FOURTH QUARTER 2008 GROUNDWATER MONITORING AND ANNUAL SUMMARY REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

January 2009

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

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Prepared for:

EAST BAY REGIONAL PARK DISTRICT
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Prepared by:

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January 15, 2009

Project No. 2008-02

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January 15, 2009

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 2008 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, 2008 (Fourth Quarter 2008). This report also evaluates hydrochemical trends (including plume extent and stability) over the year of monitoring. In our professional opinion, continued groundwater monitoring is warranted to evaluate plume stability over time. Ongoing bioventing activities are reported in technical submittals separate from the ongoing water monitoring quarterly reports; summaries of salient information will be included in the quarterly reports.

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

Sincerely,

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

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

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS (continued)

Section **Page**

Appendices

TABLES AND FIGURES

1.0 INTRODUCTION

PROJECT BACKGROUND

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

OBJECTIVES AND SCOPE OF WORK

This report discusses the following activities conducted/coordinated by Stellar Environmental Solutions, Inc. (SES) between October 1 and December 31, 2008 (Fourth Quarter 2008):

- Collecting water levels in site wells to determine shallow groundwater flow direction
- Sampling site wells for contaminant analysis and natural attenuation indicators
- Collecting surface water samples for contaminant analysis
- Conducting monthly monitoring and maintenance of bioventing system operation
- Conducting a microbial respiration test (discussed in the Fourth Quarter 2008 bioventing status report)

HISTORICAL CORRECTIVE ACTIONS AND INVESTIGATIONS

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

The general phases of site work included:

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

SITE DESCRIPTION

The site slopes to the west, from an elevation of approximately 564 feet above mean sea level (amsl) at the eastern edge of the service yard to approximately 530 feet amsl 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, and Figure 2 presents the site plan.

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:

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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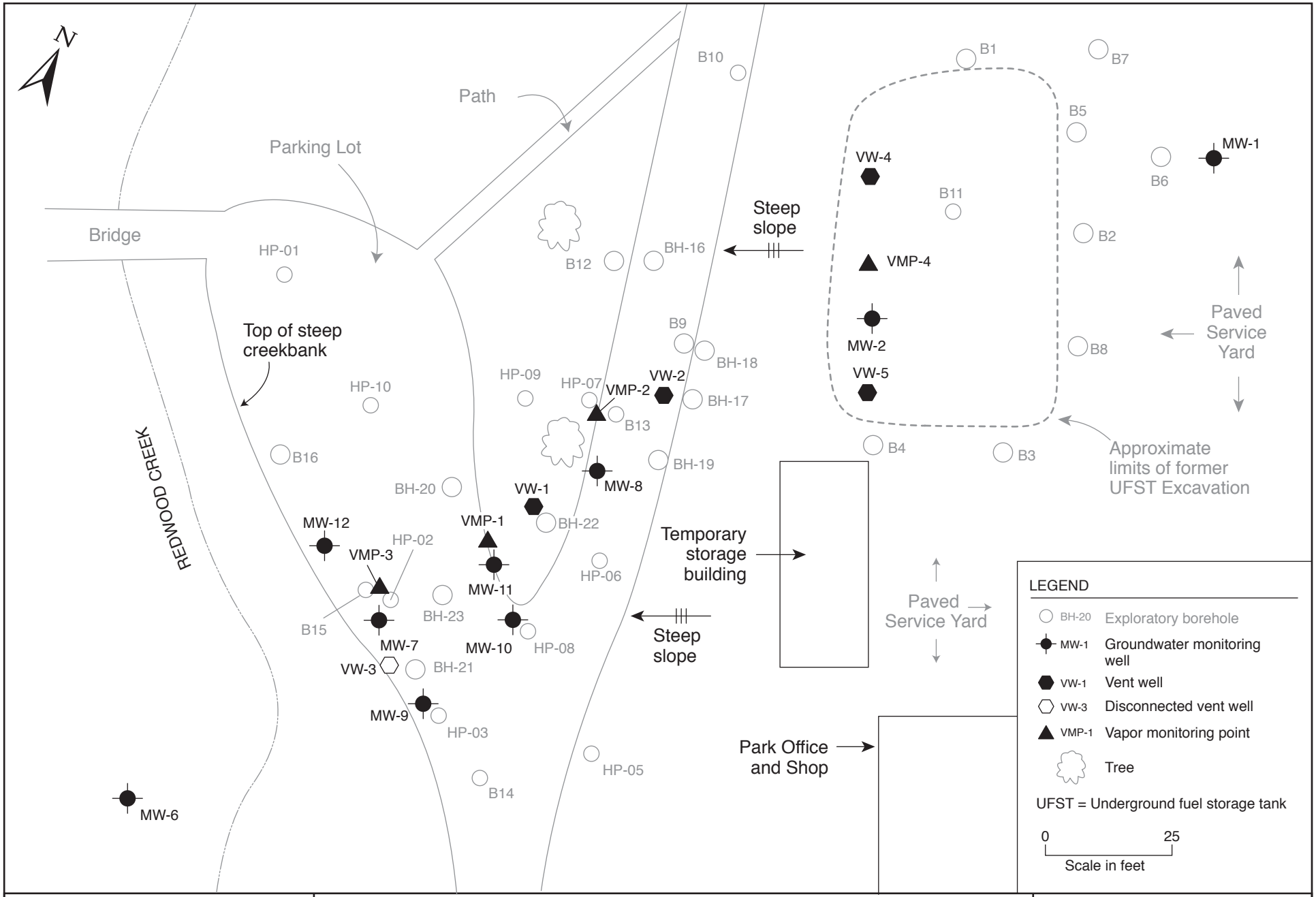
2006-17-01



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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

- 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. Per ACEH's October 31, 2005 directive entitled "Miscellaneous Administrative Topics and Procedures," effective January 31, 2006, paper copies of reports will no longer be provided to ACEH.

2.0 PHYSICAL SETTING

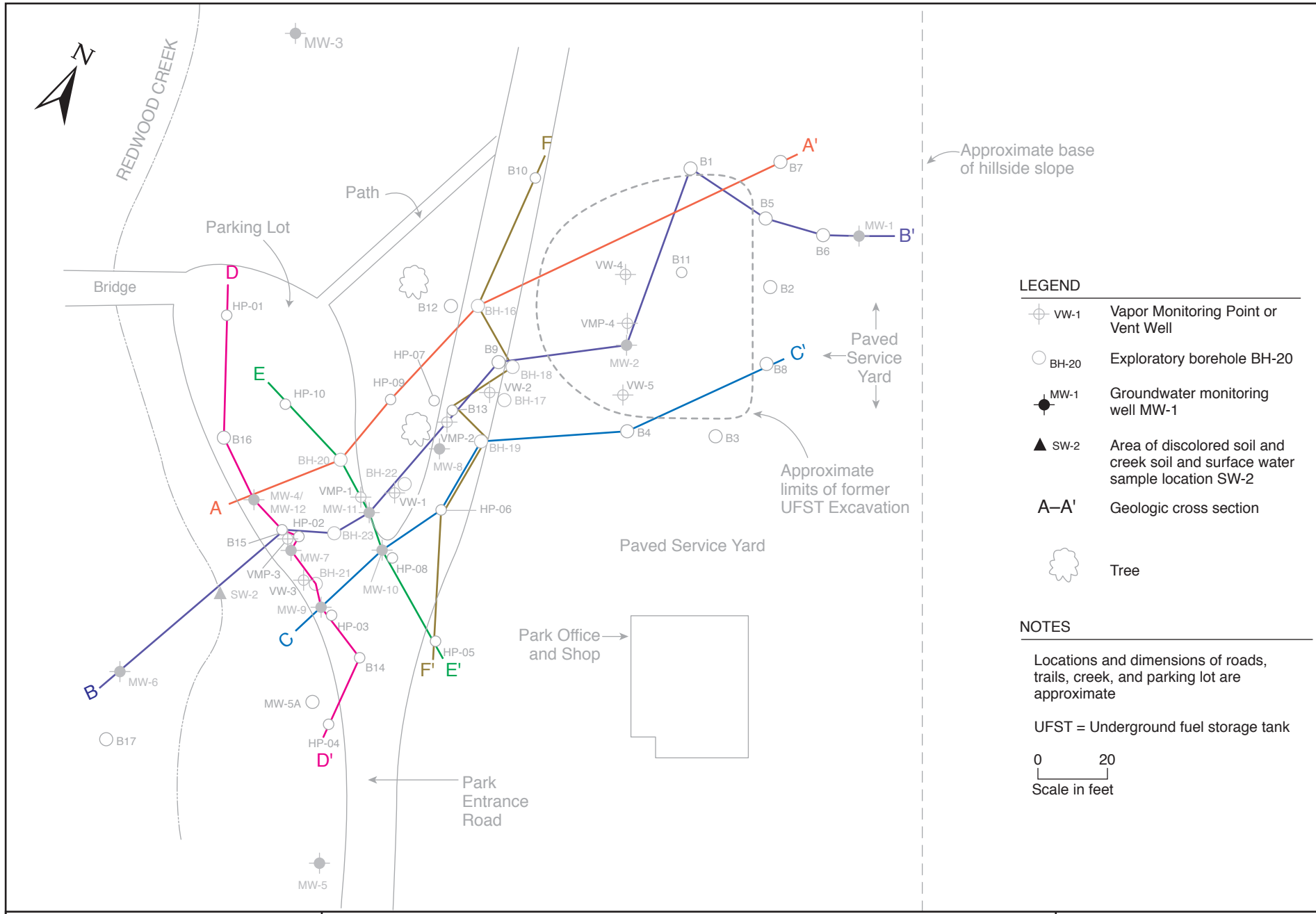
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous SES reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, ACEH requested, via email,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

