™ INJECTION AND MONITORING

During this quarterly sampling event, alternate electron acceptors including nitrates, sulfates, biological oxygen demand (BOD), and chemical oxygen demand (COD) were analyzed to track the ORC™ utilization. One concern about the use of ORC™ is that other non-hydrocarbon-utilizing microorganisms will use the product as well, without the benefit of hydrocarbon

reduction occurring as effectively. The oxygen demand exerted by extraneous oxygen sinks such as nitrates and sulfates can then be estimated to evaluate its equivalent to the oxygen demand exerted by the contaminants of concern. Table 2 includes the results of these additional analyses.

The effectiveness of the ORC™ injection corrective action program in reducing groundwater contaminant concentrations in site wells will continue to be evaluated. However, as three quarters of sampling has been conducted since the injection, Stellar Environmental recommends moving from quarterly to semiannual monitoring for groundwater monitoring in 2011.

The main active ingredient in Advanced ORC™ is magnesium peroxide. The optimal pH of such a system is adjusted to 7 to 9. Under these conditions, the remedy product will release its activity partially as hydrogen peroxide and partially as oxygen. This allows for the initial chemical oxidation to take place, starting the breakup of the contaminants. The oxygen is then released more slowly, which will assist bioremediation over a period of up to 1.5 years.

Because only a moderate reduction in hydrocarbon contaminant concentrations has been observed in the key site wells since the injection, it is suspected that microbial biodegradation activity may be occurring preferentially in natural site constituents, in competition with the target residual hydrocarbons. This hypothesis is also supported by the only rapid decrease in concentrations being observed in well MW-2, which is located in fill material in the historical excavation area. This hypothesis can be tested by continuing to collect additional site chemical parameters during sampling in subsequent semiannual monitoring events. Table 3 contains the results from the parameter analysis conducted during this December 2010 fourth quarter sampling event.

Table 2
Electron Acceptors and Oxygen Demand – December 16, 2010
Analytical Results

Location	Concentrations			
	Nitrates	Sulfates	BOD	COD
MW-2	0.69	0.84	<5.0	<10
MW-7	<0.05	22	15	34
MW-8	<0.05	72	<5.0	16
MW-12	<0.05	120	<5.0	21

COD = Chemical oxygen demand

BOD = Biological oxygen demand

5.0 FOURTH QUARTER 2010 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 2010 groundwater contaminant concentrations were as follows: The ESL for TVHg was exceeded in six of the seven wells—MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12; although TVHg was also detected in MW-10 the concentration was below the ESL. Concentrations of TEHd exceeded the ESL in all seven wells sampled. The ESL for benzene was exceeded in MW-9 and MW-11. The ESL for ethylbenzene was exceeded in MW-7, MW-8, MW-9, and MW-11. Total xylenes were detected above the ESL in well MW-9. Concentrations of methyl tertiary-butyl ether (MTBE) in groundwater exceeded the ESL in MW-7, MW-8, MW-9, and MW-11. All of these concentrations exceeded the ESLs for residential areas where groundwater is a drinking water resource. No toluene was detected above the laboratory detection limit, which is below the ESL, in any of the seven wells sampled.

Well MW-9 contained the maximum TVHg groundwater concentration and MW-11 contained the maximum TEHd concentration. MW-11 is located in the center of the plume and MW-9 is 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.

There were no contaminants detected in SW-2 above the laboratory detection limit. Toluene and total xylenes were detected in located SW-3, but below the ESL.

Table 3
Groundwater and Surface Water Samples
Analytical Results – December 16, 2010
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	20.73	**910**	**1,600**	<0.5	<0.5	<0.5	<0.5	2.6
MW-7	0.47	**5,400**	**3,500**	<0.5	<0.5	**99**	9.2	**87**
MW-8	0.25	**180**	**260**	<0.5	<0.5	**5.4**	0.99	**7.2**
MW-9	0.68	**3,900**	**2,400**	**32**	<0.5	**20.5**	**20.5**	**82**
MW-10	0.61	80	**440**	<0.5	<0.5	0.69	<0.5	4.1
MW-11	0.67	**1,800**	**2,900**	**13**	<0.5	**49**	1.9	**15**
MW-12	0.98	**320**	**350**	<0.5	<0.5	1.5	<0.5	3.9
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	0.57	<0.5	0.81	<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).

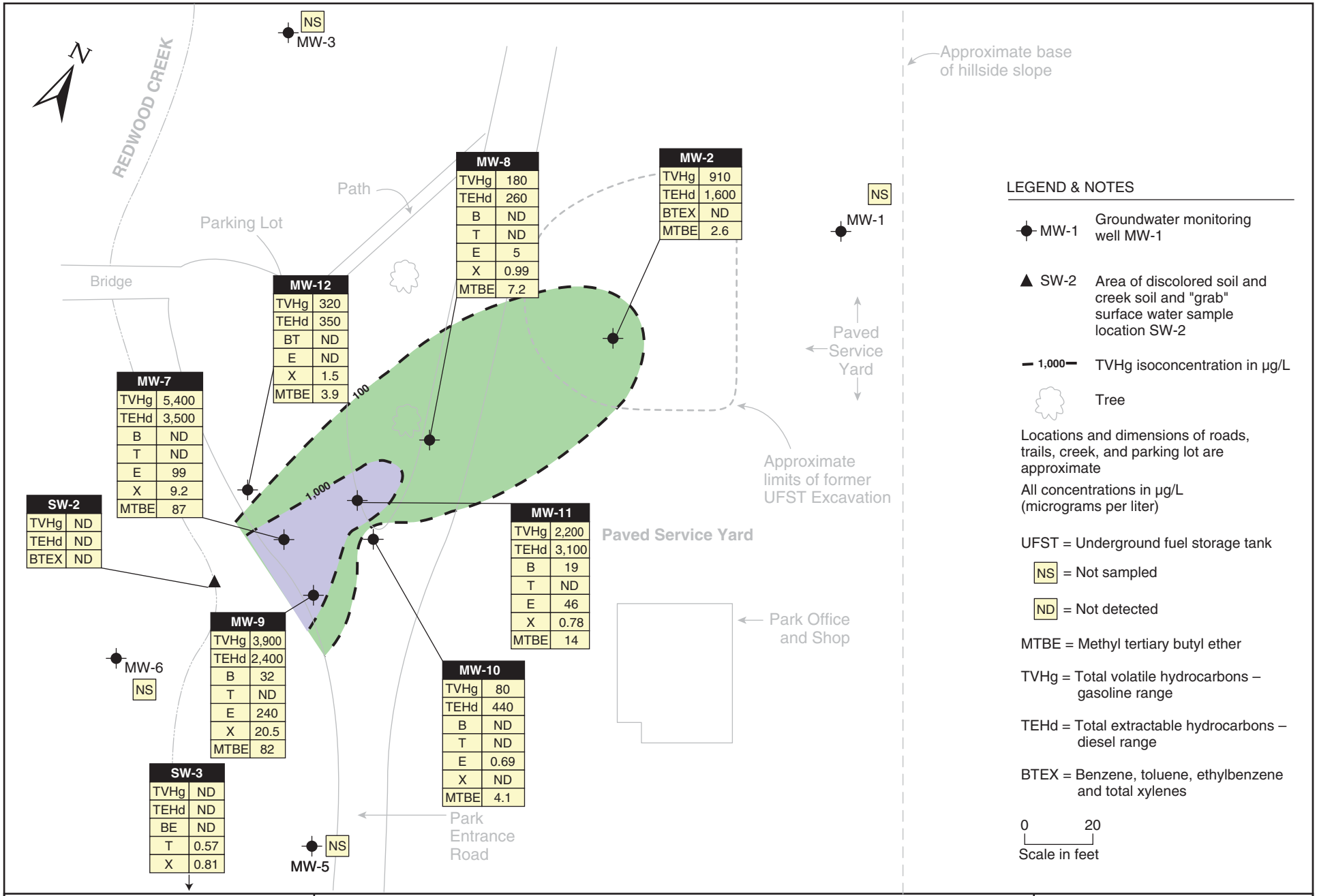
[(b)] Water Board Surface Water Screening Levels for freshwater habitats (Water Board, 2008).

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).



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ANALYTICAL RESULTS AND GASOLINE PLUME—DECEMBER 2010

Redwood Regional Park Service Yard, Oakland, CA

Figure 7

by: MJC | JANUARY 2011

2010-02-11

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. That residual hydrocarbon contamination entrained in the soil and capillary fringe has been extremely hard to mitigate, with only partial success achieved through the bioventing and oxygen providing product in-situ injection that has been implemented since 2005.

Success at reducing the significant contamination in the mid-field plume area represented by well MW-8 has been achieved along with mitigation of the recent (2007 timeframe) increase at the upper plume area represented by well MW-2. But the lower plume area represented by the "guard" wells MW-7 and MW-9 have not been significantly reduced by the combination of bioventing and recent March 2010 ORC™ injection.

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 appears constrained to the unsaturated zone and the underlying saturated sediments on the weathered bedrock surface. The 2010 ORC™ injection effort was aimed at mitigating the apparent large mass of residual TPH contamination in the unsaturated zone, 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).

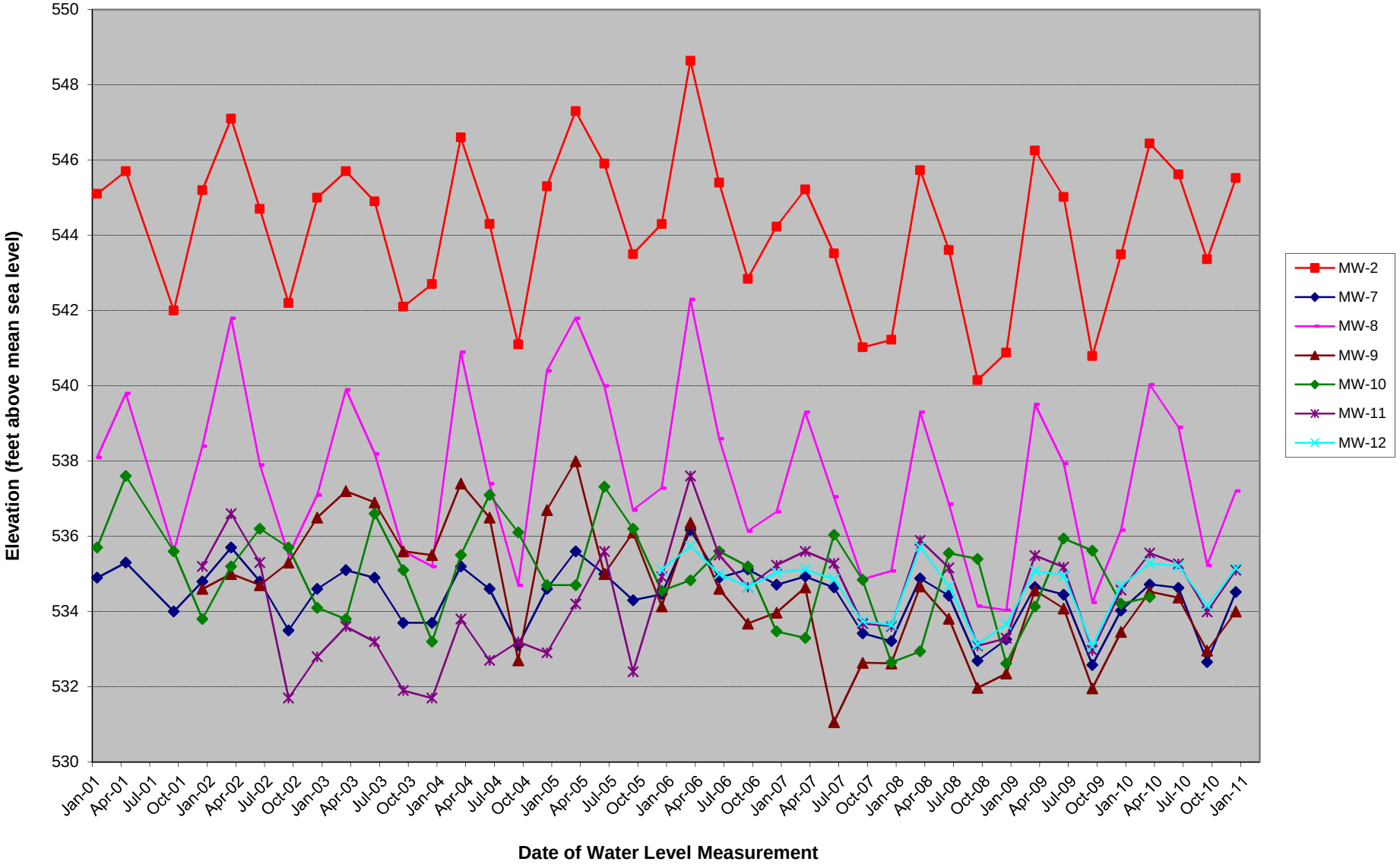
Soil and groundwater contamination distribution and site lithologic and hydrogeologic conditions have shown that residual soil contamination, unless abated, will continue to be a source of long-term groundwater contamination via seasonal desorption and migration.

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 2010—from an average increase of 1.3 feet (from September to December) to a decrease of 1.7 feet (from June to September)—with an average elevation change in individual wells of 0.2 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.

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



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.

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 2010. Stellar Environmental commenced with ORC™ injection near this well and in the general area of the plume in February 2010. Based on that apparent success, In March 2010, a wider ORC™ injection into areas of the plume was initiated. This has not resulted in the same success at reducing concentrations in the lower plume area as it did in the upper and mid-field of the plume. The two guard wells MW-7 and MW-9 have comparative TPHg + TPHd that appear relatively static for December 2009 compared to December 2010. Well MW-7 showed a combined 9,300 µg/L TPHg + TPHd in December 2009 compared with 9,800 µg/L TPHg + TPHd in December 2010. Well MW-9 showed a combined 6,500 µg/L TPHg + TPHd in December 2009 compared with 6,300 µg/L TPHg + TPHd in December 2010.

Compared to Quarter 3 of 2010, gasoline concentrations decreased while diesel concentrations have increased.

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 2010, Stellar Environmental conducted a limited ORC™ injection, which has dramatically decreased concentrations of both gasoline and diesel over time. In September 2008, a new historic maximum of 40,000 µg/L of gasoline was observed in MW-2. In this December 2010 event the concentration measured 910 µg/L. A new historic maximum of diesel at 37,000 µg/L was observed in March 2009 compared to 1,600 µg/L observed in December 2010. Figure 9 shows hydrochemical trends for gasoline and diesel in MW-2.

Mid-Plume Trends

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 TPHg µg/L observed in June 2005 to TPHg 180 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 260 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