SITE LITHOLOGY

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

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

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



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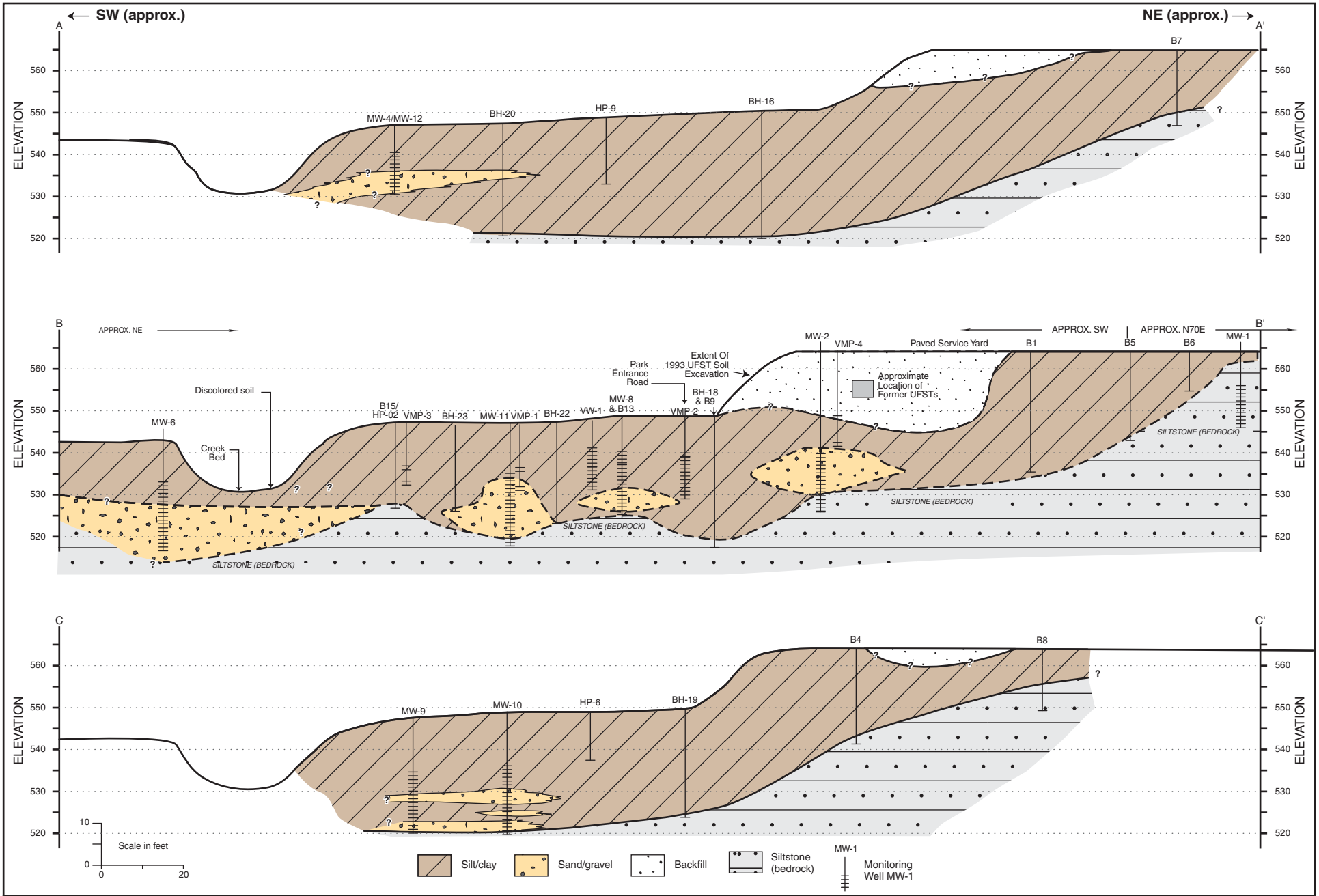
GEOLOGIC CROSS-SECTION LOCATIONS
Redwood Regional Park Service Yard, Oakland, CA

Figure 3

by: MJC | MARCH 2008

2008-02-05



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

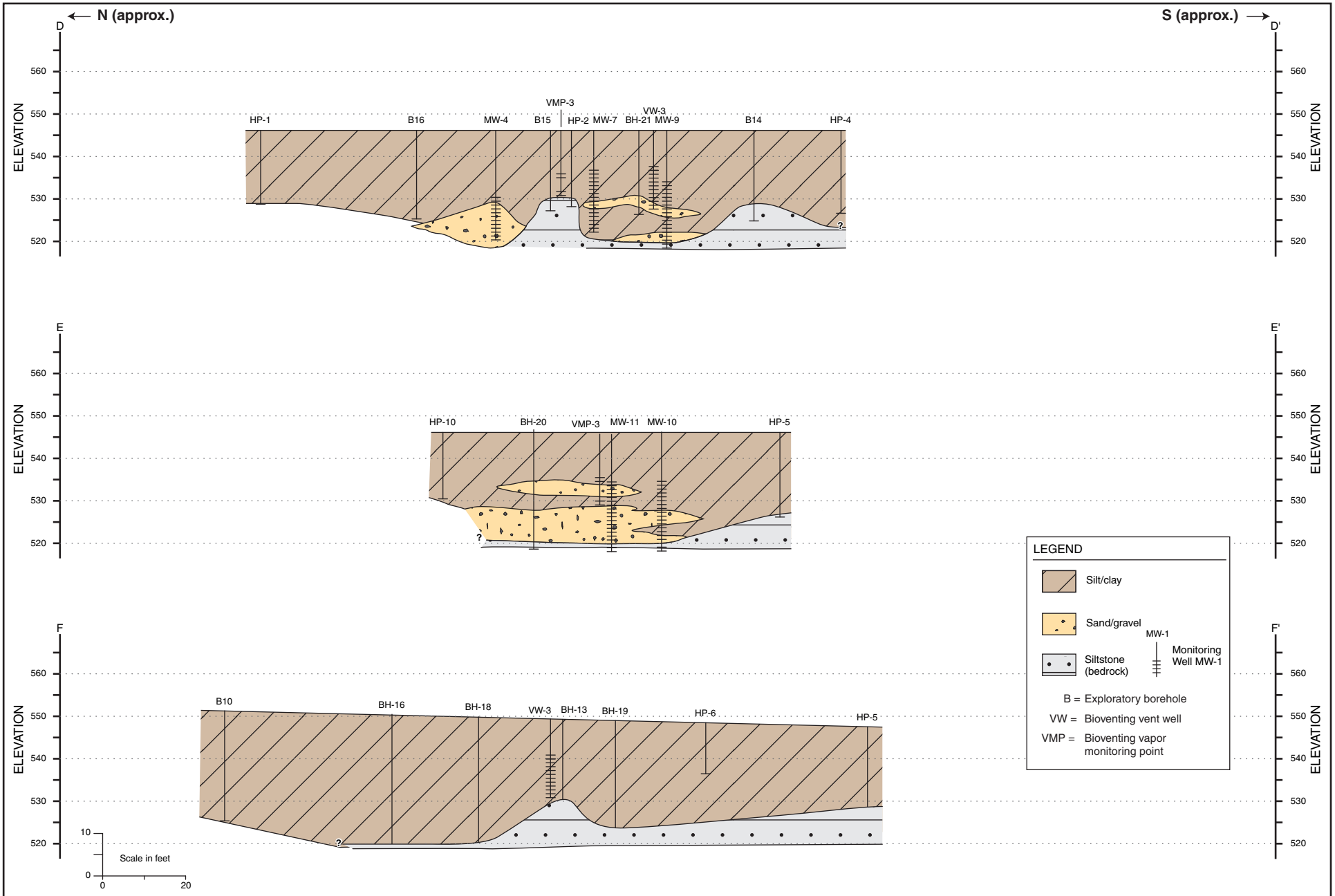
Redwood Regional Park Service Yard, Oakland, CA

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

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.