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

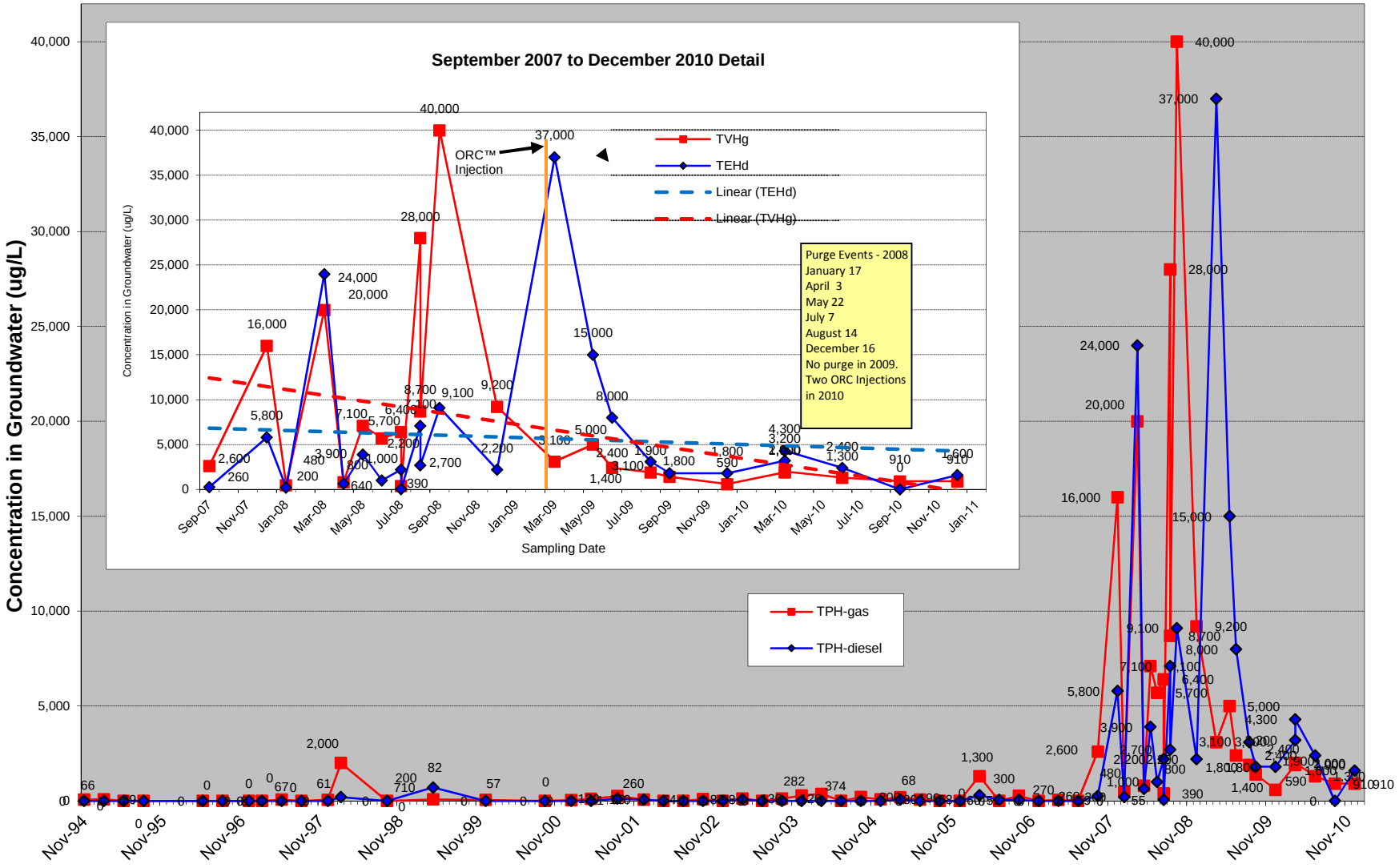
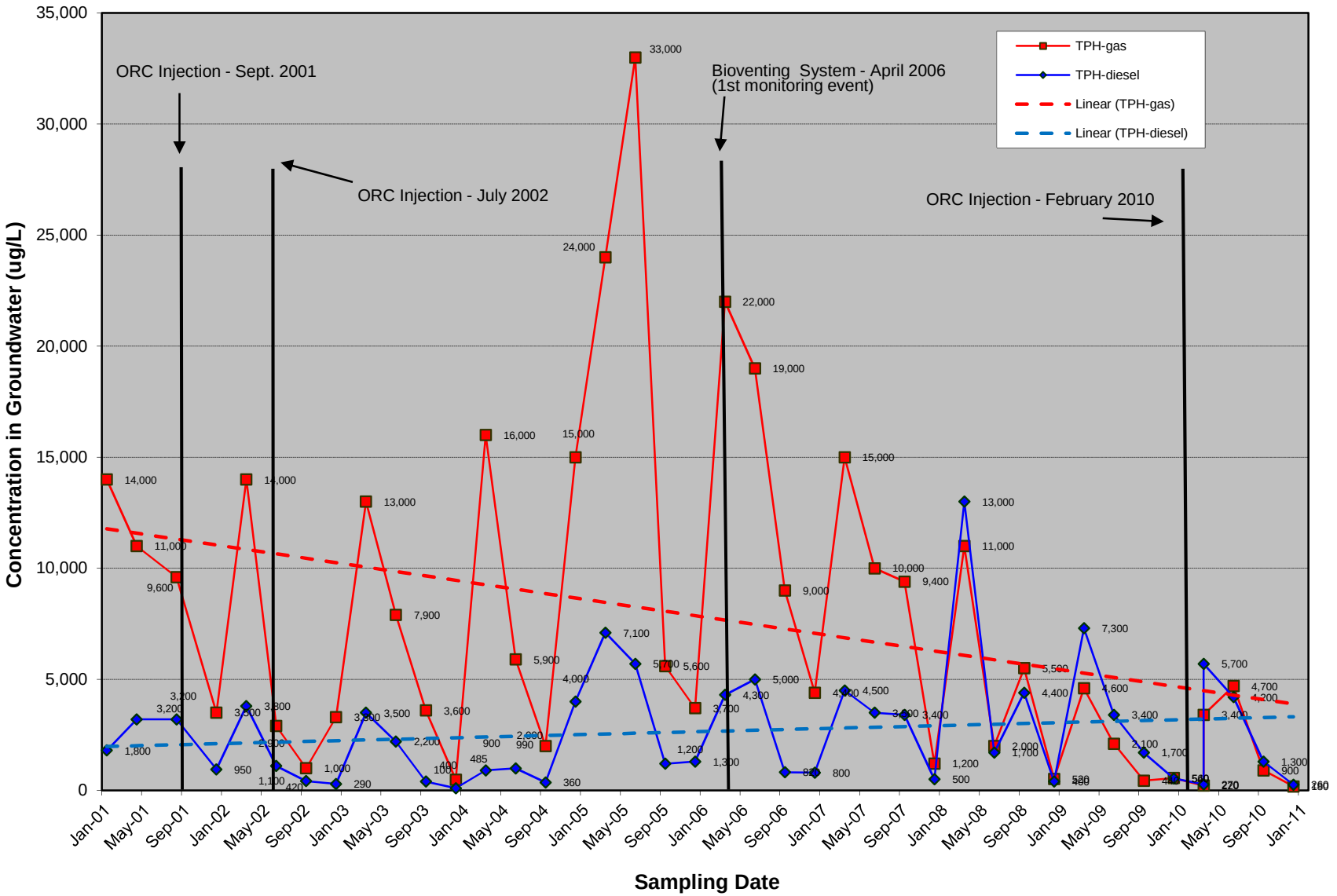


Figure 10: Gasoline and Diesel Hydrochemical Trends: Well MW-8
Redwood Regional Park Service Yard, Oakland, California



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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 features gasoline and diesel hydrochemical trends in MW-8; the seasonal hydrologic trends in groundwater monitoring well elevations are presented in Figure 8.

MW-11. This well is located in the lower part of the mid plume zone, along the plume centerline, approximately midway between upgradient well MW-8 and downgradient guard 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 consistent decreasing trend over the past two years.

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. However, the concentration has since remained fairly stable or slightly decreasing.

Figure 13 shows hydrochemical trends for gasoline and diesel in MW-9. This well has generally shown a fairly stable trend for diesel concentrations. However, a new historical maximum for gasoline at 13,000 µg/L was observed in September 2010.

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 2009, with only slight increases observed above 100 µg/L. However, the diesel concentration appears to be slowly increasing and a new historic maximum of 440 µg/L was observed during this December 2010 event.

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).

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

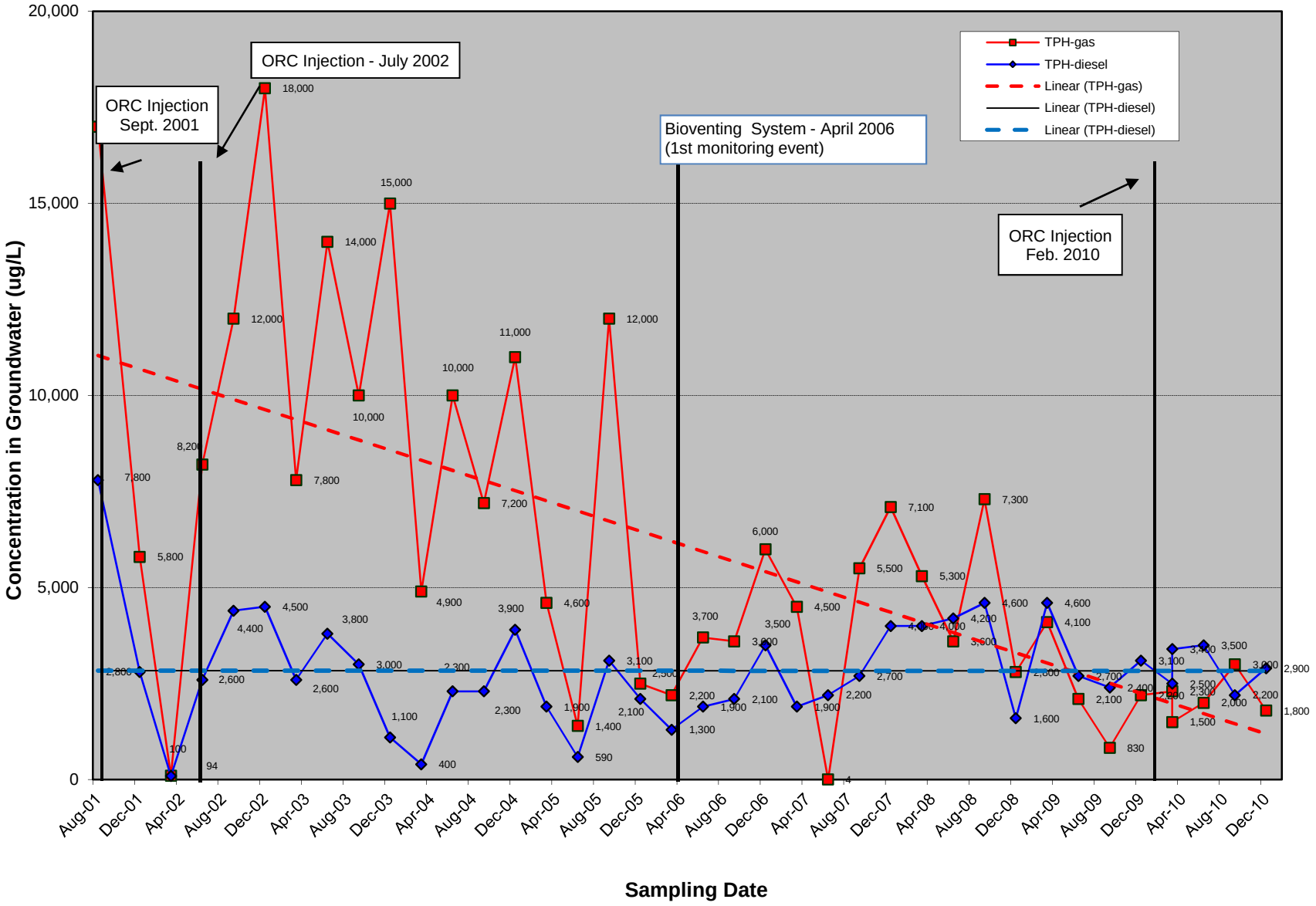

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Figure 12: Gasoline and Diesel Hydrochemical Trends: Well MW-7
Redwood Regional Park Service Yard, Oakland, California

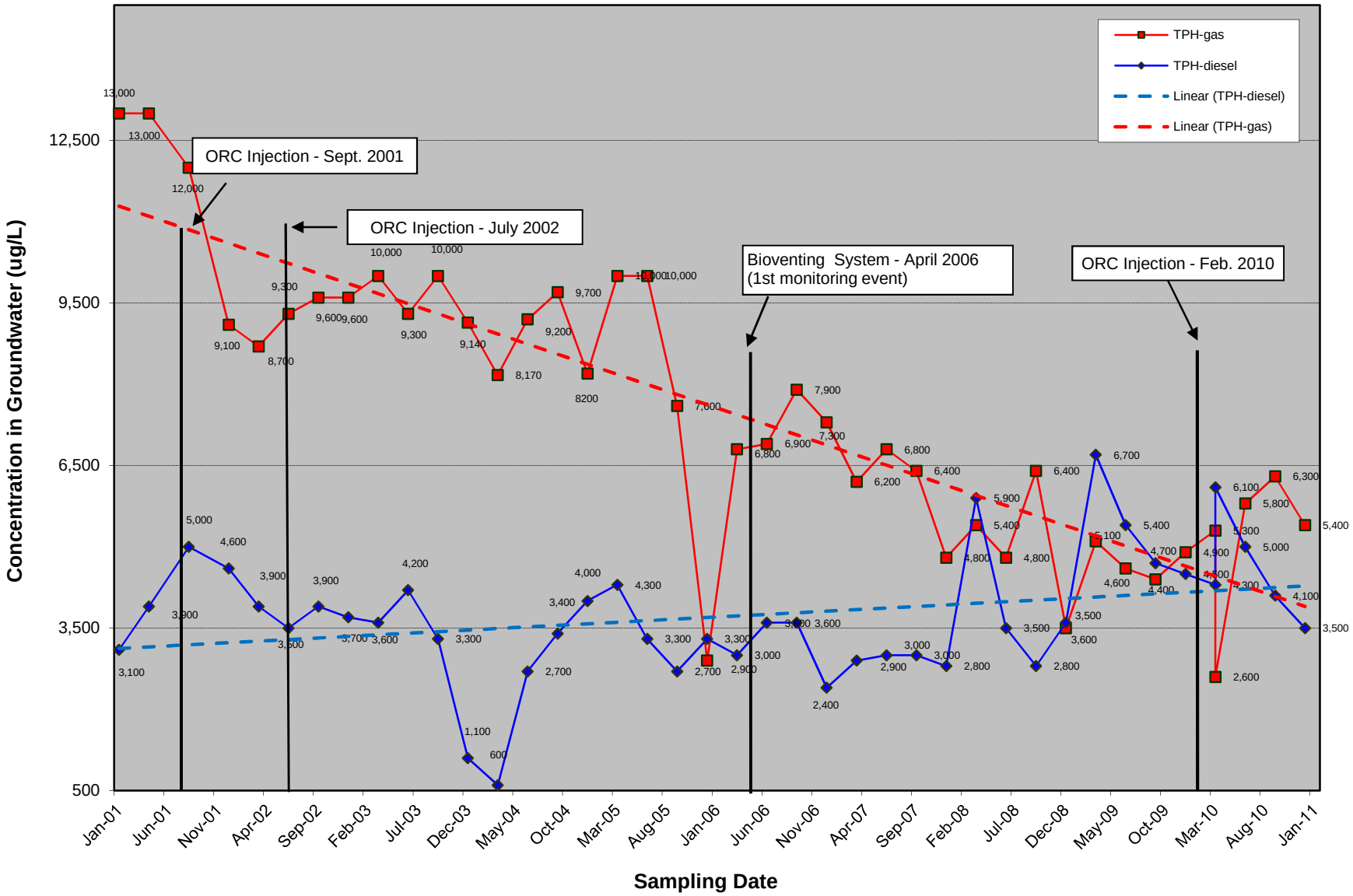

Figure 13: TPH-gasoline and TPH-diesel Hydrochemical Trends: Well MW-9
Redwood Regional Park Service Yard, Oakland, California