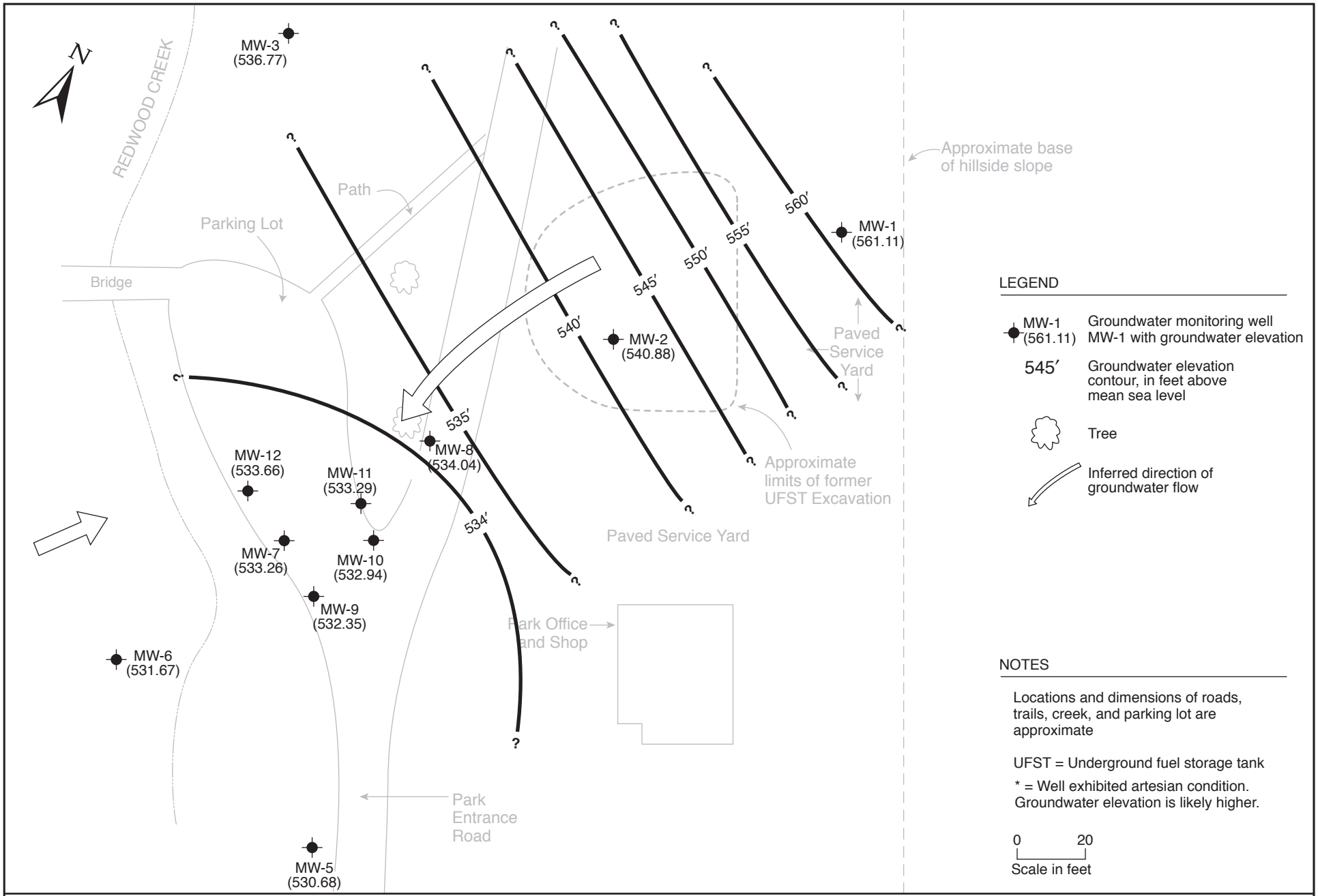
The bedrock surface (and overlying unconsolidated sediment lithology) suggests that the bedrock surface may have at one time undergone channel erosion from a paleostream(s) flowing sub-parallel to present-day Redwood Creek. Because groundwater flows in the unconsolidated sediments that directly overlie 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.

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 0.24 feet per foot.



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GROUNDWATER ELEVATION MAP–December 17, 2008
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | JANUARY 2009

2008-02-12

Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek), the groundwater gradient is approximately 0.05 feet per foot. The average groundwater elevation was 0.46 foot higher than the previous (September 2007) event, with the greatest increase of 0.7 foot measured in MW-2 and a slight decrease of 0.1 foot measured in MW-8. 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 direction.

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

3.0 REGULATORY CONSIDERATIONS

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

GROUNDWATER CONTAMINATION

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

As stipulated in the ESL guidance (Water Board, 2008), the ESLs are not cleanup criteria; rather, they are conservative screening-level criteria designed to be protective of both drinking water resources and aquatic environments in general. The groundwater ESLs are composed of multiple components, including ceiling value, human toxicity, indoor air impacts, and aquatic life protection. Exceedance of ESLs suggests that additional investigation and/or remediation is warranted. While drinking water standards [e.g., Maximum Contaminant Levels (MCLs)] are published for the site contaminants of concern, ACEH has indicated that impacts to nearby Redwood Creek are of primary importance, and that site target cleanup standards should be evaluated primarily in the context of surface water quality criteria.

SURFACE WATER CONTAMINATION

As summarized in Table 2 (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 2008 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q4 2008), conducted in December 2008. A summary of bioventing-related activities is also provided.

Groundwater and surface water analytical results are summarized in Section 5.0. Monitoring and sampling protocols were in accordance with the ACEH-approved SES technical workplan (SES, 1998a). Current Q4 2008 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 17, 2008. 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.

Because it appears that the previously-injected ORC™ has been depleted, continued monitoring of the natural attenuation parameters—dissolved oxygen (DO), oxidation-reduction potential (ORP), nitrate, ferrous iron, and sulfate—is of marginal value until such time as additional corrective actions that would increase oxygen concentrations (e.g., bioventing) are implemented. Therefore, monitoring for natural attenuation parameters was discontinued following the Q3 2004 event.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
December 17, 2008 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (12/17/08)
MW-1	18	7 to17	565.83	561.11
MW-2	36	20 to 35	566.42	540.88
MW-3	42	7 to 41	560.81	536.77
MW-5	26	10 to 25	547.41	530.68
MW-6	26	10 to 25	545.43	531.67
MW-7	24	9 to24	547.56	533.26
MW-8	23	8 to 23	549.13	534.04
MW-9	26	11 to 26	549.28	532.35
MW-10	26	11 to 26	547.22	532.94
MW-11	26	11 to 26	547.75	533.29
MW-12	25	10 to 25	544.67	533.66

Notes:

TOC = top of casing

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

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

GROUNDWATER LEVEL MONITORING AND SAMPLING

Groundwater monitoring well water level measurements, purging, sampling, and field analyses were conducted by Blaine Tech Services under the supervision of SES personnel. Groundwater sampling was conducted in accordance with State of California guidelines for sampling dissolved analytes in groundwater associated with leaking UFSTs (State Water Resources Control Board, 1989), and followed the methods and protocols approved by ACEH in the SES 1998 workplan (SES, 1998a).

As the first task of the monitoring event, static water levels were measured using an electric water level indicator. The wells to be sampled for contaminant analyses were then purged (by bailing and/or pumping) of three wetted casing volumes. Aquifer stability parameters (temperature, pH, electrical conductivity, 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 51 gallons) from the current event was containerized in the onsite aboveground storage tank. Purge water from future events will continue to be accumulated in the onsite tank until it is full, at which time the water will be transported offsite for proper disposal.

CREEK SURFACE WATER SAMPLING

Surface water sampling was conducted by SES personnel on December 17, 2008. Surface water samples were collected from Redwood Creek location SW-2 (immediately downgradient of the former UFST source area and within the area of documented creek bank soil contamination), and at SW-3 (located approximately 500 feet downstream of the SW-2 location). In accordance with a previous SES recommendation approved by ACEH, upstream sample location SW-1 is no longer part of the surface water sampling program.