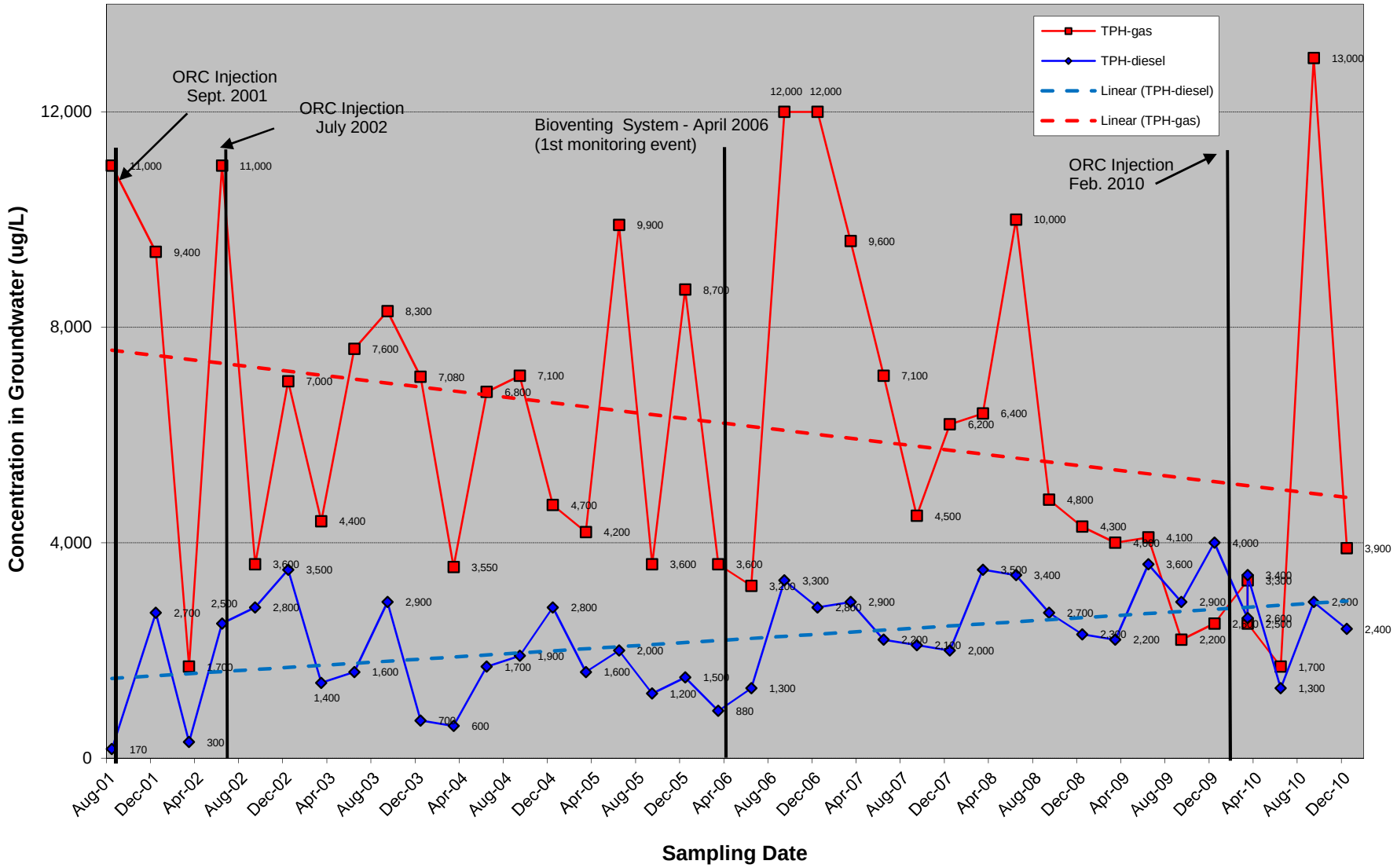

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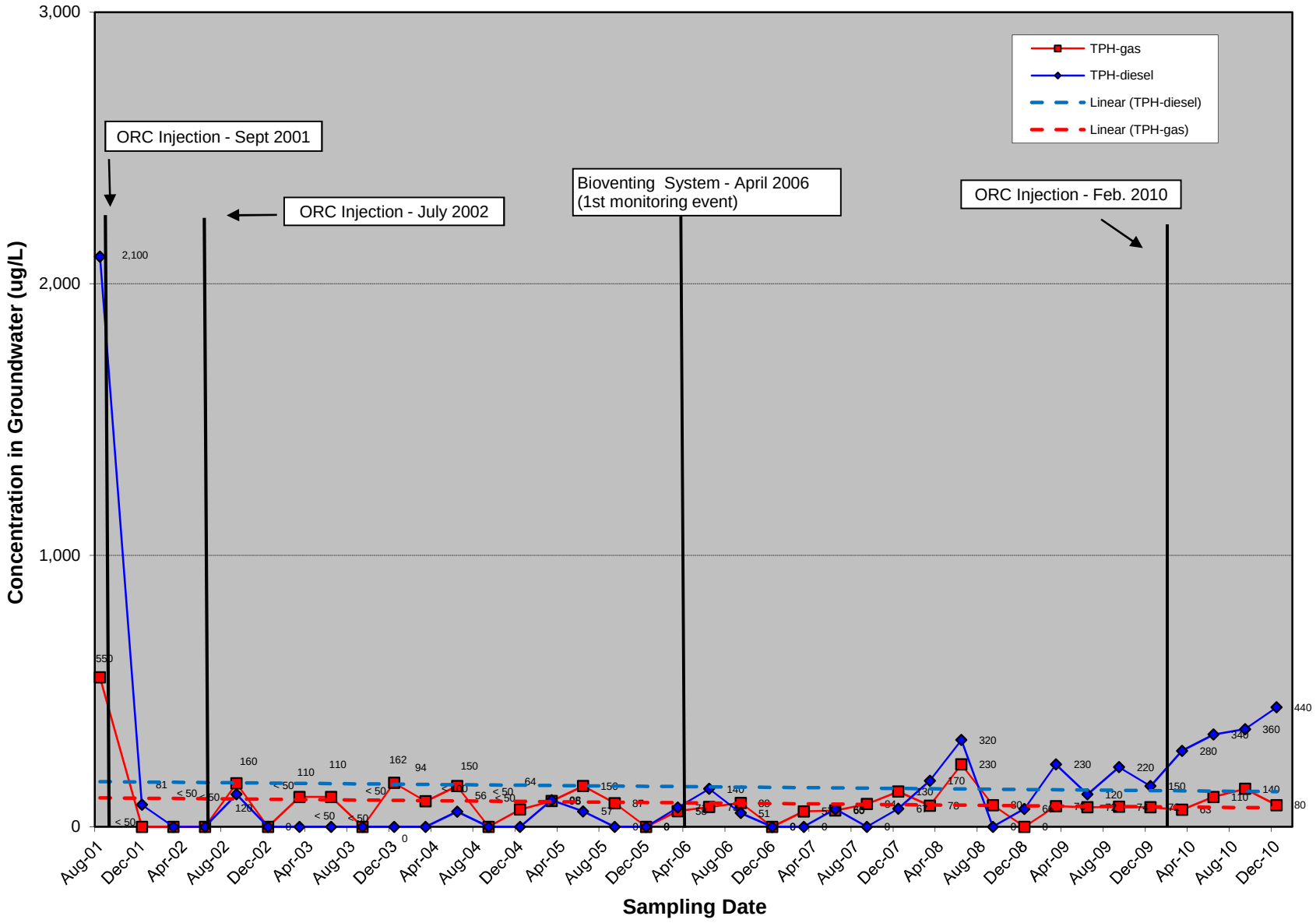
Figure 14: Gasoline and Diesel Hydrochemical Trends: Well MW-10
Redwood Regional Park Service Yard, Oakland, California



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.

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).

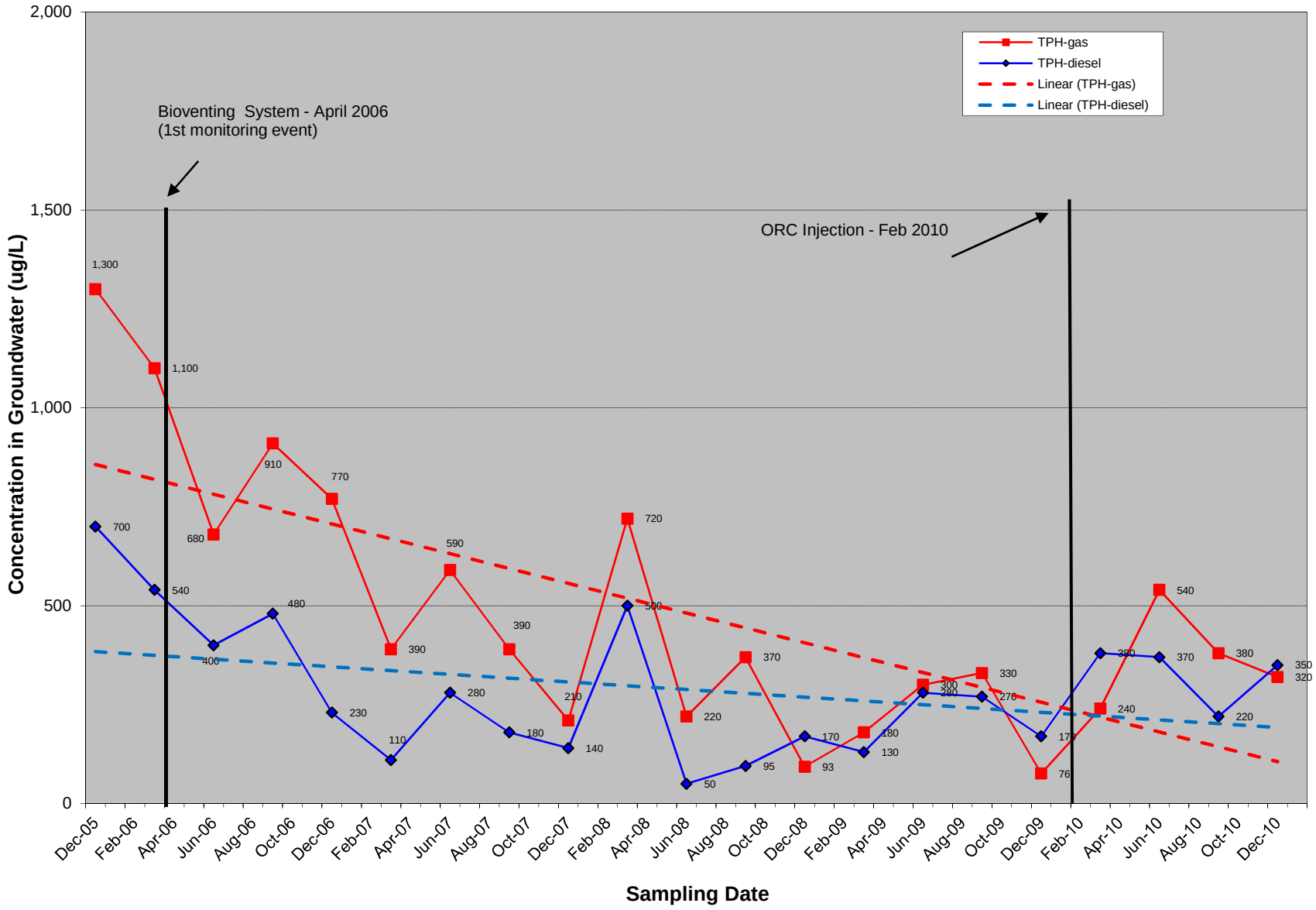
The plume geometry has not varied substantially over the past 4 years of monitoring, although seasonal fluctuations in contaminant concentrations have been observed. This is exhibited by higher concentrations in downgradient wells in some events, and in mid-plume or upgradient wells in other events.

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 is present. 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

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



in the context of potential impacts to sensitive receptors (e.g., water wells, residential and 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, total xylenes, and MTBE in groundwater. No contaminants were detected in surface water sample SW-2 during this event. Toluene and total xylenes were detected in sample SW-3, but below the ESLs.
- 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, benzene, total xylenes, and ethylbenzene but 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 1,000 µg/L of TVHg) is currently centered around wells MW-7, MW-9, and MW-11 which are in the lower to downgradient area of the plume. However, until the ORC™ injection in March 2010, 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 Fourth Quarter 2010 monitoring event took place approximately 8 months after the ORC™ treatment. The upgradient portion of the plume (particularly wells MW-8 and MW-11) showed the most hydrocarbon concentrations reductions compared with Q3-2010 as well as compared to the same quarter last year. However, the lower portion of the plume, specifically at well MW-9 and MW-10, show an increase in gasoline and diesel concentrations.
- 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 2006-2010 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.
- The 2010 ORC™ in-situ injection program was relatively effective in treating the upper and mid plume area zone but not effective in the lower plume zone.

PROPOSED ACTIONS

The EBRPD proposes to implement the following actions in 2011 to address the current site conditions and regulatory concerns:

- In our professional opinion, Redwood Creek surface water monitoring and groundwater monitoring can be reduced to semiannual monitoring based on the historical data collected and remediation completed. Groundwater monitoring and ongoing bioventing activities and assessment will be submitted as part of the semi-annual monitoring and annual monitoring report, repectively.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Continue to evaluate additional corrective action measures to address lower plume area should elevated TPHg and TPHg concentrations persist there.

- 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.

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

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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
3/29/2010	561.48	546.44	541.59	(b)	531.52	532.58	534.72	540.03	534.53	535.94	535.55	535.28
6/22/2010	561.17	545.62	541.40	(b)	531.26	532.41	534.63	538.90	534.37	535.62	535.27	535.21
9/28/2010	560.32	543.36	537.91	(b)	530.6	532.02	532.66	535.23	532.96	534.21	533.99	534.16
12/16/2010	561.33	545.52	541.51	(b)	531.11	532.31	534.52	537.21	534.00	534.38	535.10	535.15

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

Chain of Custody Record

Lab job no. _____
Date _____
Page 1 of 1

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

Method of Shipment Hand Delivery
Shipment No. _____
Airbill No. _____
Cooler No. _____

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

Project Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859

Project Name Redwood Regional Park
Project Number ~~2006 16~~ 2008-02

Samplers: *(Signature)* _____

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH-G (8015)	BTEX/MTBE (8021)	TEH-D (8015)	Nitrate	Sulfate	BOD	COD	Remarks
MW-7		12/16	1015	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
MW-11		12/16	1205	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
MW-10		12/16	1230	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
MW-12		12/16	1245	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
MW-9		12/16	1300	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
MW-8		12/16	1310	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
MW-2		12/16	1330	W	Various	Y	Yes		8	X	X	X	X	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature _____	12/16/10	Signature _____	12/16/10	Signature _____		Signature _____	
Printed Patrick Harms	Time	Printed Micah Smith	Time	Printed _____	Time	Printed _____	Time
Company Stellar Environmental	14:55	Company C&T	14:55	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

★ Stellar Environmental Solutions
2198 Sixth Street #201, Berkeley, CA 94710

Chain of Custody Record

Lab job no. _____

Date _____

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 2010-02

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	TVHs BTEX	TEPH									Remarks
SW-2	Creek	12-16-10		W	40 ML VOA	Y	Yes (a)		3	X										
SW-3	Creek	12-16-10		W	40 ML VOA	Y	Yes (a)		3	X										
SW-2	Creek	12-16-10		W	Amber Liter	Y	NO		1		X									
SW-3	Creek	12-16-10		W	Amber Liter	Y	NO		1		X									

Analysis Required

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Steve Bittman	12-16-10	Signature	12-16-10	Signature	12/16/10	Signature	12/16/10
Printed Steve Bittman	Time 1145	Printed Patrick Hanns	Time 1145	Printed Patrick Hanns	Time 1455	Printed Micah Smith	Time 14:55
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

WELL GAUGING DATA

Project # 101216-PH1 Date 12/16/10 Client Stellar

Site Redwood Regional Park, Oakland

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	0823	4					4.50	19.11		
MW-2	0827	4					20.90	31.47		
MW-3	0757	4					19.30	45.10		
MW-5	0806	4					16.30	27.02		
MW-6	0814	4					13.12	14.55		
MW-7	0840	2					13.04	25.34		
MW-8	0854	2					11.92	22.20		
MW-9	0849	2					15.28	30.25		
MW-10	0836	2					12.84	28.36		
MW-11	0858	2					12.65	28.64		
MW-12	0845	2					9.52	23.84	↓	

WELLHEAD INSPECTION CHECKLIST

Date 12/16/10 Client Stellar Environmental Solutions

Site Address Redwood Regional Parks service Yard, Oakland

Job Number 101216-PH1 Technician PH

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					2	
MW-9	X							
MW-10							X	
MW-11	X							
MW-12	X							

NOTES: MW-8 3/3 bolts missing, MW-10 3/2 stripped tabs

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Stellar Env. Solutions @ Redwood Regional Park				PROJECT NUMBER 101216-PH1			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
myron L Ultrameter II	6203098	12/16/10 0920	pH 7.00 10.00 4.00	6.98 10.04 4.07	7.00 10.00 4.00	5.3°C	PH
			Conductivity 3900 uS/cm	4012	3900		PH
YSI 550	03A0390	12/16/10 0927	DO 100%	112.0	100.0		PH

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ____
Total Well Depth (TD): 37.47	Depth to Water (DTW): 20.90
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]: 24.21	

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

Sampling Method: Bailer, (Disposable Bailer), Extraction Port, Dedicated Tubing, Other: _____

10.7 (Gals.) X 3 = 32.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0930	12.6	6.71	896	610	11	
	—	Dewatered @		12 gallons	—	
1330	12.0	7.61	880	93	—	

Did well dewater? (Yes) No — Gallons actually evacuated: 12

Sampling Date: 12/16/10 — Sampling Time: 1330 — Depth to Water: 30.92

Sample I.D.: MW-2 — Laboratory: Kiff CalScience (Other) CST

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	20.73	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	175	mV

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 25.34	Depth to Water (DTW): 13.04
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]: 15.50	

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

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

1.9 (Gals.) X	3 =	5.9 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
1003	11.0	7.04	770	96	2	odor
1006	11.9	6.93	761	131	4	
1009	12.2	6.90	756	249	6	

Did well dewater? Yes (No)		Gallons actually evacuated: 6	
Sampling Date: 12/16/10	Sampling Time: 1015	Depth to Water: 15.45	
Sample I.D.: MW-7		Laboratory: Kiff CalScience (Other) CBT	
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:	4 mV

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 22.20	Depth to Water (DTW): 11.92
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]: 13.97	

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

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

1.6 (Gals.) X 3 = 4.9 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1122	12.7	7.28	778	506	1.7	
1126	13.4	7.20	758	401	3.5	
1130	13.5	7.17	752	417	5.0	DTW 14.63

Did well dewater? Yes (No) Gallons actually evacuated: 5

Sampling Date: 12/16/10 Sampling Time: 1310 Depth to Water: 12.68

Sample I.D.: MW-8 Laboratory: Kiff CalScience (Other) CET

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:	0.25	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-15	mV

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.25	Depth to Water (DTW): 15.25
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]: 18.27	

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

Sampling Method: Bailer, (Disposable Bailer), Extraction Port, Dedicated Tubing, Other: ____

2.4 (Gals.) X 3 = 7.2 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1059	12.0	6.88	885	294	2.5	odor/sheen
1103	12.6	6.93	875	961	5.0	
1107	12.5	6.98	875	>1000	7.2	DTW 20.34

Did well dewater? Yes (No) Gallons actually evacuated: 7.2

Sampling Date: 12/16/10 Sampling Time: 1300 Depth to Water: 15.95

Sample I.D.: MW-9 Laboratory: Kiff CalScience (Other) CRT

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:	0.68 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	29 mV

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.36	Depth to Water (DTW): 12.84
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]: 15.94	

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

Sampling Method: Bailer, (Disposable Bailer), Extraction Port, Dedicated Tubing, Other: ____

2.4 (Gals.) X 3 = 7.4 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
0944	11.6	7.30	775	167	2.5	
0948	12.1	7.22	801	239	5.0	
0952	12.0	7.20	777	715	7.5	DTW 19.30

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

Sampling Date: 12/16/10 Sampling Time: 1230 Depth to Water: 13.72

Sample I.D.: MW-10 Laboratory: Kiff CalScience (Other) CET

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:	0.61	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	128	mV

WELL MONITORING DATA SHEET

Project #: 101216-PH1	Client: Stellar
Sampler: PH	Date: 12/16/10
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.64	Depth to Water (DTW): 12.65
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.84	

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

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

2.5 (Gals.) X 3 = 7.7 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
1147	11.8	7.16	753	409	2.5	
1151	12.5	7.07	762	447	5.0	
1155	12.7	7.08	766	343	7.7	

Did well dewater? Yes (No) Gallons actually evacuated: 7.7

Sampling Date: 12/16/10 Sampling Time: 1205 Depth to Water: 13.32

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

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:	0.67	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	-5	mV

WELL MONITORING DATA SHEET

Project #: 10216-PH1	Client: Stelker
Sampler: PH	Date: 12/16/10
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.84	Depth to Water (DTW): 9.52
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]: 12.38	

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

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

2.3 (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	radius^2 * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1037	11.1	7.26	545	261	2.5	
1041	11.9	7.20	545	221	4.7	
1045	12.3	7.17	615	332	7.0	DTW 14.76

Did well dewater? Yes (No) Gallons actually evacuated: 7

Sampling Date: 12/16/10 Sampling Time: 1245 Depth to Water: 9.65

Sample I.D.: MW-12 Laboratory: Kiff CalScience (Other) CST

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.98	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	105	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 224786
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2008-02
2198 6th Street	Location : Redwood Regional Park
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-7	224786-001
MW-11	224786-002
MW-10	224786-003
MW-12	224786-004
MW-9	224786-005
MW-8	224786-006
MW-2	224786-007

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: 12/23/2010
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**224786**
Client:	**Stellar Environmental Solutions**
Project:	**2008-02**
Location:	**Redwood Regional Park**
Request Date:	**12/16/10**
Samples Received:	**12/16/10**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 12/16/10. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
No analytical problems were encountered.

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

Ion Chromatography (EPA 300.0):
No analytical problems were encountered.

Chemical Oxygen Demand (SM5220D):
No analytical problems were encountered.

Biochemical Oxygen Demand (SM5210B):
No analytical problems were encountered.

Chain of Custody Record

Lab job no. 224786

Date

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 ~~2006-16~~ 2008-02

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	Analysis Required: TVH-G (8015)	BTEX/MTBE (8021)	TEH-D (8015)	Nitrate	Sulfate	BOD	COD	Remarks
1	MW-7		12/16	1015	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
2	MW-11		12/16	1205	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
3	MW-10		12/16	1230	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
4	MW-12		12/16	1245	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
5	MW-9		12/16	1300	W	3 VOA, 2 500mL Amber	Y	Yes		5	X	X	X					
6	MW-8		12/16	1310	W	Various	Y	Yes		8	X	X	X	X	X	X	X	
7	MW-2		12/16	1330	W	Various	Y	Yes		8	X	X	X	X	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	12/16/10	Signature	12/16/10	Signature		Signature	
Printed Patrick Harms	Time	Printed Micah Smith	Time	Printed	Time	Printed	Time
Company Stellar Environmental	14:55	Company C&T	14:55	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

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 224786 Date Received 12/16/10 Number of coolers 2
Client STELLAR Project FEB RFD

Date Opened 12/16/10 By (print) M. Williams (sign)
Date Logged in 12/16/10 By (print) Trag Babior (sign)

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

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

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

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.1 ONLY 1 COOLER W/ TEMP BLANK

☐ 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 Sample Preservation for 224786

Sample	pH: <2	>12	Other
-001a	[ ]	[ ]	_____
b	[ ]	[ ]	_____
c	[ ]	[ ]	_____
d	[ ]	[ ]	_____
e	[ ]	[ ]	_____
f	[ ]	[ ]	_____
g	[ ]	[ ]	_____
h	[X]	[ ]	_____
-004a	[ ]	[ ]	_____
b	[ ]	[ ]	_____
c	[ ]	[ ]	_____
d	[ ]	[ ]	_____
e	[ ]	[ ]	_____
f	[ ]	[ ]	_____
g	[ ]	[ ]	_____
h	[X]	[ ]	_____
-006a	[ ]	[ ]	_____
b	[ ]	[ ]	_____
c	[ ]	[ ]	_____
d	[ ]	[ ]	_____
e	[ ]	[ ]	_____
f	[ ]	[ ]	_____
g	[ ]	[ ]	_____
h	[X]	[ ]	_____
-007a	[ ]	[ ]	_____
b	[ ]	[ ]	_____
c	[ ]	[ ]	_____
d	[ ]	[ ]	_____
e	[ ]	[ ]	_____
f	[ ]	[ ]	_____
g	[ ]	[ ]	_____
h	[X]	[ ]	_____

Analyst: _____

Date: _____

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	170162
Units:	ug/L	Sampled:	12/16/10
Diln Fac:	1.000	Received:	12/16/10

Field ID: MW-7 Lab ID: 224786-001
Type: SAMPLE Analyzed: 12/20/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,400 Y	50	EPA 8015B
MTBE	87	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	99	0.50	EPA 8021B
m,p-Xylenes	4.8	0.50	EPA 8021B
o-Xylene	4.4 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	100	75-130	EPA 8015B
Bromofluorobenzene (PID)	109	58-121	EPA 8021B

Field ID: MW-11 Lab ID: 224786-002
Type: SAMPLE Analyzed: 12/20/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	1,800 Y	50	EPA 8015B
MTBE	15	2.0	EPA 8021B
Benzene	13	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	49	0.50	EPA 8021B
m,p-Xylenes	1.9 C	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	91	75-130	EPA 8015B
Bromofluorobenzene (PID)	100	58-121	EPA 8021B

Field ID: MW-10 Lab ID: 224786-003
Type: SAMPLE Analyzed: 12/20/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	80 Y	50	EPA 8015B
MTBE	4.1	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	0.69	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	88	75-130	EPA 8015B
Bromofluorobenzene (PID)	99	58-121	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	170162
Units:	ug/L	Sampled:	12/16/10
Diln Fac:	1.000	Received:	12/16/10

Field ID: MW-12 Lab ID: 224786-004
Type: SAMPLE Analyzed: 12/20/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	320 Y	50	EPA 8015B
MTBE	3.9 C	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	1.5 C	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	88	75-130	EPA 8015B
Bromofluorobenzene (PID)	98	58-121	EPA 8021B

Field ID: MW-9 Lab ID: 224786-005
Type: SAMPLE Analyzed: 12/21/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,900 Y	50	EPA 8015B
MTBE	82 C	2.0	EPA 8021B
Benzene	32	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	240	0.50	EPA 8021B
m,p-Xylenes	16	0.50	EPA 8021B
o-Xylene	4.5 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	98	75-130	EPA 8015B
Bromofluorobenzene (PID)	106	58-121	EPA 8021B

Field ID: MW-8 Lab ID: 224786-006
Type: SAMPLE Analyzed: 12/21/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	180 Y	50	EPA 8015B
MTBE	7.2	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	5.4	0.50	EPA 8021B
m,p-Xylenes	0.99	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	88	75-130	EPA 8015B
Bromofluorobenzene (PID)	99	58-121	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	170162
Units:	ug/L	Sampled:	12/16/10
Diln Fac:	1.000	Received:	12/16/10

Field ID:	MW-2	Lab ID:	224786-007
Type:	SAMPLE	Analyzed:	12/21/10

Analyte	Result	RL	Analysis
Gasoline C7-C12	910 Y	50	EPA 8015B
MTBE	2.6	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	95	75-130	EPA 8015B
Bromofluorobenzene (PID)	106	58-121	EPA 8021B

Type:	BLANK	Analyzed:	12/20/10
Lab ID:	QC573205		

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

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	85	75-130	EPA 8015B
Bromofluorobenzene (PID)	99	58-121	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	170162
Units:	ug/L	Analyzed:	12/20/10
Diln Fac:	1.000		

Type: BS Lab ID: QC573202

Analyte	Spiked	Result	%REC	Limits	Analysis
MTBE	10.00	9.166	92	67-136	EPA 8021B
Benzene	10.00	9.748	97	74-121	EPA 8021B
Toluene	10.00	9.811	98	75-122	EPA 8021B
Ethylbenzene	10.00	9.666	97	75-122	EPA 8021B
m,p-Xylenes	10.00	9.528	95	76-123	EPA 8021B
o-Xylene	10.00	9.893	99	73-127	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	90	75-130	EPA 8015B
Bromofluorobenzene (PID)	105	58-121	EPA 8021B

Type: BSD Lab ID: QC573203

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
MTBE	10.00	9.188	92	67-136	0	39	EPA 8021B
Benzene	10.00	9.644	96	74-121	1	29	EPA 8021B
Toluene	10.00	9.008	90	75-122	9	20	EPA 8021B
Ethylbenzene	10.00	9.122	91	75-122	6	20	EPA 8021B
m,p-Xylenes	10.00	9.033	90	76-123	5	20	EPA 8021B
o-Xylene	10.00	9.447	94	73-127	5	20	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	87	75-130	EPA 8015B
Bromofluorobenzene (PID)	103	58-121	EPA 8021B

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC573204	Batch#:	170162
Matrix:	Water	Analyzed:	12/20/10
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12	1,000	1,059	106	75-126	EPA 8015B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	87	75-130	EPA 8015B
Bromofluorobenzene (PID)	103	58-121	EPA 8021B

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Field ID:	MW-10	Batch#:	170162
MSS Lab ID:	224786-003	Sampled:	12/16/10
Matrix:	Water	Received:	12/16/10
Units:	ug/L	Analyzed:	12/20/10
Diln Fac:	1.000		

Type: MS Lab ID: QC573206

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12	79.52	2,000	1,773	85	68-120	EPA 8015B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	89	75-130	EPA 8015B
Bromofluorobenzene (PID)	99	58-121	EPA 8021B

Type: MSD Lab ID: QC573207

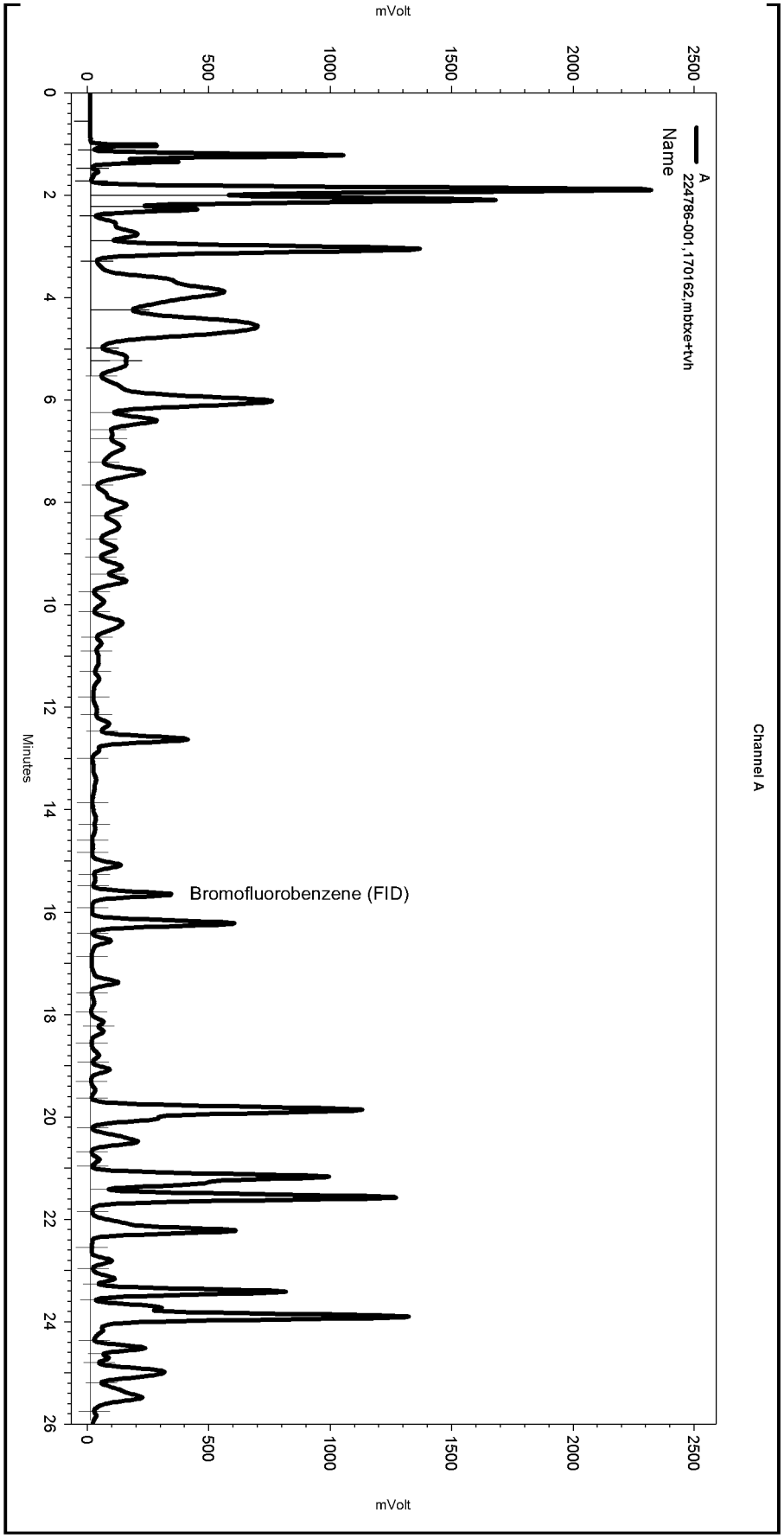
Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analysis
Gasoline C7-C12	2,000	1,777	85	68-120	0	26	EPA 8015B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	90	75-130	EPA 8015B
Bromofluorobenzene (PID)	102	58-121	EPA 8021B

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-001,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-010**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/20/2010 7:07:38 PM
Analysis Date: 12/21/2010 12:57:52 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

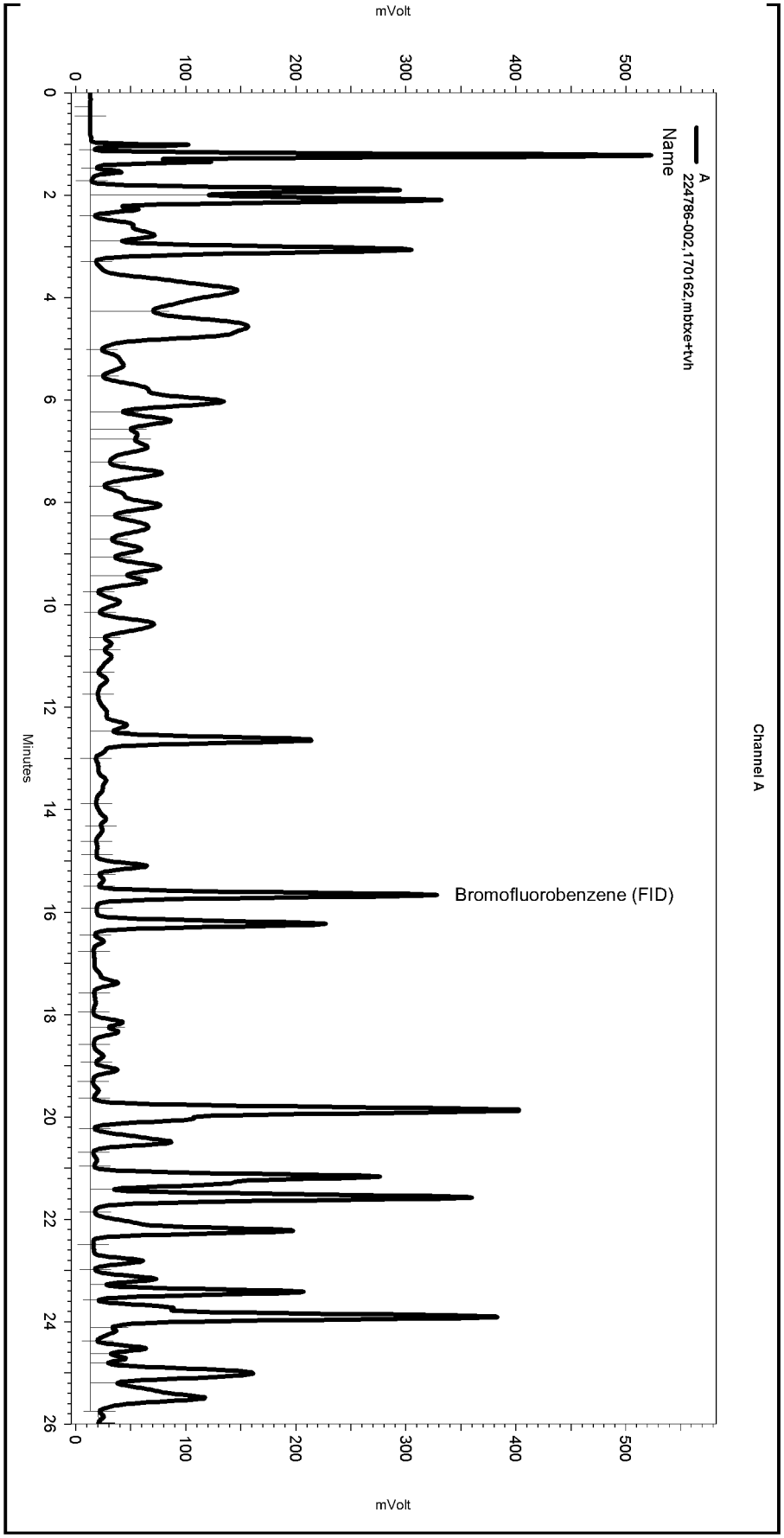
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-010

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.417	25.939	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-002,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-012**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/20/2010 8:20:50 PM
Analysis Date: 12/21/2010 1:02:09 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

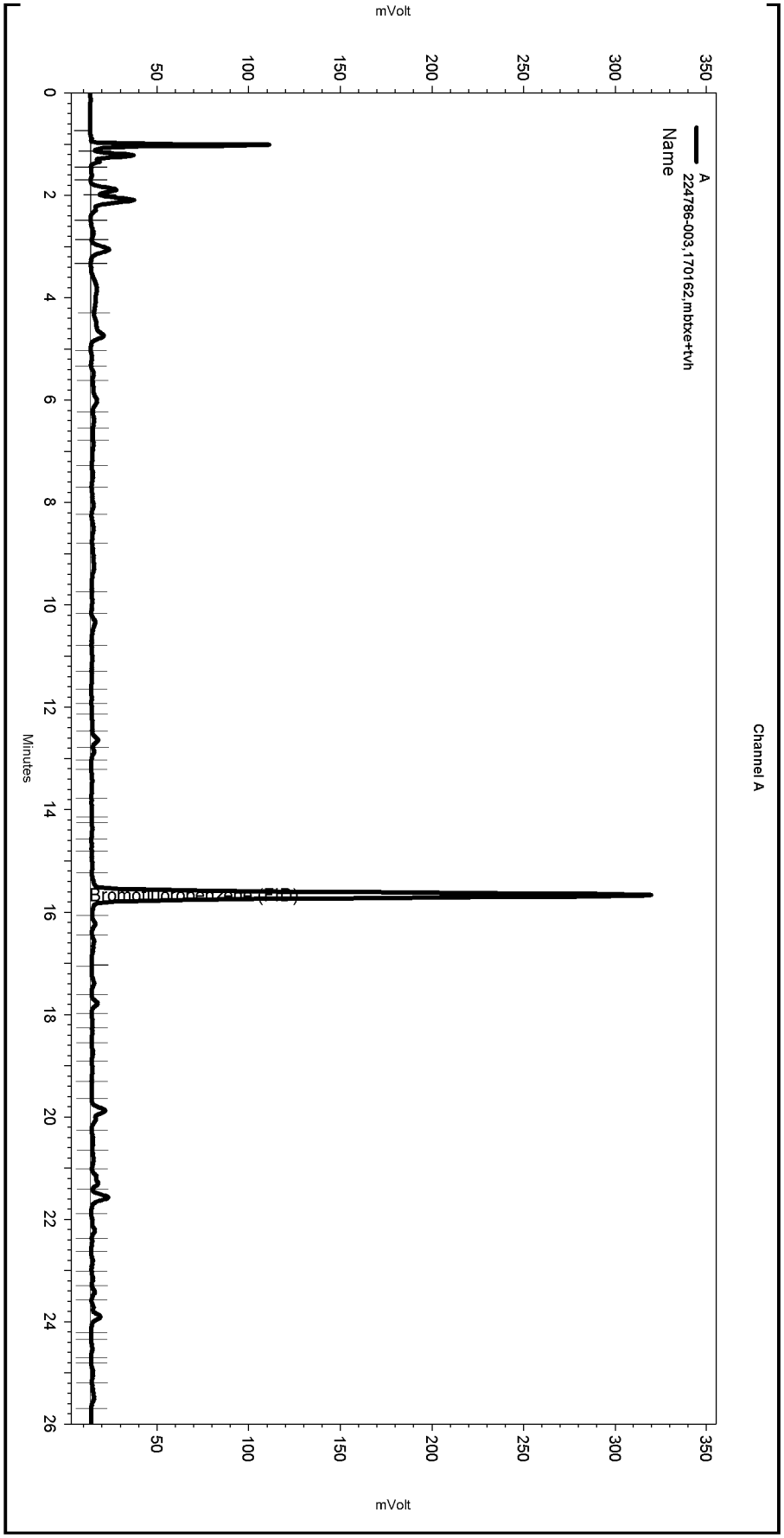
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-012