At the time of sampling, the creek was at a medium stage due to recent rain events; water depths ranged from approximately 0.5 to 1.5 feet, with little flow at the SW-2 location. The SW-3 location was primarily an isolated pond. SES did not observe any orange algae or sheen during this event; however, a mild petroleum odor was detected at the SW-2 location.

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. 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 has seen no change in pressurization, was disconnected. Bioventing activities are discussed in detail in separate technical documents.

MONITORING WELL MW-2 PURGING ACTIVITIES

Starting in Q3-2007, groundwater well MW-2—which had a 14-year history of total extractable hydrocarbons as diesel (TEHd) and total volatile hydrocarbons as gasoline (TVHg) concentrations well below 2,000 micrograms per liter (µg/L)—showed a dramatic increase in concentrations for both TEHd and TVHg. To ascertain whether this spike in contamination was due to an isolated spill event or a previously confined pocket of residual contamination, SES conducted six purge events between the Q3-2007 groundwater monitoring event and the Q3-2008 groundwater monitoring event. Section 5.0 discusses the analytical results.

5.0 FOURTH QUARTER 2008 ANALYTICAL RESULTS

This section presents the field and laboratory results of the current monitoring event. Table 2 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

Fourth quarter 2008 site groundwater contaminant concentrations exceeded the groundwater ESL for TVHg in five of the seven wells sampled (MW-2, MW-7, MW-8, MW-9, and MW-11). TVHg was also detected in MW-12, but below the ESL. Concentrations of TEHd in MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12 exceeded the ESL. TEHd was also detected in MW-10, but was below the ESL. The ESL for benzene was exceeded in MW-7, MW-8, MW-9, MW-10, and MW-11; the ESL for ethylbenzene was exceeded in MW-7, MW-9, and MW-11; and the ESL for total xylenes was exceeded in MW-2 and MW-9. Concentrations of methyl tertiary-butyl ether (MTBE) in groundwater exceeded the ESL in MW-2. All of these concentrations exceeded the ESLs for residential areas where groundwater is a drinking water resource.

The maximum groundwater contaminant concentrations were detected in well MW-2 (located in the upgradient area of the plume in the location of the historical excavation). The northern edge of the plume in the downgradient area of the plume is defined by well MW-12. The southern edge of the plume in the downgradient area is not strictly defined; however, based on historical groundwater data, it appears to be located between well MW-9 and well MW-5. The current event contaminant plume geometry is consistent with historical contaminant distribution. While the center of contaminant mass in groundwater is generally located downgradient of the former source area, historically, contamination also has been observed in the former source area.

Surface water sample SW-3 showed TEHd concentrations above the ESL. TEHd was also detected in SW-2, but below the ESL. No other contaminants analyzed for during this event were detected above the laboratory detection limit in SW-2 or SW-3.

Table 2
Groundwater and Surface Water Sample
Analytical Results – December 17, 2008
Redwood Regional Park Corporation Yard, Oakland, California

Location	Contaminant Concentrations						
	TVHg	**TEHd**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Total Xylenes**	**MTBE**
GROUNDWATER SAMPLES							
MW-2	**9,200**	**2,200**	0.52	<0.5	<0.5	**201**	**12**
MW-7	**3,500**	**3,600**	**5.0**	<0.5	**100**	9.1	<2.0
MW-8	**520**	**400**	**1.5**	<0.5	20	4.4	4.5
MW-9	**4,300**	**2,300**	**45**	<0.5	**330**	**39.1**	<2.0
MW-10	<50	66	**0.89**	<0.5	<0.5	<0.5	2.1
MW-11	**2,800**	**1,600**	**93**	<0.5	**82**	0.69	<2.0
MW-12	93	**170**	<0.5	<0.5	0.76	<0.5	<2.0
Groundwater ESLs [(a)]	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	<50	83	<5.0	<5.0	<5.0	<5.0	<2.0
SW-3	<50	**360**	<5.0	<5.0	<5.0	<5.0	<2.0
Surface Water Screening Levels [(b)]	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)

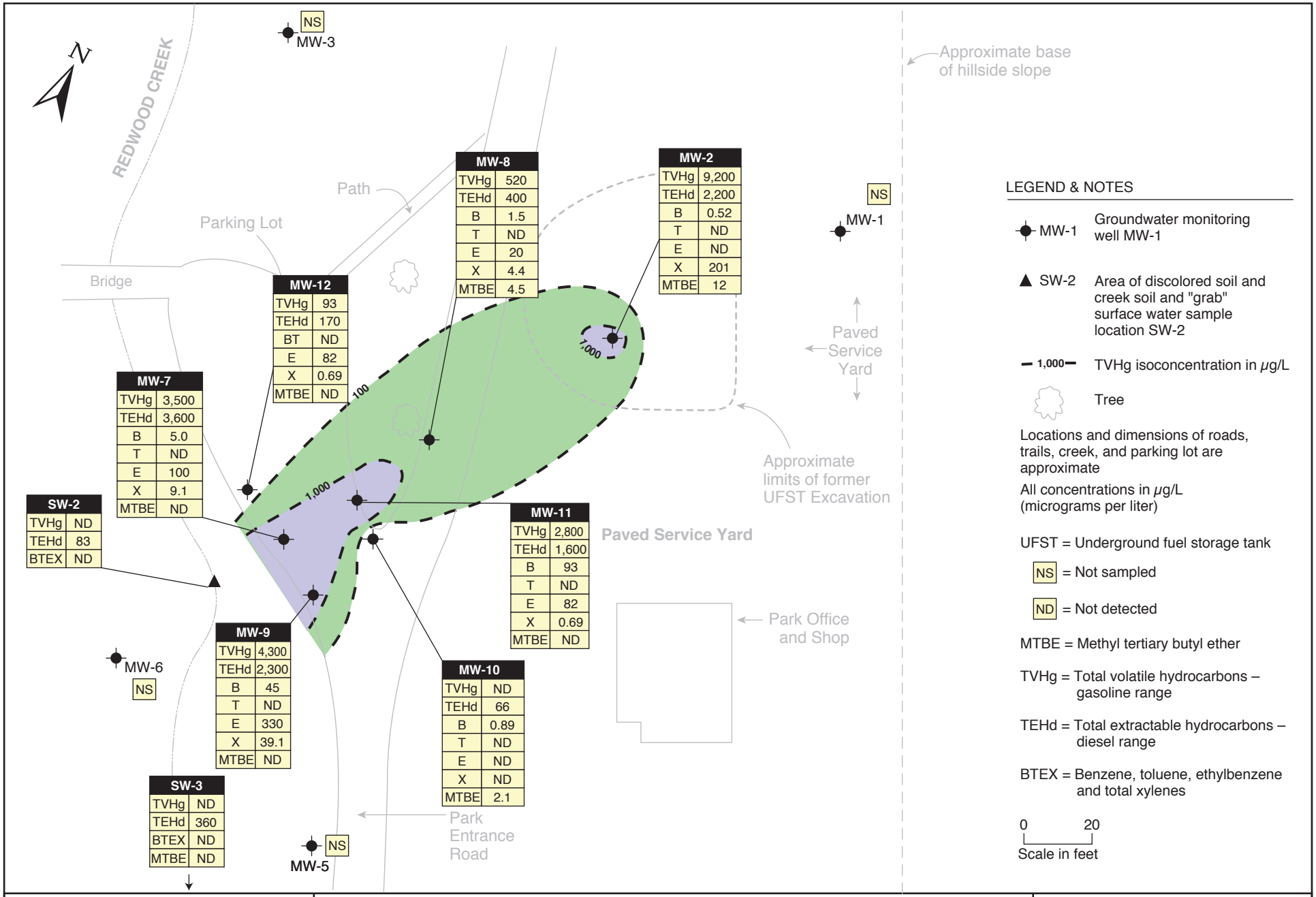
[(b)] Water Board Surface Water Screening Levels for freshwater habitats (Water Board, 2008)

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

All 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.

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).