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.284	25.784	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-003,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-014**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/20/2010 9:33:57 PM
Analysis Date: 12/21/2010 1:04:14 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

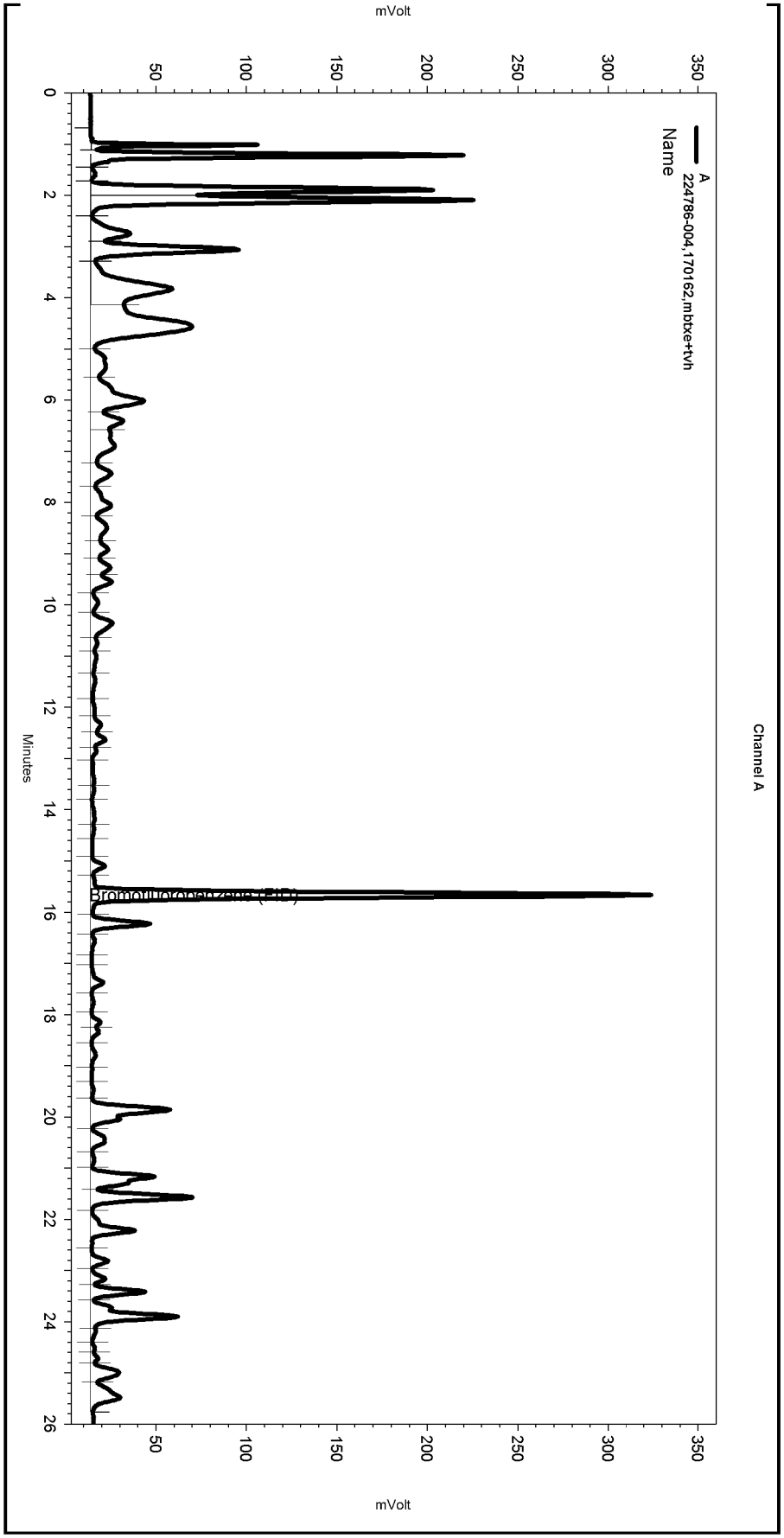
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-014

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.863	25.787	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-004,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-017**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/20/2010 11:23:36 PM
Analysis Date: 12/21/2010 1:07:14 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

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Integration Events

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

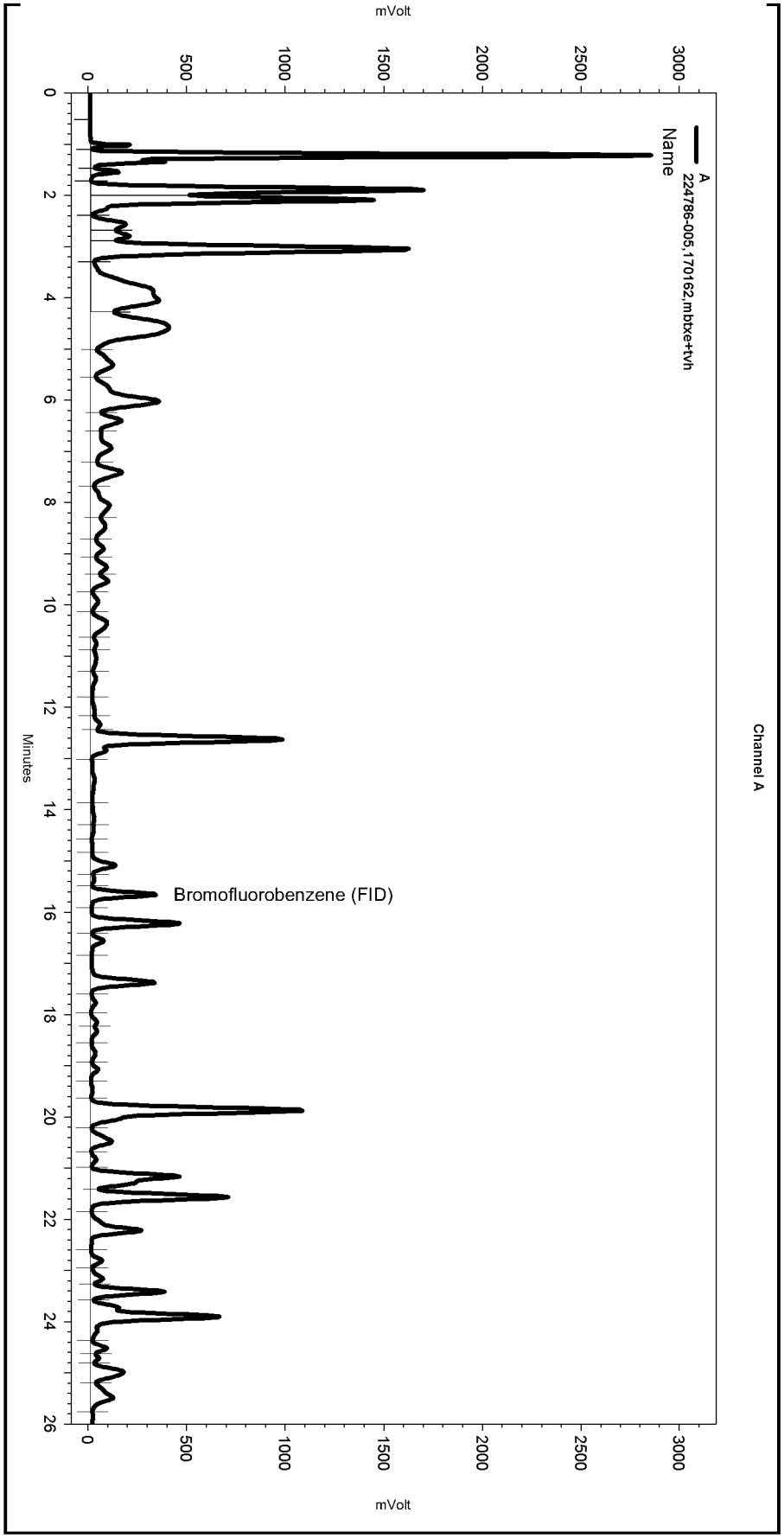
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	1.207	25.963	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-005,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-018**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/21/2010 12:00:14 AM
Analysis Date: 12/21/2010 1:08:25 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

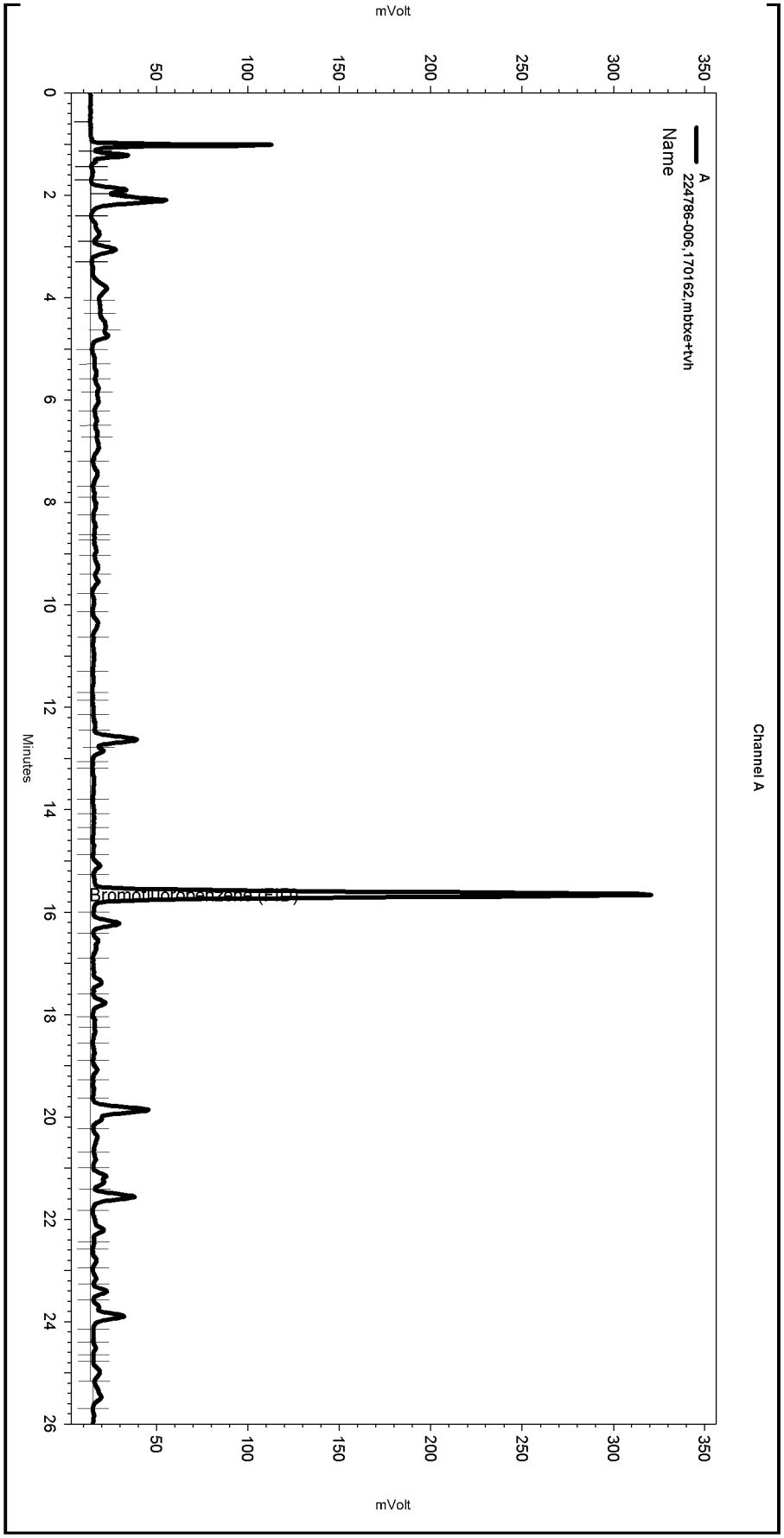
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-018

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.662	25.784	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-006,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-019**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/21/2010 12:36:51 AM
Analysis Date: 12/21/2010 1:10:16 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



---< General Method Parameters >---

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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

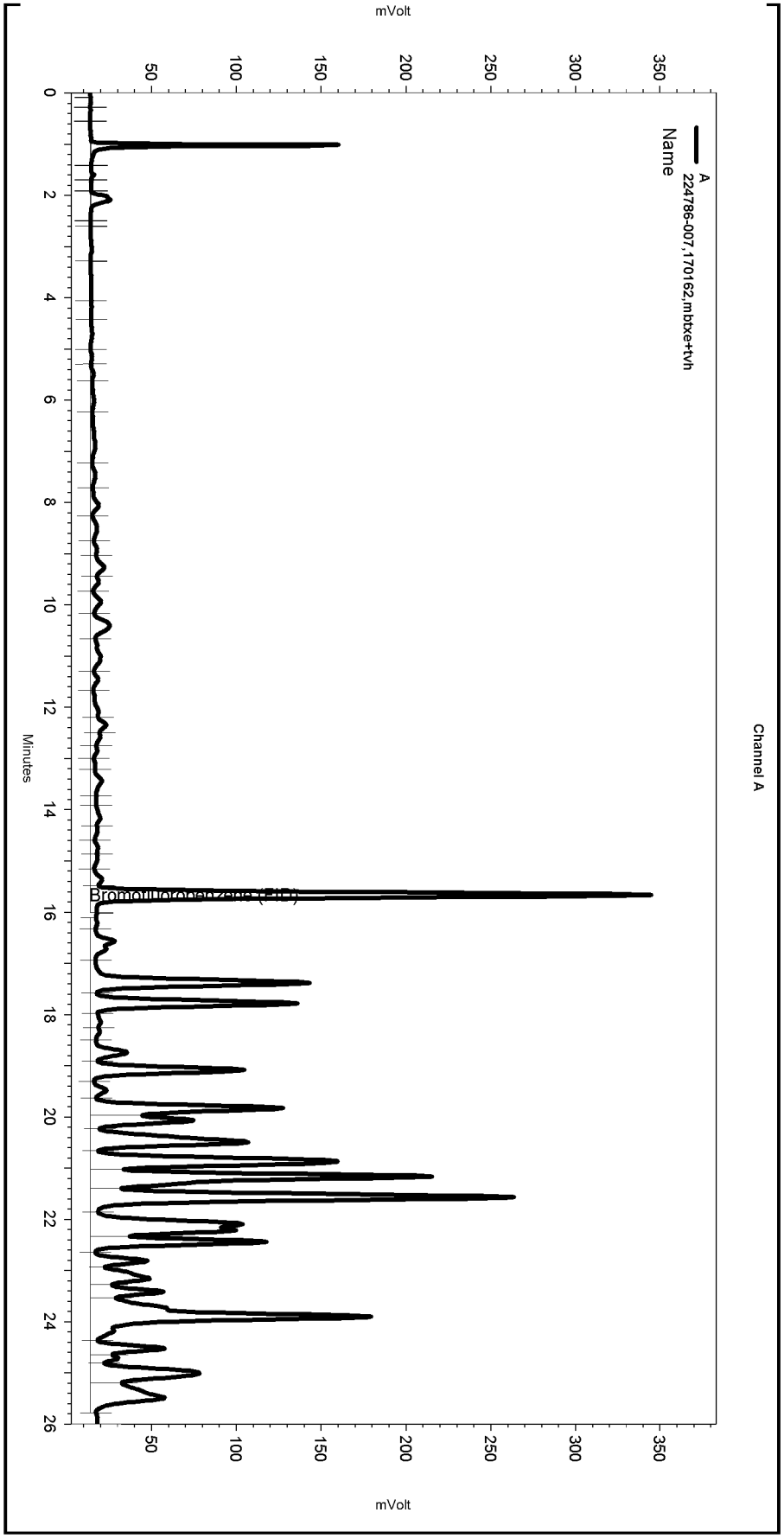
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.595	25.427	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **224786-007,170162,mbtxe+tvh**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-020**
Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/21/2010 1:13:27 AM
Analysis Date: 12/21/2010 1:11:46 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.0



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Integration Events

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

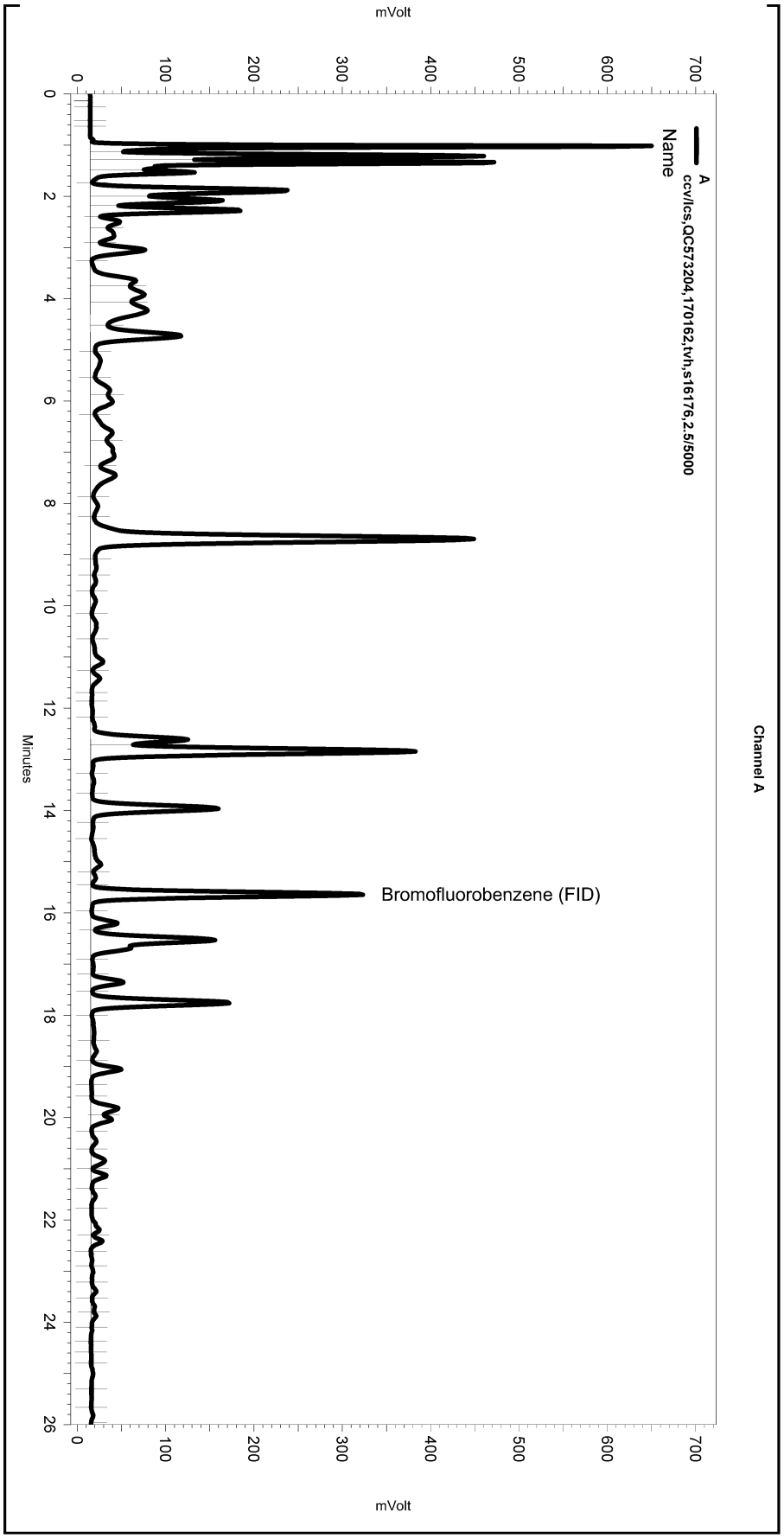
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-020

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0.431	25.896	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC05\Sequence\354.seq**
Sample Name: **ccv/lcs,QC573204,170162,tvh,s16176,2.5/5000**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC05\Data\354-007**
Instrument: GC05 Vial: N/A Operator: Tvh 3. Analyst (lims2k3\tvh3)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\tvhbtxe349.met

Software Version 3.1.7
Run Date: 12/20/2010 2:47:41 PM
Analysis Date: 12/20/2010 6:12:49 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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Integration Events

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

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\354-007

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/16/10
Units:	ug/L	Received:	12/16/10
Diln Fac:	1.000	Prepared:	12/17/10
Batch#:	170094		

Field ID: MW-7 Lab ID: 224786-001
Type: SAMPLE Analyzed: 12/19/10

Analyte	Result	RL
Diesel C10-C24	3,500 Y	50

Surrogate	%REC	Limits
o-Terphenyl	85	60-129

Field ID: MW-11 Lab ID: 224786-002
Type: SAMPLE Analyzed: 12/20/10

Analyte	Result	RL
Diesel C10-C24	2,900 Y	50

Surrogate	%REC	Limits
o-Terphenyl	114	60-129

Field ID: MW-10 Lab ID: 224786-003
Type: SAMPLE Analyzed: 12/19/10

Analyte	Result	RL
Diesel C10-C24	440 Y	50

Surrogate	%REC	Limits
o-Terphenyl	104	60-129

Field ID: MW-12 Lab ID: 224786-004
Type: SAMPLE Analyzed: 12/19/10

Analyte	Result	RL
Diesel C10-C24	350 Y	50

Surrogate	%REC	Limits
o-Terphenyl	105	60-129

Field ID: MW-9 Lab ID: 224786-005
Type: SAMPLE Analyzed: 12/19/10

Analyte	Result	RL
Diesel C10-C24	2,400 Y	50

Surrogate	%REC	Limits
o-Terphenyl	70	60-129

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/16/10
Units:	ug/L	Received:	12/16/10
Diln Fac:	1.000	Prepared:	12/17/10
Batch#:	170094		

Field ID:	MW-8	Lab ID:	224786-006
Type:	SAMPLE	Analyzed:	12/19/10

Analyte	Result	RL
Diesel C10-C24	260 Y	50

Surrogate	%REC	Limits
o-Terphenyl	98	60-129

Field ID:	MW-2	Lab ID:	224786-007
Type:	SAMPLE	Analyzed:	12/20/10

Analyte	Result	RL
Diesel C10-C24	1,600 Y	50

Surrogate	%REC	Limits
o-Terphenyl	104	60-129

Type:	BLANK	Analyzed:	12/19/10
Lab ID:	QC572920		

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	109	60-129

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 #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	170094
Units:	ug/L	Prepared:	12/17/10
Diln Fac:	1.000	Analyzed:	12/19/10

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC572921

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,400	96	53-128

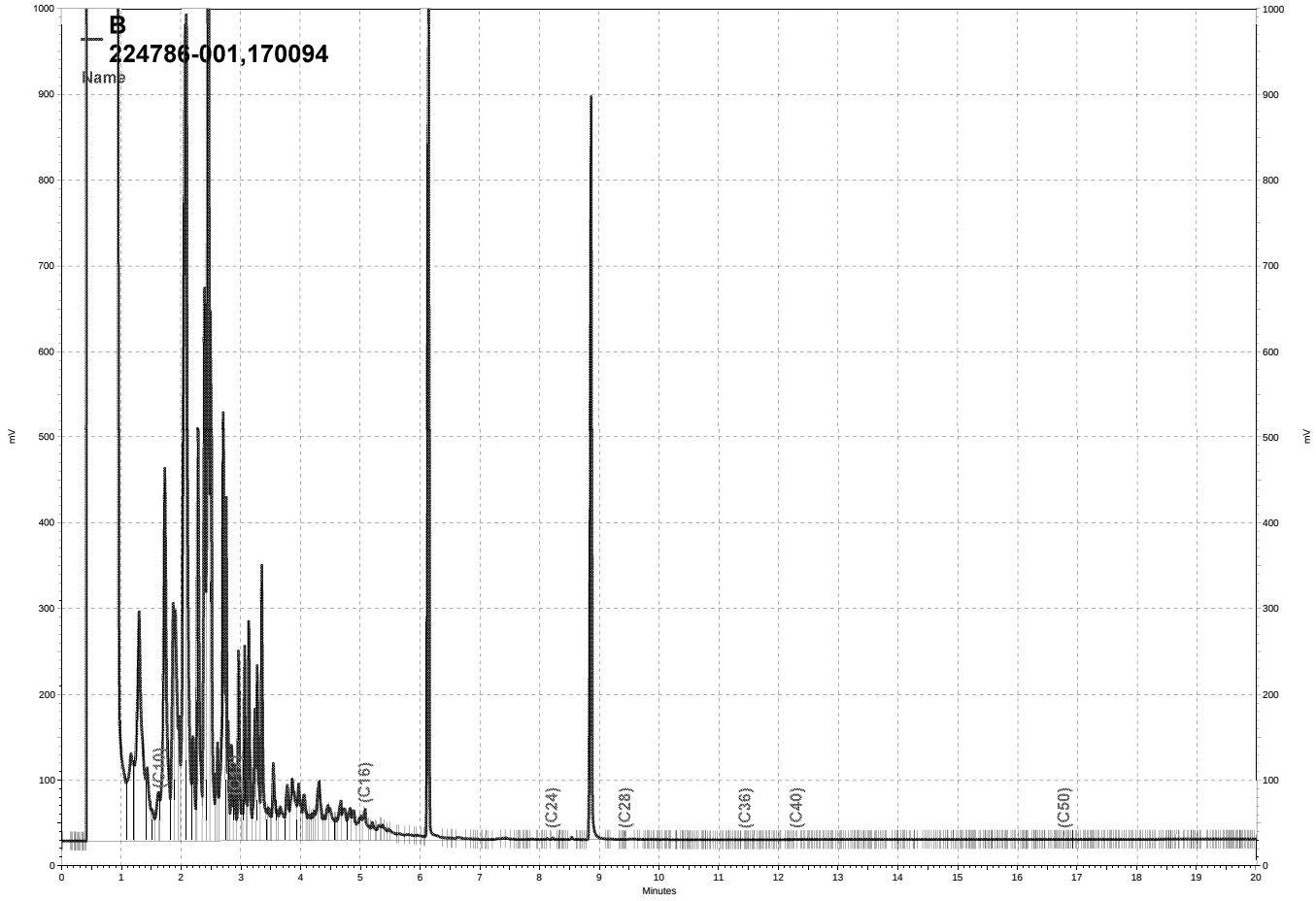
Surrogate	%REC	Limits
o-Terphenyl	102	60-129

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC572922

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,775	111	53-128	14	48

Surrogate	%REC	Limits
o-Terphenyl	112	60-129

RPD= Relative Percent Difference



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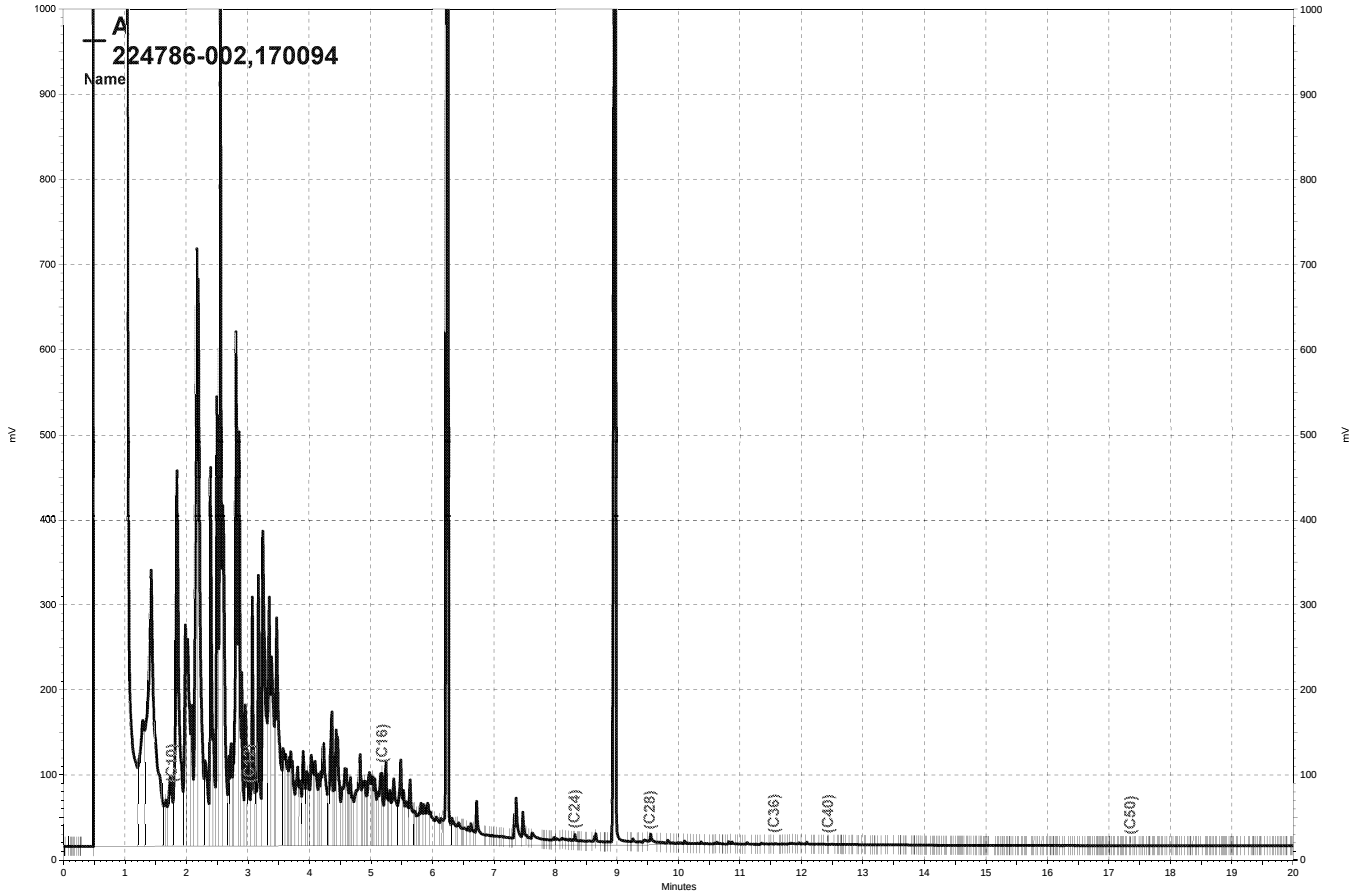

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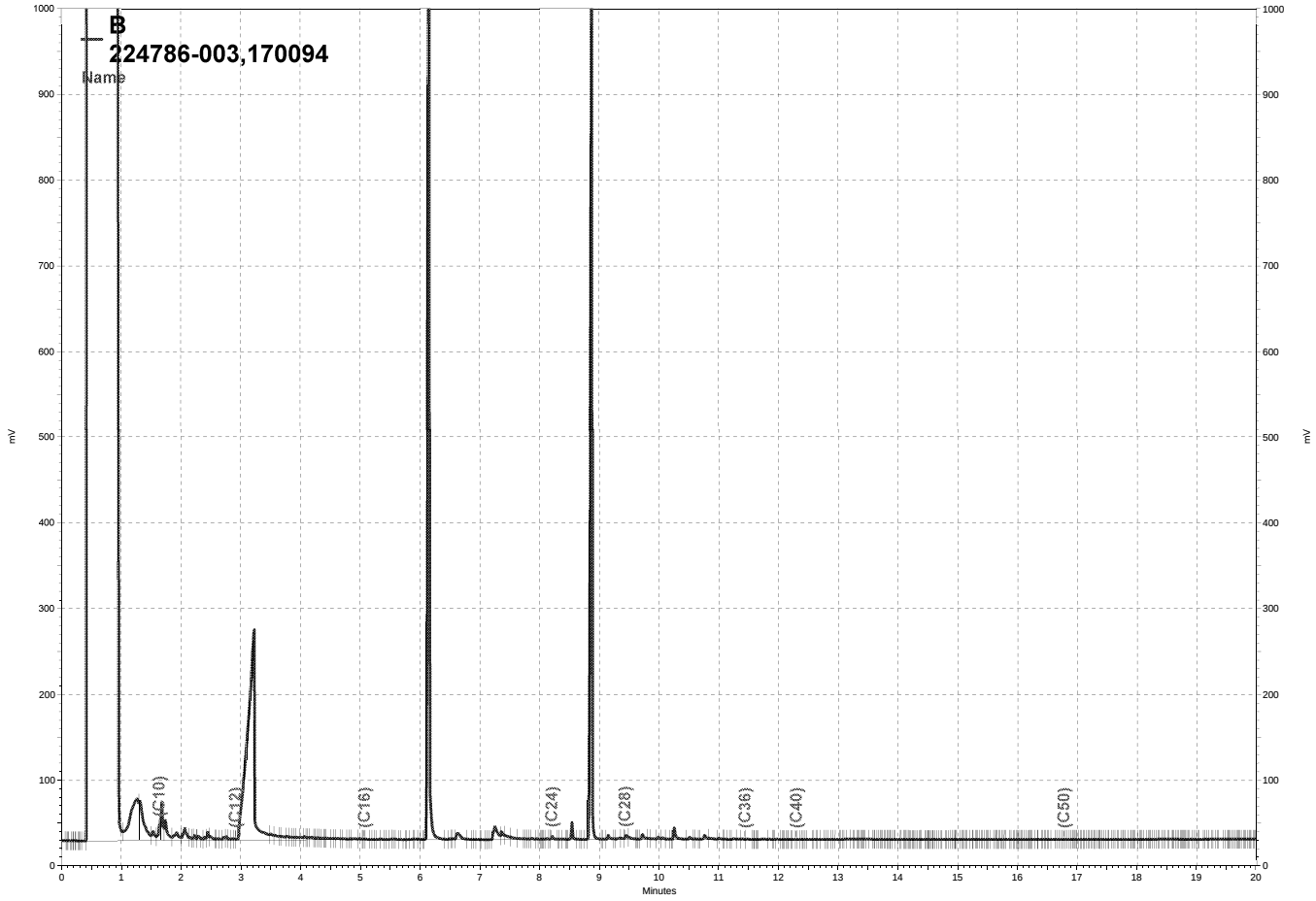