LEGEND & NOTES

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

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

All concentrations in µg/L (micrograms per liter)

UFST = Underground fuel storage tank

NS = Not sampled

ND = Not detected

MTBE = Methyl tertiary butyl ether

TVHg = Total volatile hydrocarbons – gasoline range

TEHd = Total extractable hydrocarbons – diesel range

BTEX = Benzene, toluene, ethylbenzene and total xylenes

0 20
Scale in feet

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GEOSCIENCE & ENGINEERING CONSULTING

ANALYTICAL RESULTS AND GASOLINE PLUME—DECEMBER 2008

Redwood Regional Park Service Yard, Oakland, CA

Figure 7

by: MJC | JANUARY 2009

2006-17-21

6.0 EVALUATION OF HYDROCHEMICAL TRENDS AND PLUME STABILITY

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

CONTAMINANT SOURCE ASSESSMENT

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

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

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

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

WATER LEVEL TRENDS

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

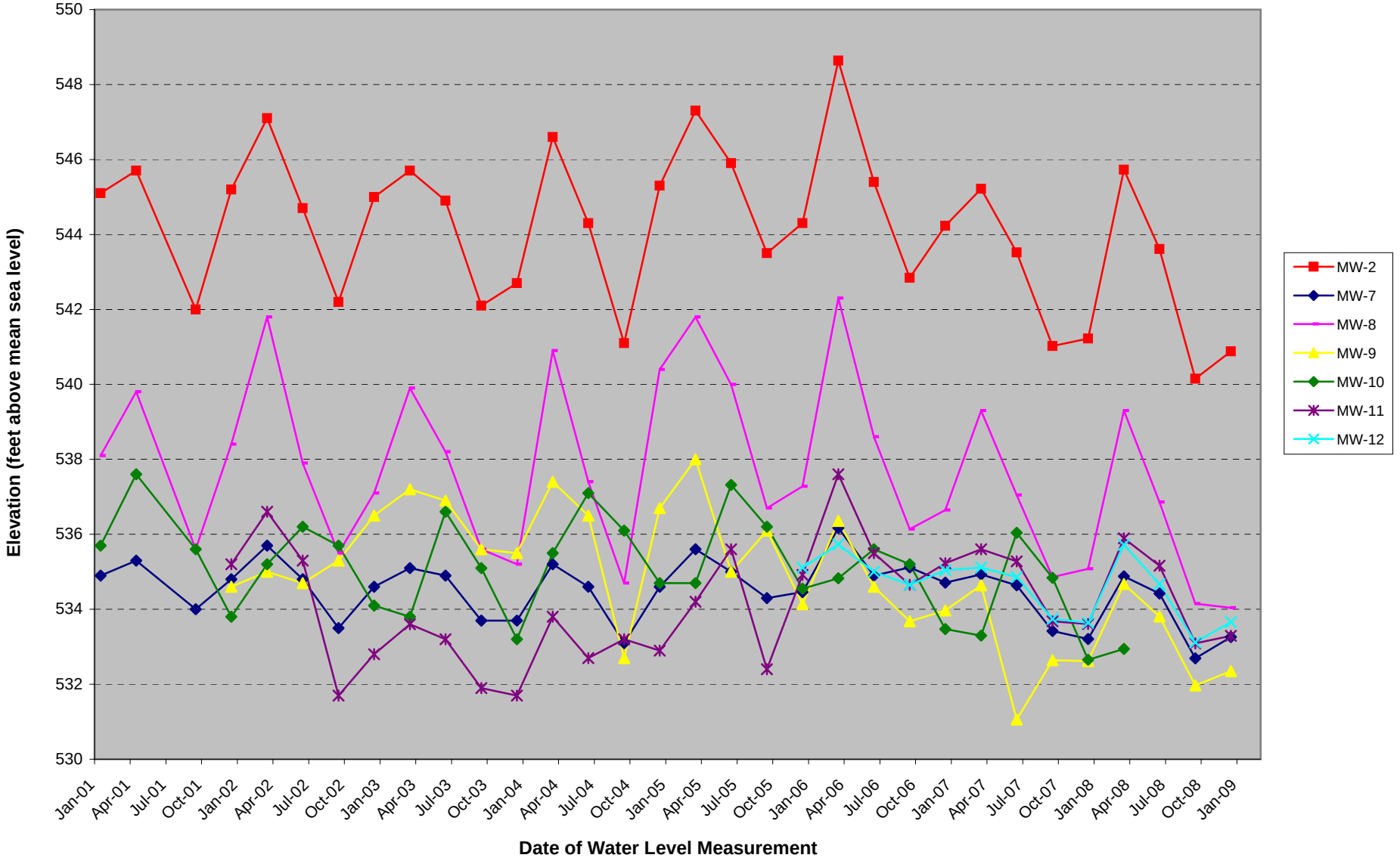
- Groundwater elevations at all site wells currently monitored have shown a seasonal fluctuation in 2008—from an increase of 0.45 feet (from September to December) to a decrease of 2.01 feet (from June to September)—with an average elevation change in individual wells of 0.9 feet.
- In all wells, lowest elevations have generally been observed during the end of the dry season and 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.
- Historical groundwater gradient is consistently approximately 0.1 feet/foot in the area of the contaminant plume.

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 such as ORC™ injection and bioventing). These hydrochemical trends can result in changes in the lateral extent and magnitude of a dissolved contaminant plume.

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

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



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

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

Historically, the contaminant plume appeared to have disconnected from the source such that historical downgradient concentrations were higher than upgradient (near the source) concentrations. However, a significant increase in gasoline and diesel concentrations in source area well MW-2 was observed beginning in approximately September 2007. Individual purging events at this well confirmed that a previously confined pocket of residual contamination had been released, causing a dramatic spike in concentrations. A comparison of the concentrations in the mid plume wells shows slight increases during the 2008 year; however, concentrations are still below their historical maximum. The lower plume well contaminant concentrations have varied, showing a reduction in the northwestern wells represented by MW-12 and MW-7, but a significant increase in the southeastern well MW-9 over the past year.

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

Upgradient Hydrochemical Trends

MW-2. This well, installed in the area of the former UFSTs, historically has shown low to trace (sometimes non-detectable) contaminant levels. However, since September 2007, well MW-2 concentrations increased dramatically, suggesting desorption from the original upgradient source area as a result of the drought-induced drop in water levels. The increase in all petroleum

hydrocarbons at MW-2 initially raised concern that the cause was local (a significant reduction occurred after pumping 100 gallons or less). In 2008, SES initialized a program of more frequent monitoring and purging at MW-2 to mitigate against higher concentrations migrating downgradient toward Redwood Creek. The program showed limited success, with concentrations declining after limited purging, but rapidly increasing between monitoring events. Table 3 presents the data from both purging and quarterly monitoring events.

Table 3
MW-2 Purge Event Analytical Results
Redwood Regional Park Corporation Yard, Oakland, California

Date	Type of Event [(a)]	Total Purged (gallons)	TVHg	TEHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
1/18/08	Purge	80	480	200	1.1	3.2	5.5	68	11
3/14/08	Quarterly	35	20,000	24,000	21	39	300	2,620	13
4/3/08	Purge	80	800	640	2.6	2.1	13	155	13
5/22/08	Purge	10	7,100	3,900	14	8.8	140	710	11
6/13/08	Quarterly	16	5,700	1,000	9.4	5.2	80	550	11
7/7/08	Pre-purge	0	6,400	2,200	13	5.1	140	570	2.9
7/7/08	Purge	66	390	55	1.3	0.77	4.6	44.4	9
8/14/08	Pre-purge	0	28,000	7,100	12	19	260	2,740	*<20*
8/14/08	Purge	10	8,700	2,700	5.7	7.4	130	900.0	3.5
9/18/08	Quarterly	9	40,000	9,100	1.6	*<0.5*	110	910.0	9.5
12/16/08	Quarterly	18	9,200	2,200	0.52	*<0.5*	*<0.5*	201.0	12