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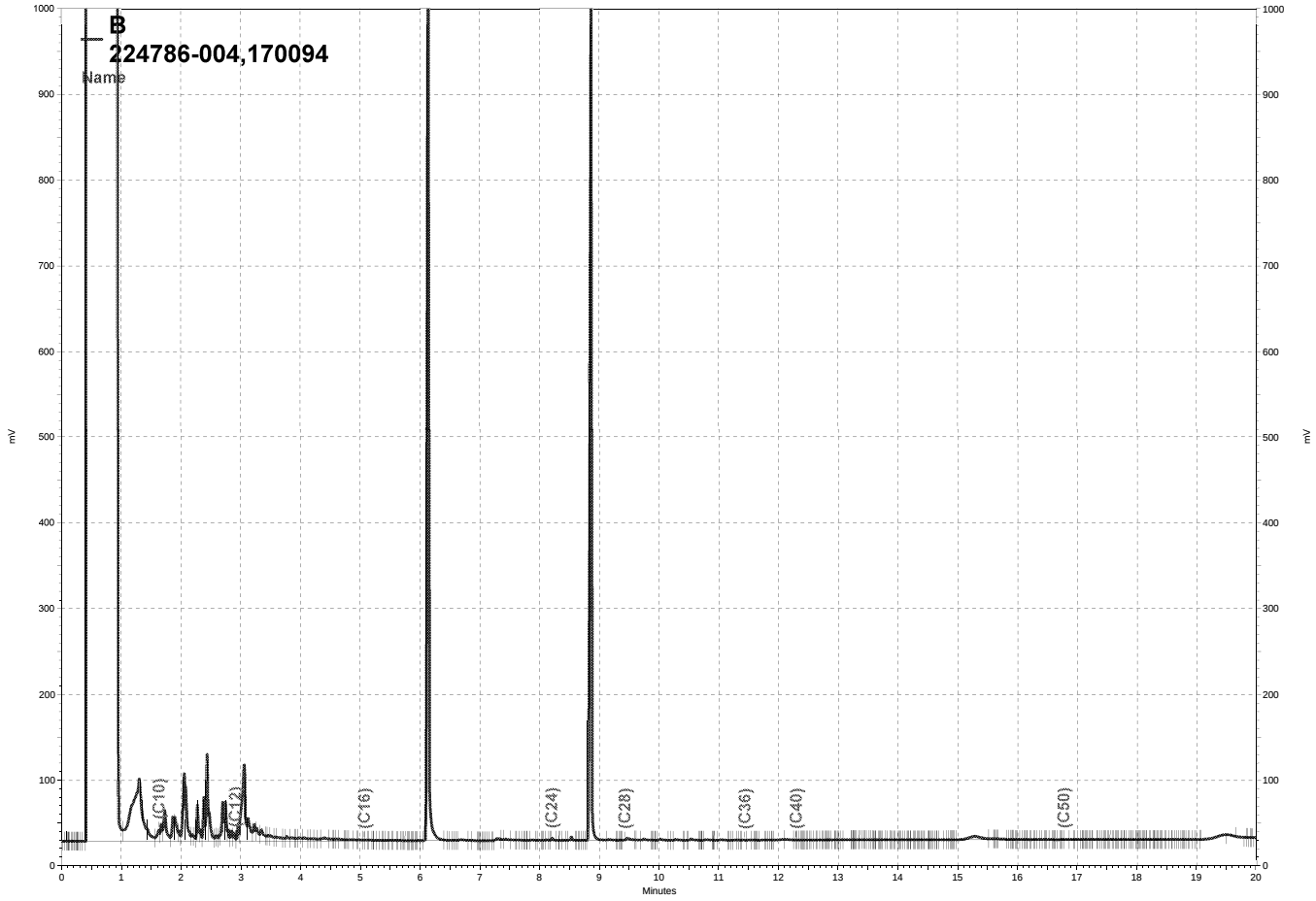

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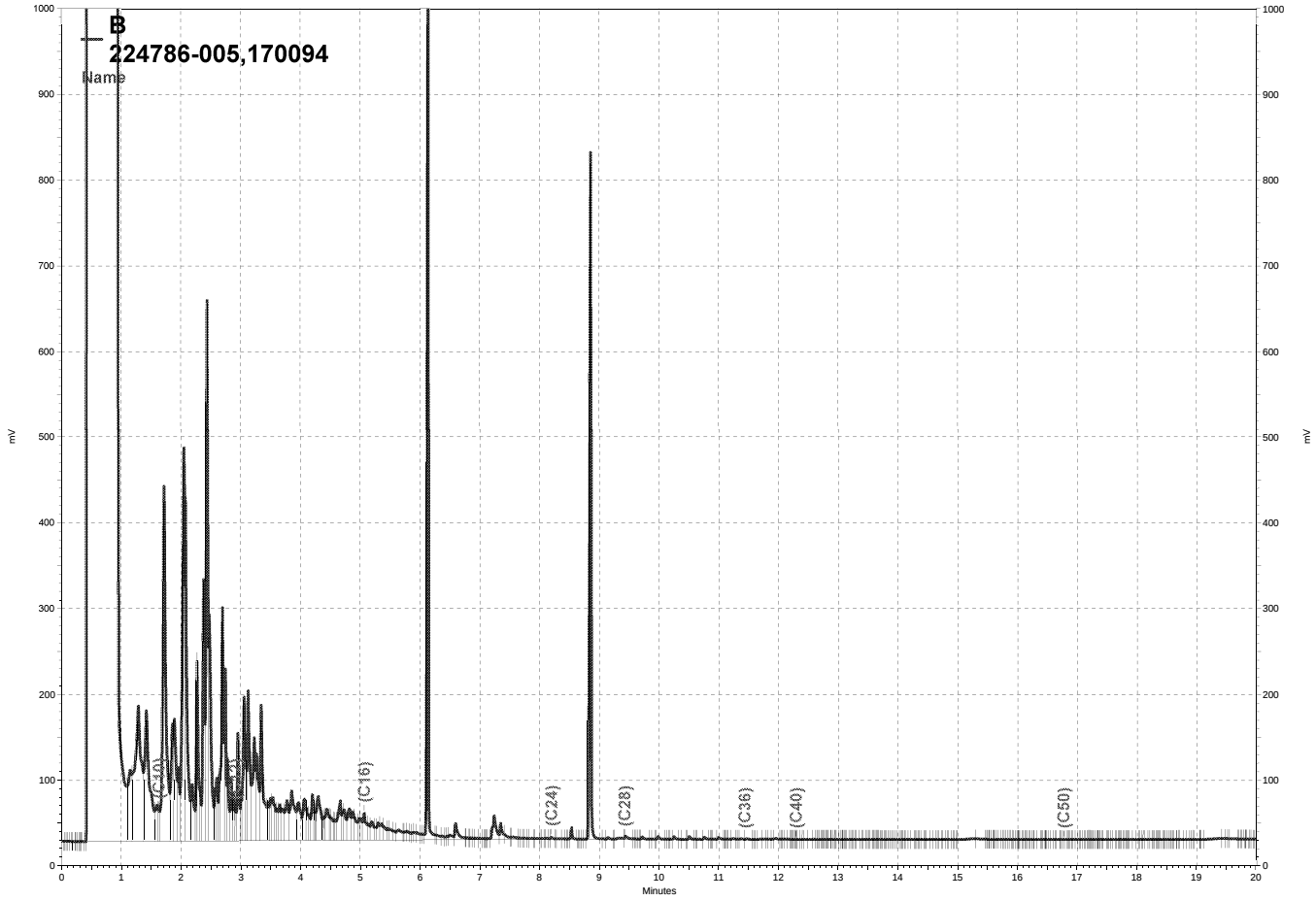

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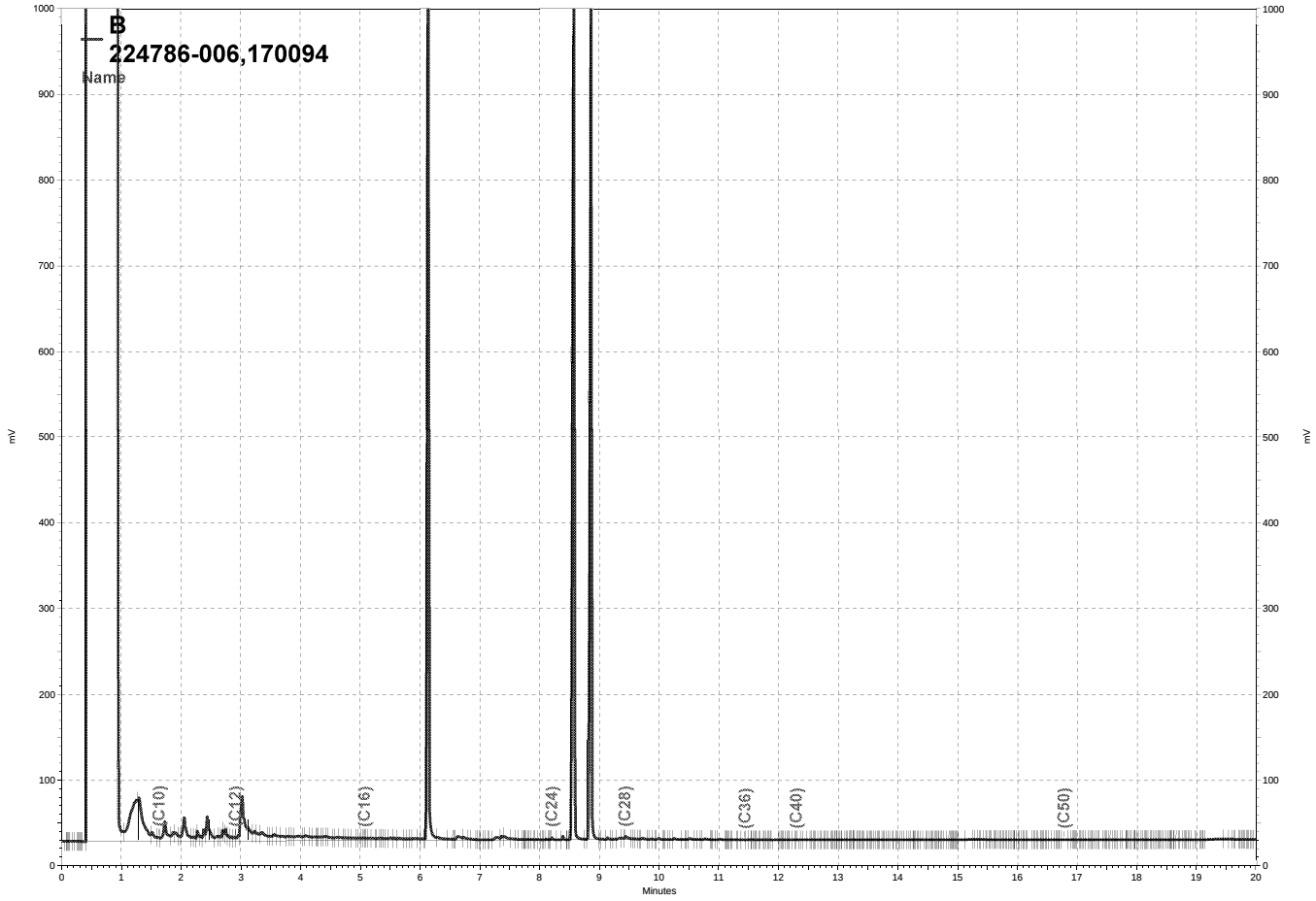

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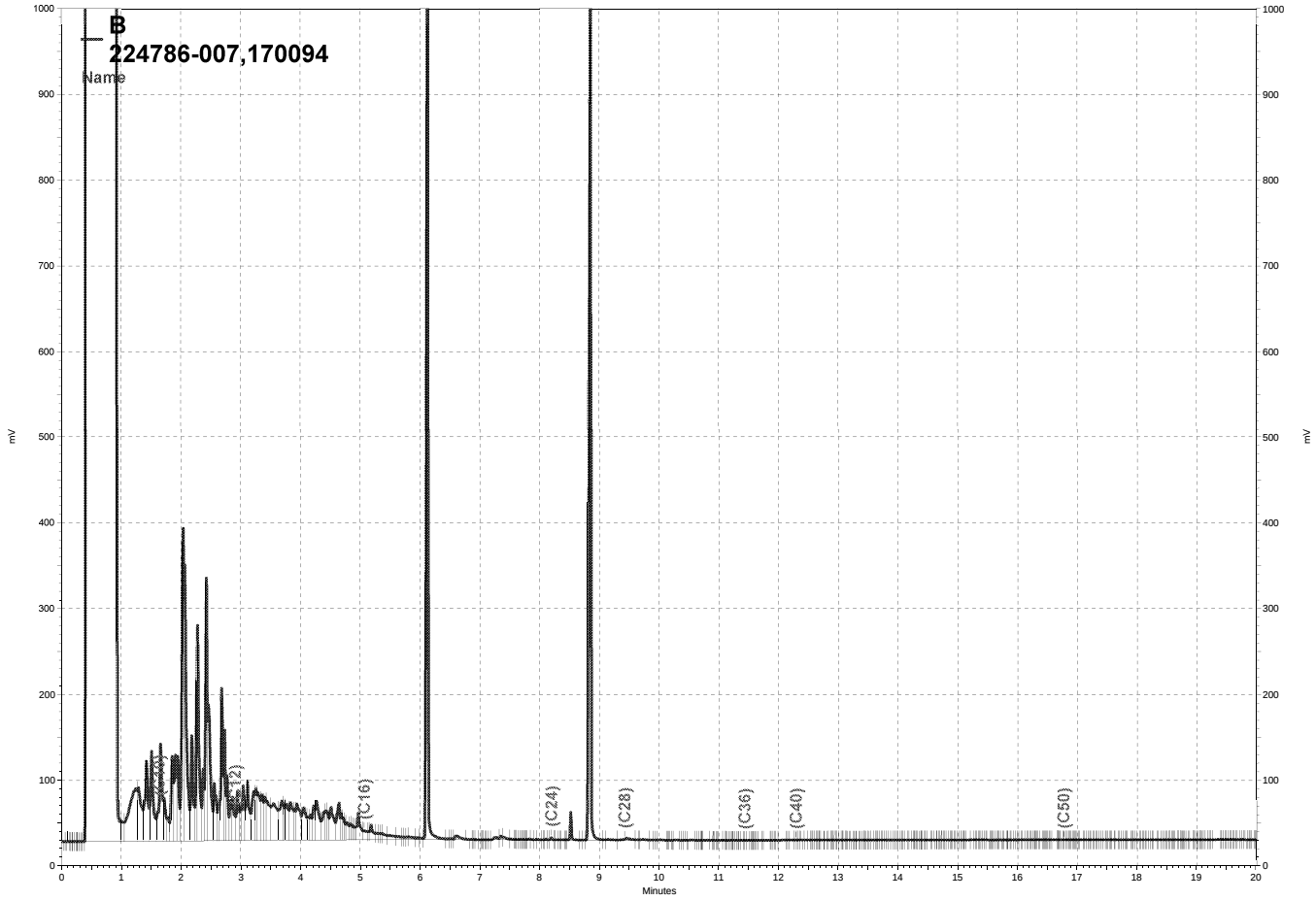

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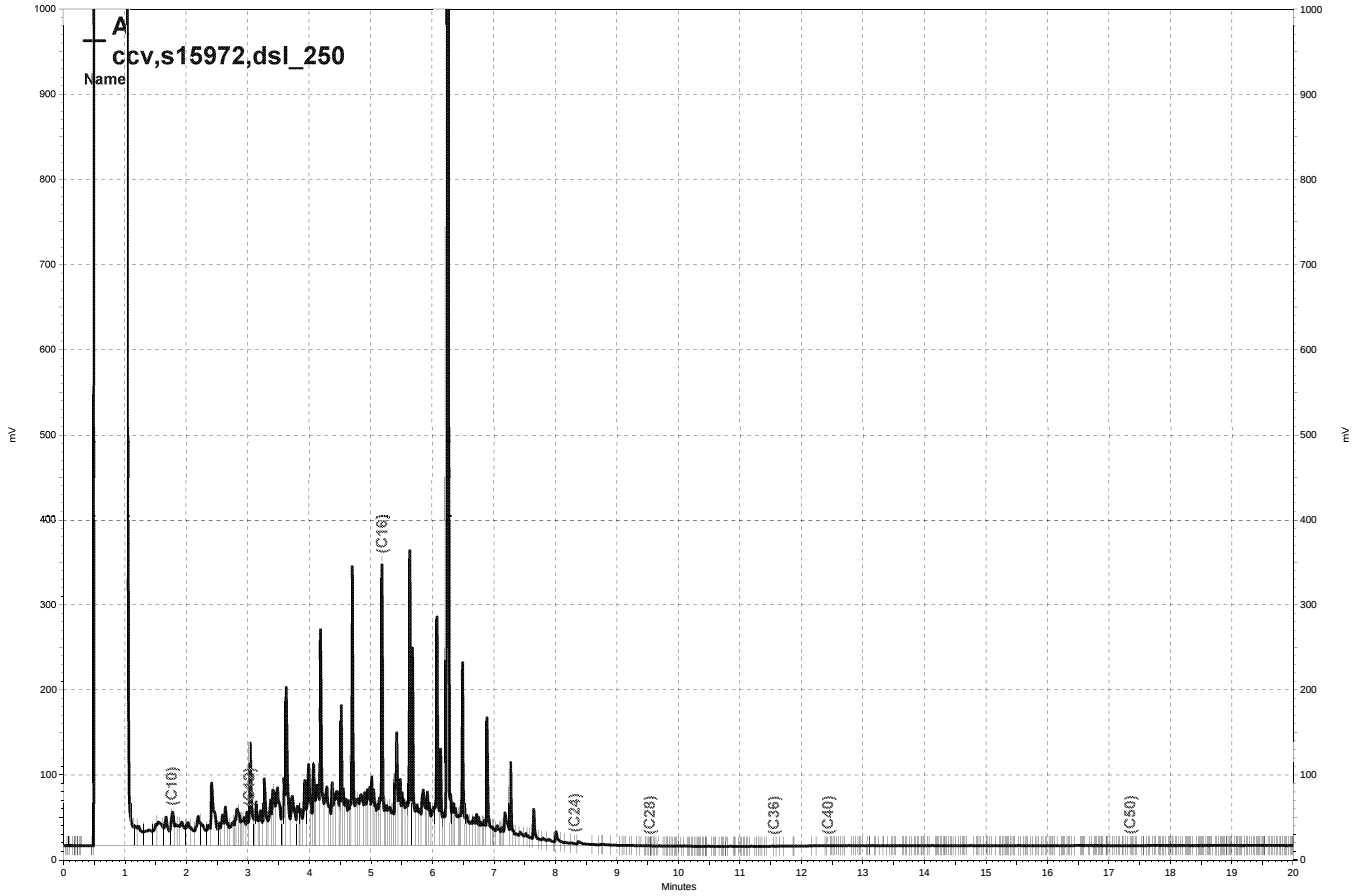

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Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	EPA 300.0
Matrix:	Water	Received:	12/16/10
Units:	mg/L		

Field ID: MW-7
Type: SAMPLE
Lab ID: 224786-001
Diln Fac: 1.000
Batch#: 170052
Sampled: 12/16/10 10:15
Analyzed: 12/17/10 03:12

Analyte	Result	RL
Nitrogen, Nitrate	ND	0.05
Sulfate	0.84	0.50

Field ID: MW-12
Type: SAMPLE
Lab ID: 224786-004
Diln Fac: 1.000
Batch#: 170052
Sampled: 12/16/10 12:45
Analyzed: 12/17/10 03:47

Analyte	Result	RL
Nitrogen, Nitrate	ND	0.05
Sulfate	22	0.50

Field ID: MW-8
Type: SAMPLE
Lab ID: 224786-006
Sampled: 12/16/10 13:10

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Nitrogen, Nitrate	ND	0.05	1.000	170052	12/17/10 04:22
Sulfate	72	2.5	5.000	170109	12/19/10 01:57

Field ID: MW-2
Type: SAMPLE
Lab ID: 224786-007
Sampled: 12/16/10 13:30

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Nitrogen, Nitrate	0.69	0.05	1.000	170052	12/17/10 04:57
Sulfate	120	5.0	10.00	170109	12/19/10 02:14

Type: BLANK
Lab ID: QC572729
Diln Fac: 1.000
Batch#: 170052
Analyzed: 12/17/10 02:03

Analyte	Result	RL
Nitrogen, Nitrate	ND	0.05
Sulfate	ND	0.50

Type: BLANK
Lab ID: QC572991
Diln Fac: 1.000
Batch#: 170109
Analyzed: 12/19/10 01:22

Analyte	Result	RL
Sulfate	ND	0.50

ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	EPA 300.0
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC572730	Batch#:	170052
Matrix:	Water	Analyzed:	12/17/10 02:20
Units:	mg/L		

Analyte	Spiked	Result	%REC	Limits
Nitrogen, Nitrate	1.000	0.9943	99	80-120
Sulfate	10.00	9.555	96	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	EPA 300.0
Field ID:	ZZZZZZZZZZ	Diln Fac:	20.00
MSS Lab ID:	224780-001	Batch#:	170052
Matrix:	Water	Sampled:	12/16/10 09:27
Units:	mg/L	Received:	12/16/10

Type: MS Analyzed: 12/17/10 17:41
Lab ID: QC572827

Analyte	MSS Result	Spiked	Result	%REC	Limits
Nitrogen, Nitrate	0.9102	10.00	10.95	100	80-120
Sulfate	72.88	100.0	163.1	90	80-120

Type: MSD Analyzed: 12/17/10 17:58
Lab ID: QC572828

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Nitrogen, Nitrate	10.00	10.53	96	80-120	4	20
Sulfate	100.0	161.7	89	80-120	1	20

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	EPA 300.0
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC572992	Batch#:	170109
Matrix:	Water	Analyzed:	12/19/10 01:39
Units:	mg/L		

Analyte	Spiked	Result	%REC	Limits
Sulfate	10.00	9.829	98	80-120

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	EPA 300.0
Field ID:	ZZZZZZZZZZ	Diln Fac:	20.00
MSS Lab ID:	224743-004	Batch#:	170109
Matrix:	Water	Sampled:	12/15/10 09:40
Units:	mg/L	Received:	12/15/10

Type: MS Analyzed: 12/19/10 05:43
Lab ID: QC572993

Analyte	MSS Result	Spiked	Result	%REC	Limits
Sulfate	98.91	100.0	195.9	97	80-120

Type: MSD Analyzed: 12/19/10 06:00
Lab ID: QC572994

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Sulfate	100.0	194.6	96	80-120	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Biochemical Oxygen Demand

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	SM5210B
Analyte:	Biochemical Oxygen Demand	Batch#:	170049
Matrix:	Water	Received:	12/16/10
Units:	mg/L	Prepared:	12/16/10 19:50
Diln Fac:	1.000	Analyzed:	12/21/10 21:15

Field ID	Lab ID	Result	RL	Sampled
MW-7	224786-001	15	5.0	12/16/10 10:15
MW-12	224786-004	ND	5.0	12/16/10 12:45
MW-8	224786-006	ND	5.0	12/16/10 13:10
MW-2	224786-007	ND	5.0	12/16/10 13:30

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Biochemical Oxygen Demand

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	SM5210B
Analyte:	Biochemical Oxygen Demand	Batch#:	170049
Field ID:	ZZZZZZZZZZ	Sampled:	12/15/10 09:00
MSS Lab ID:	224733-001	Received:	12/15/10
Matrix:	Water	Prepared:	12/16/10 19:50
Units:	mg/L	Analyzed:	12/21/10 21:15
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC572720		198.0	221.0		112	85-115		
BSD	QC572721		198.0	212.5		107	85-115	4	20
SDUP	QC572722	4,125		3,922	750.0			5	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Chemical Oxygen Demand

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	SM5220D
Analyte:	Chemical Oxygen Demand	Batch#:	170279
Matrix:	Water	Received:	12/16/10
Units:	mg/L	Prepared:	12/22/10 14:30
Diln Fac:	1.000	Analyzed:	12/22/10 16:30

Field ID	Type	Lab ID	Result	RL	Sampled
MW-7	SAMPLE	224786-001	34	10	12/16/10 10:15
MW-12	SAMPLE	224786-004	21	10	12/16/10 12:45
MW-8	SAMPLE	224786-006	16	10	12/16/10 13:10
MW-2	SAMPLE	224786-007	31	10	12/16/10 13:30
	BLANK	QC573690	ND	10	

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Chemical Oxygen Demand

Lab #:	224786	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	METHOD
Project#:	2008-02	Analysis:	SM5220D
Analyte:	Chemical Oxygen Demand	Batch#:	170279
Field ID:	ZZZZZZZZZZ	Sampled:	12/15/10 11:10
MSS Lab ID:	224740-002	Received:	12/15/10
Matrix:	Water	Prepared:	12/22/10 14:30
Units:	mg/L	Analyzed:	12/22/10 16:30
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
LCS	QC573691		75.00	68.42	91	90-110		
MS	QC573692	52.37	150.0	180.3	85	65-131		
MSD	QC573693		150.0	184.8	88	65-131	2	20

RPD= Relative Percent Difference


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 224791
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2010-02
2198 6th Street	Location : Redwood Regional Park
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
SW-2	224791-001
SW-3	224791-002

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: 12/28/2010
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**224791**
Client:	**Stellar Environmental Solutions**
Project:	**2010-02**
Location:	**Redwood Regional Park**
Request Date:	**12/17/10**
Samples Received:	**12/16/10**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 12/17/10. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B and EPA 8021B):
No analytical problems were encountered.

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

Chain of Custody Record

Lab job no. 22479

Date

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 2010-02

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	TVHg BTEX	TEPHd	Remarks
1	SW-2	Creek	12-16-10		W	40 ML VOA (a)	Y	Yes (a)		3	X		
2	SW-3	Creek	12-16-10		W	40 ML VOA	Y	Yes (a)		3	X		
3	SW-2	Creek	12-16-10		W	Amber Liter	Y	NO		1		X	
4	SW-3	Creek	12-16-10		W	Amber Liter	Y	NO		1		X	

Relinquished by: Signature Steve Bittman — Printed Steve Bittman — Company Stellar Environmental — Date 12-16-10 — Time 1145

Received by: Signature — Printed Patrick Harms — Company Blaine Tech — Date 12-16-10 — Time 1145

Relinquished by: Signature — Printed Patrick Harms — Company Blaine Tech — Date 12/16/10 — Time 1455

Received by: Signature — Printed Micah Smith — Company C&T — Date 12/16/10 — Time 14:55

Turnaround Time: Standard - 5 Day

Comments: (a) VOA w/ HCL

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

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

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 22479/ Date Received 12/16/10 Number of coolers 2
Client STELLAR Project FEB R4D

Date Opened 12/16/10 By (print) M. WILLIAMS (sign)
Date Logged in 12/17/10 By (print) T. BOJ'OR (sign)

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

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

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

7. Temperature documentation:

Type of ice used: ☑ Wet ☐ Blue/Gel ☐ None Temp(°C) 3.1 ONLY 1 COOLER W/ TEMP BLANK

☐ 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 #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2010-02		
Matrix:	Water	Sampled:	12/16/10
Units:	ug/L	Received:	12/16/10
Diln Fac:	1.000		

Field ID: SW-2 Lab ID: 224791-001
Type: SAMPLE

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	ND	50	170159	12/20/10	EPA 8015B
Benzene	ND	0.50	170090	12/17/10	EPA 8021B
Toluene	ND	0.50	170090	12/17/10	EPA 8021B
Ethylbenzene	ND	0.50	170090	12/17/10	EPA 8021B
m,p-Xylenes	ND	0.50	170090	12/17/10	EPA 8021B
o-Xylene	ND	0.50	170090	12/17/10	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	92	75-130	170159	12/20/10	EPA 8015B
Bromofluorobenzene (PID)	98	58-121	170090	12/17/10	EPA 8021B

Field ID: SW-3 Lab ID: 224791-002
Type: SAMPLE

Analyte	Result	RL	Batch#	Analyzed	Analysis
Gasoline C7-C12	ND	50	170159	12/20/10	EPA 8015B
Benzene	ND	0.50	170090	12/17/10	EPA 8021B
Toluene	0.57	0.50	170090	12/17/10	EPA 8021B
Ethylbenzene	ND	0.50	170090	12/17/10	EPA 8021B
m,p-Xylenes	0.81 C	0.50	170090	12/17/10	EPA 8021B
o-Xylene	ND	0.50	170090	12/17/10	EPA 8021B

Surrogate	%REC	Limits	Batch#	Analyzed	Analysis
Bromofluorobenzene (FID)	93	75-130	170159	12/20/10	EPA 8015B
Bromofluorobenzene (PID)	99	58-121	170090	12/17/10	EPA 8021B

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 #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2010-02		
Matrix:	Water	Sampled:	12/16/10
Units:	ug/L	Received:	12/16/10
Diln Fac:	1.000		

Type:	BLANK	Batch#:	170090
Lab ID:	QC572906	Analyzed:	12/17/10

Analyte	Result	RL	Analysis
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Bromofluorobenzene (FID)	92	75-130	EPA 8015B
Bromofluorobenzene (PID)	94	58-121	EPA 8021B

Type:	BLANK	Analyzed:	12/20/10
Lab ID:	QC573190	Analysis:	EPA 8015B
Batch#:	170159		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	Result	%REC	Limits
Bromofluorobenzene (FID)		90	75-130
Bromofluorobenzene (PID)	NA		

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

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2010-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	170090
Units:	ug/L	Analyzed:	12/17/10
Diln Fac:	1.000		

Type: BS Lab ID: QC572903

Analyte	Spiked	Result	%REC	Limits
Benzene	10.00	10.13	101	74-121
Toluene	10.00	10.03	100	75-122
Ethylbenzene	10.00	9.720	97	75-122
m,p-Xylenes	10.00	10.09	101	76-123
o-Xylene	10.00	9.970	100	73-127

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	92	58-121

Type: BSD Lab ID: QC572904

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Benzene	10.00	10.27	103	74-121	1	29
Toluene	10.00	9.986	100	75-122	0	20
Ethylbenzene	10.00	9.782	98	75-122	1	20
m,p-Xylenes	10.00	10.08	101	76-123	0	20
o-Xylene	10.00	10.08	101	73-127	1	20

Surrogate	%REC	Limits
Bromofluorobenzene (PID)	97	58-121

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2010-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC573191	Batch#:	170159
Matrix:	Water	Analyzed:	12/20/10
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	983.3	98	75-126

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	75-130

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2010-02	Analysis:	EPA 8015B
Field ID:	SW-2	Batch#:	170159
MSS Lab ID:	224791-001	Sampled:	12/16/10
Matrix:	Water	Received:	12/16/10
Units:	ug/L	Analyzed:	12/20/10
Diln Fac:	1.000		

Type: MS Lab ID: QC573192

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	16.42	2,000	1,876	93	68-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	75-130

Type: MSD Lab ID: QC573193

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,861	92	68-120	1	26

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	75-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2010-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/16/10
Units:	ug/L	Received:	12/16/10
Diln Fac:	1.000	Prepared:	12/17/10
Batch#:	170094	Analyzed:	12/19/10

Field ID: SW-2 Lab ID: 224791-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	107	60-129

Field ID: SW-3 Lab ID: 224791-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	105	60-129

Type: BLANK Lab ID: QC572920

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	109	60-129

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	224791	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2010-02	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	170094
Units:	ug/L	Prepared:	12/17/10
Diln Fac:	1.000	Analyzed:	12/19/10

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC572921

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,400	96	53-128

Surrogate	%REC	Limits
o-Terphenyl	102	60-129

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC572922

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,775	111	53-128	14	48

Surrogate	%REC	Limits
o-Terphenyl	112	60-129

RPD= Relative Percent Difference

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**
55	Mar-10	**1,900**	**3,200**	*<0.5*	*<0.5*	*<0.5*	**2.2**	**2.2**	**2.2**
56	Mar-10	**2,000**	**4,300**	*<0.5*	*<0.5*	*<0.5*	**3.5**	**3.45**	*<2.0*
57	Jun-10	**1,300**	**2,400**	*<0.5*	*<0.5*	*<0.5*	**1.7**	**1.74**	*<2.0*
58	Sep-10	**910**	*<50*	*<0.5*	*<0.5*	*<0.5*	**1.5**	**1.45**	*<2.0*
59	Dec-10	**910**	**1,600**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**2.6**

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**
38	Mar-10	**5,300**	**4,300**	**17**	*<0.5*	**110**	**2.60**	**130**	**16.0**
39	Mar-10	**2,600**	**6,100**	**11**	*<0.5*	**76**	**4.50**	**92**	*<2.0*
40	Jun-10	**5,800**	**5,000**	**20**	*<0.5*	**140**	**9.90**	**170**	*<2.0*
41	Sep-10	**6,300**	**4,100**	*<0.5*	*<0.5*	**93**	**6.00**	**99**	**69.0**
42	Dec-10	**5,400**	**3,500**	*<0.5*	*<0.5*	**99**	**9.20**	**108**	**87.0**

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
38	Mar-10	220	270	0.8	*<0.5*	14	3.1	18	3.9
39	Mar-10	3,400	5,700	28.0	*<0.5*	340	255.7	624	*<2.0*
40	Jun-10	4,700	4,200	27.0	2.9	400	103.2	533	27
41	Sep-10	900	1,300	2.9	*<0.5*	22	*<2.5*	25	*<10*
42	Dec-10	180	260	*<0.5*	*<0.5*	5	0.99	6.4	7.2

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*
35	Mar-10	3,300	2,600	15	*<0.5*	140	12.0	167.0	8.6
36	Mar-10	2,500	3,400	16	*<0.5*	70	15.4	101.4	2.1
37	Jun-10	1,700	1,300	13	*<0.5*	48	4.9	65.9	11
38	Sep-10	13,000	2,900	43	*<0.5*	300	47.9	390.9	43
39	Dec-10	3,900	2,400	32	*<0.5*	240	20.5	292.5	82

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*
36	Mar-10	**63**	**280**	**1.3**	*<0.5*	**48**	**<0.5**	**49.3**	*<2.0*
37	Jun-10	**110**	**340**	**1.4**	*<0.5*	**2.6**	**0.74**	**4.7**	**2.4**
38	Sep-10	**140**	**360**	**2.1**	*<0.5*	**1.4**	<0.5	**3.5**	**4.3**
39	Dec-10	**80**	**440**	*<0.5*	*<0.5*	**0.69**	<0.5	**0.7**	**4.1**

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
35	Mar-10	2,300	2,500	13	<0.5	59	0.79	73	3.4
36	Mar-10	1,500	3,400	12	<0.5	48	<0.5	60	<2.0
37	Jun-10	2,000	3,500	14	<0.5	42	0.92	57	7.9
38	Sep-10	3,000	2,200	18	<0.5	41	0.55	60	8.0
39	Dec-10	1,800	2,900	13	<0.5	49	1.9	64	15.0

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
18	Mar-10	240	380	<0.5	<0.5	2.7	<0.5	2.7	<2.0
19	Jun-10	540	370	<0.5	<0.5	3.5	0.92	4.4	7.9
20	Sep-10	380	220	<0.5	<0.5	1.7	<0.5	1.7	8
21	Dec-10	320	350	<0.5	<0.5	1.5	<0.5	1.5	3.9

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*
51	Mar-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
52	Jun-10	*<50*	**240**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
53	Sep-10	*<50*	**66**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
54	Dec-10	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<5.0*	*<0.5*	*NA*

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*
50	Mar-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
51	Jun-10	*<50*	*<50*	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*
52	Sep-10	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
53	Dec-10	*<50*	*<50*	*<0.5*	**0.57**	*<0.5*	**0.81**	**1.4**	*NS*

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