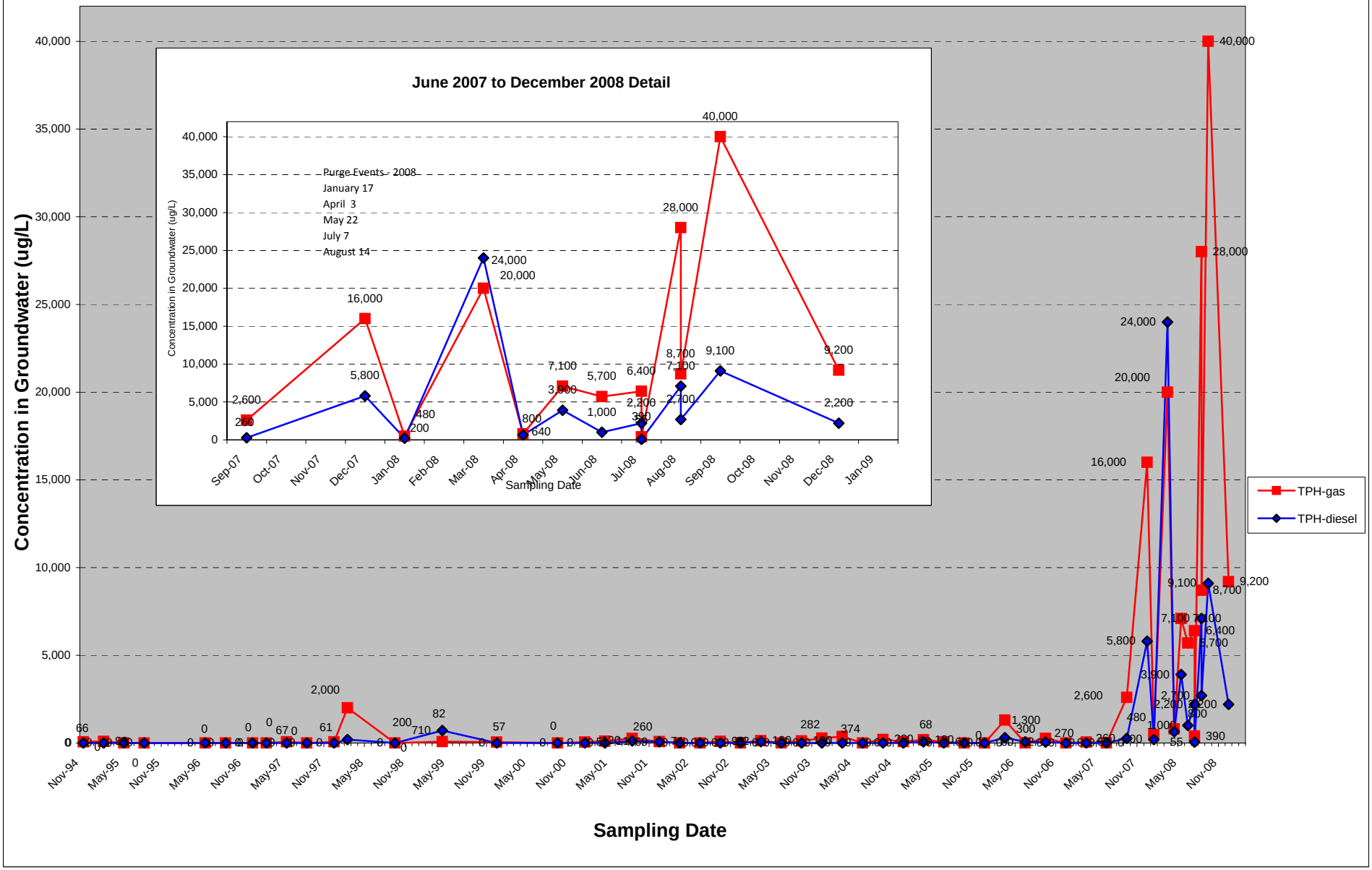
Notes:

[(a)] Samples were taken on July 7 and August 14, 2008. "Pre-purge" = samples taken before purge; "Purge" = samples taken after purging.

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

Figure 9 shows hydrochemical trends for gasoline and diesel in MW-2. A new maximum TPHg concentration of 40,000 µg/L was reported in MW-2 in September 2008. The historical TPHg maximum between February 1998 and September 2007 was 2,000 µg/L. Monitoring at well MW-2 has been ongoing since 1994; before 2007, the TPHg concentrations averaged less than 300 µg/L per monitoring event. This increase in concentration likely reflects some unique change or combination of changes. The most salient change since 1994 is the relatively dry conditions of the 2006-2008 rainy seasons.

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



Section 7 outlines additional remedial actions proposed for 2009 to address the high concentrations of petroleum hydrocarbons reported at well MW-2 in 2008. The proposed remedial approach is to inject oxygen reducing compound (ORC™) into the upgradient source area near MW-2.

MW-8. This well, located approximately 60 feet downgradient of MW-2, showed relatively average TPHg concentrations during 2008; however, a historical maximum of 13,000 µg/L was observed during the March 2008 sampling event. This demonstrates that significant contaminant mass entrained in the soil continues to "feed" the dissolved concentration, as demonstrated by periods of recharge represented during the March 2008 sampling event. As contaminant concentrations remain high in upgradient well MW-2, contaminant concentrations in this well will most likely rise as the plume migrates downgradient.

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

Mid-Plume Trends

MW-11. This well is located along the plume centerline, approximately midway between upgradient well MW-8 and downgradient well MW-7. Figure 11 shows hydrochemical trends for gasoline and diesel for 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. Both diesel and gasoline concentrations in this well have shown a generally increasing trend over the past 2 years. However, current (December 2008) TPHg and TPHd concentrations in MW-11 are below their historical maximum.

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 for 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 maxima of 5,900 µg/L in March 2008. Figure 13 shows hydrochemical trends for gasoline and diesel for MW-9. This well exhibited a surge in both gasoline and diesel concentrations between August and December 2006, but the concentrations began dropping in

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

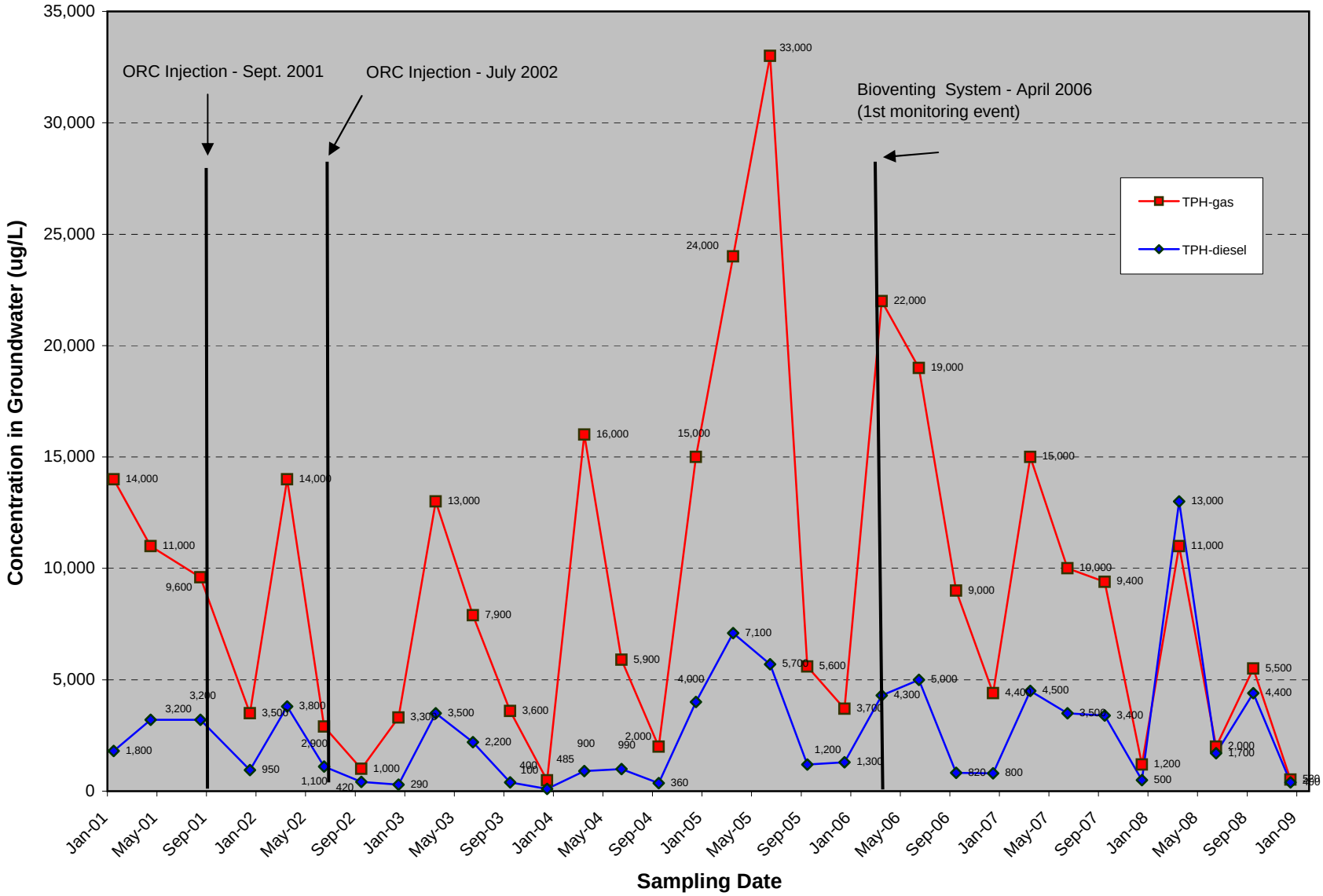


Figure 11: Gasoline and Diesel Hydrochemical Trends: Well MW-11
Redwood Regional Park Service Yard, Oakland, California

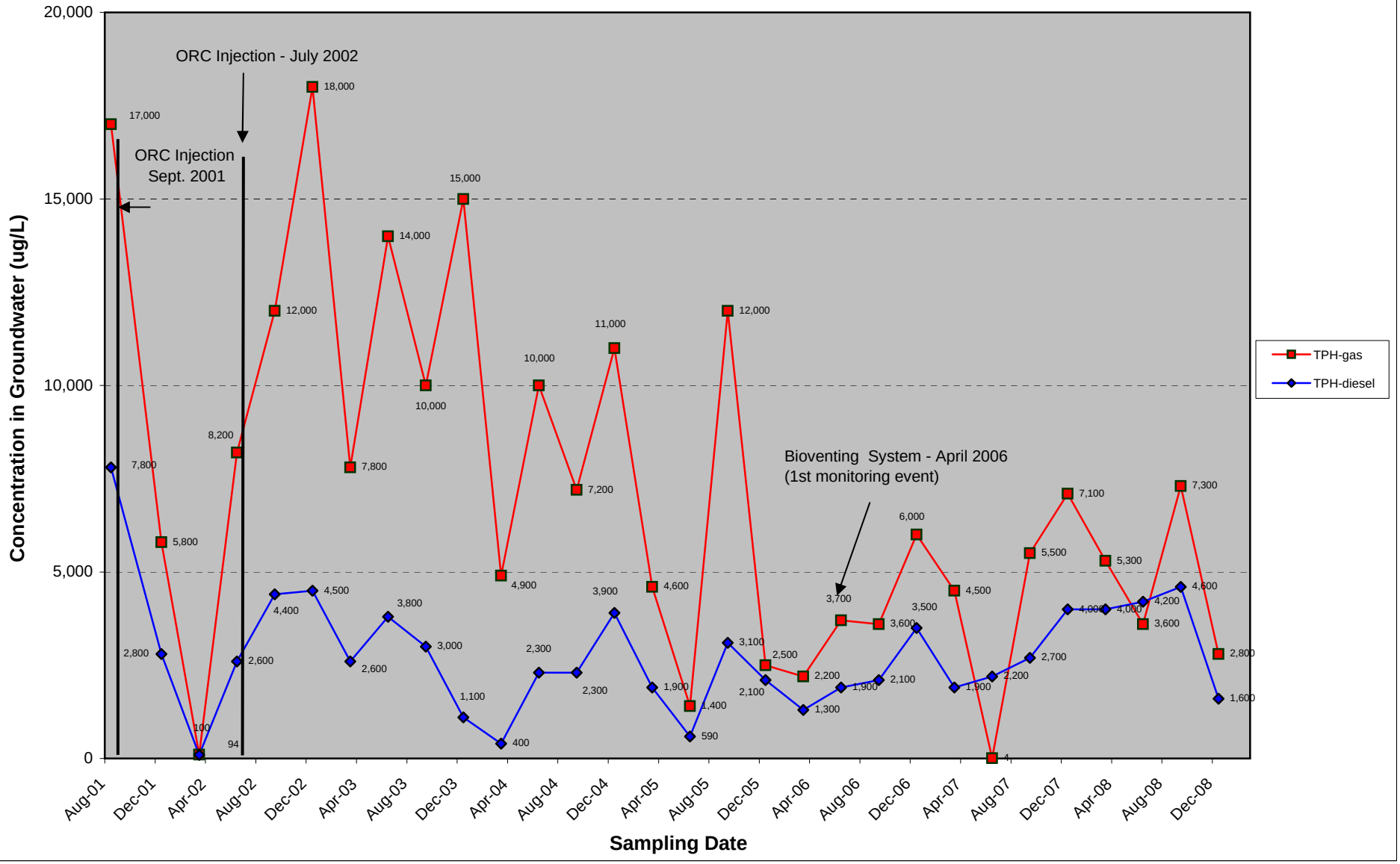


Figure 12: Gasoline and Diesel Hydrochemical Trends: Well MW-7
Redwood Regional Park Service Yard, Oakland, California

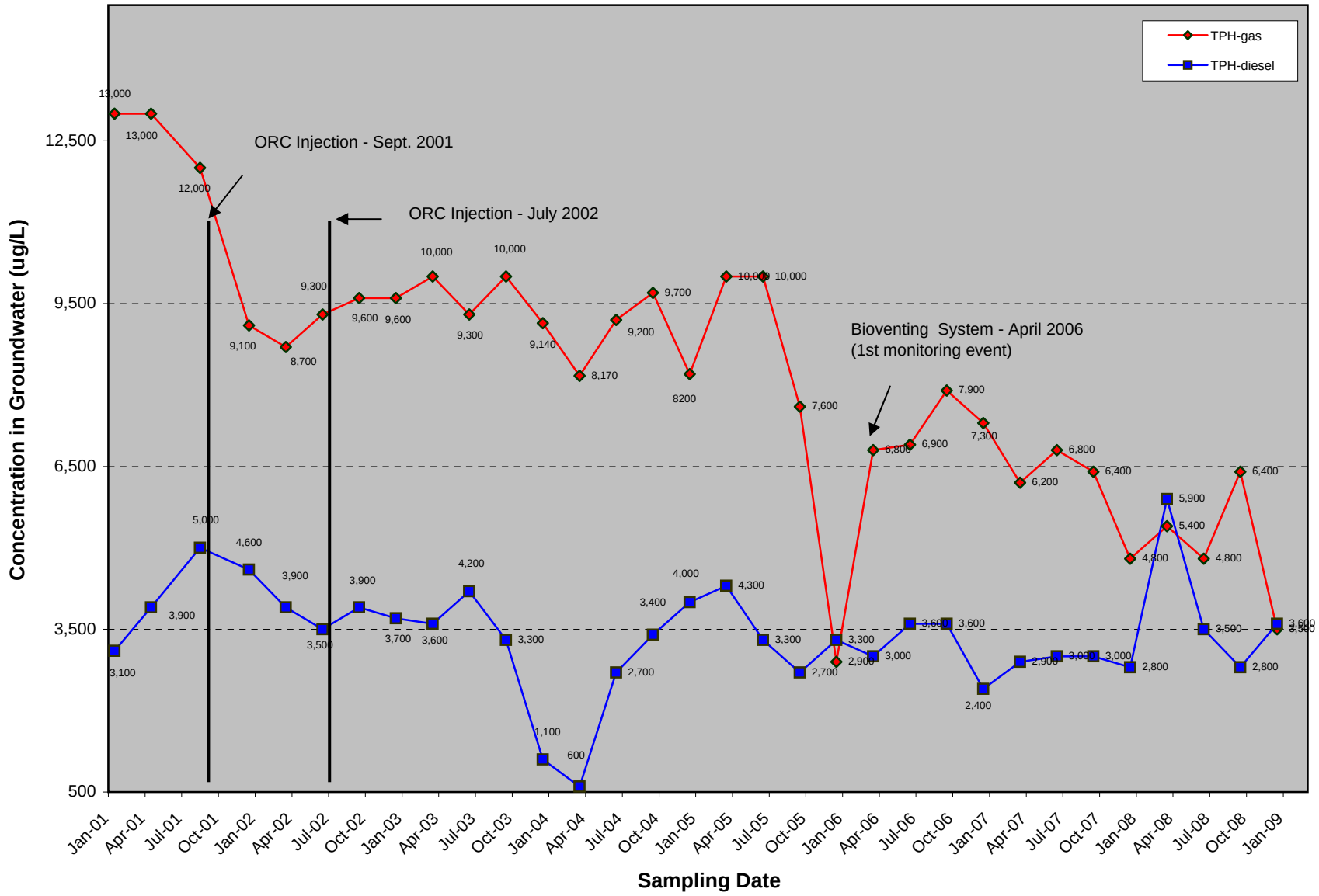
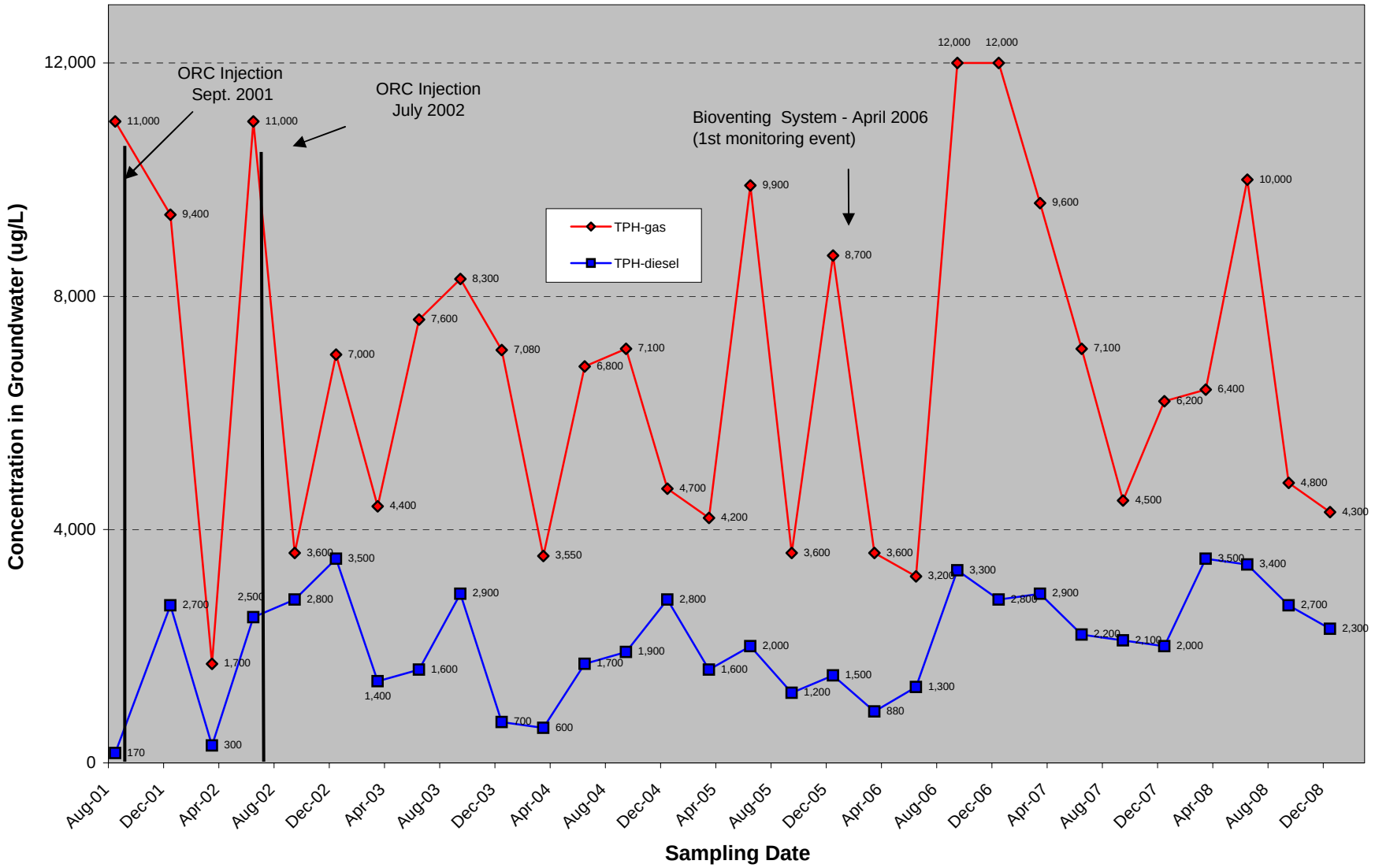


Figure 13: TPH-gasoline and TPH-diesel Hydrochemical Trends: Well MW-9
Redwood Regional Park Service Yard, Oakland, California



Stellar Environmental Solutions, Inc.

December 2006 and continued to drop until approximately August 2007. However a new surge was observed between August 2007 and June 2008, which has again begun dropping as observed during the latest event. This surge, however, did not produce a new historic maximum, and was less than the surge observed between August and December 2006.

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 for this well. Concentrations of both gasoline and diesel showed a sharp reduction between the August and December 2001 events (following the first ORC™ injection phase). Since that time, gasoline had been detected at or below approximately 160 µg/L, and diesel has been detected above 100 µg/L only once. However, a slight surge was observed in the June 2008 event, when both gasoline (at 230 µg/L) and diesel (at 320 µg/L) were at their highest since August 2001.

MW-4. 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 (which was located in an adjacent position). The initial sampling of MW-12 shows elevated petroleum concentrations up to 1,300 µg/L, but those concentrations have since generally been on the decline. Figure 15 shows hydrochemical trends for gasoline and diesel for this well.

As of the most recent groundwater monitoring event, over 5 years have passed since the second phase of ORC™ injection. This is well beyond the useful life of injected ORC™ (generally 6 to 9 months), and the data reflect that the previously-injected ORC™ is no longer substantially contributing to contamination reduction.

PLUME GEOMETRY AND MIGRATION INDICATIONS

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

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

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

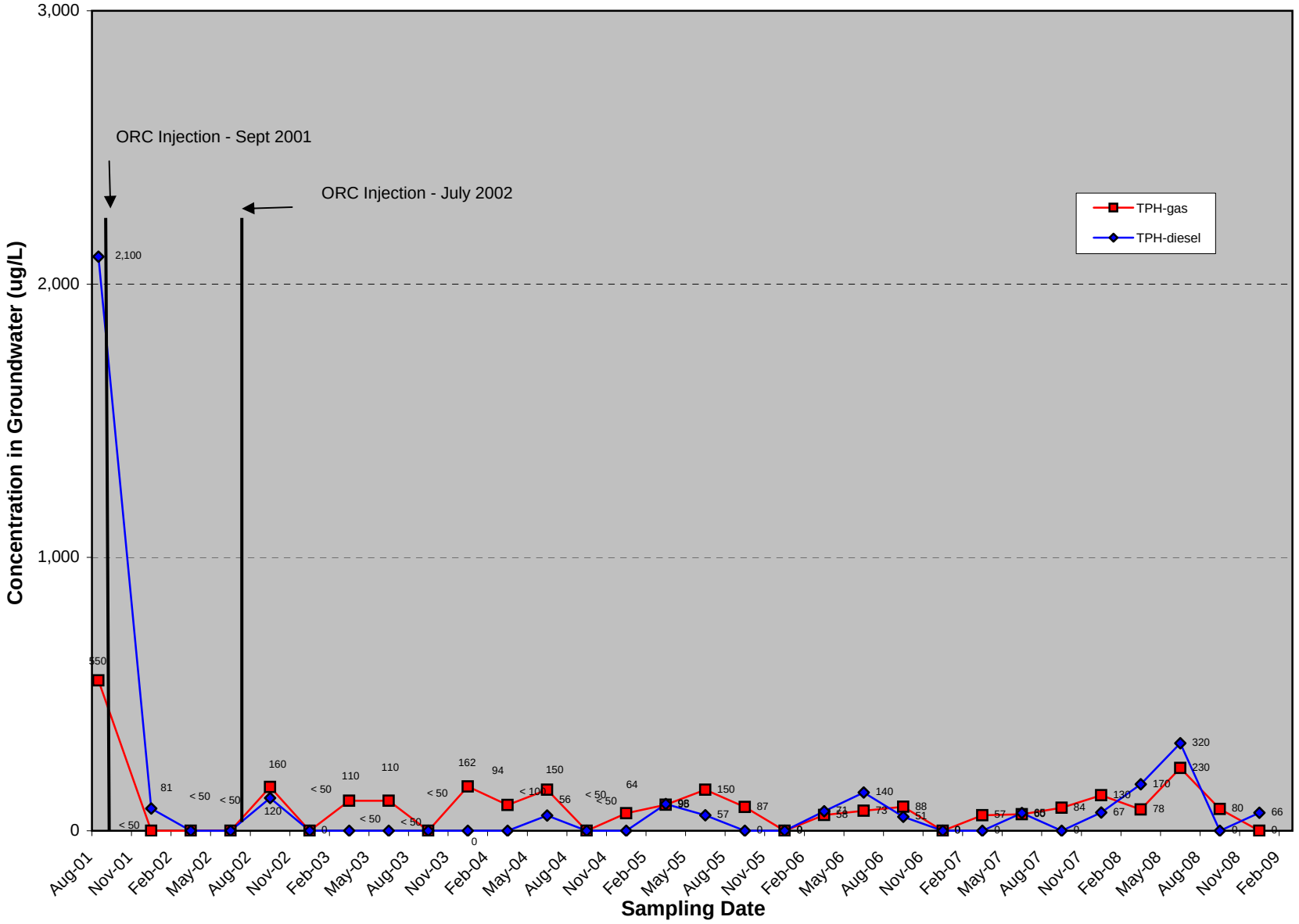
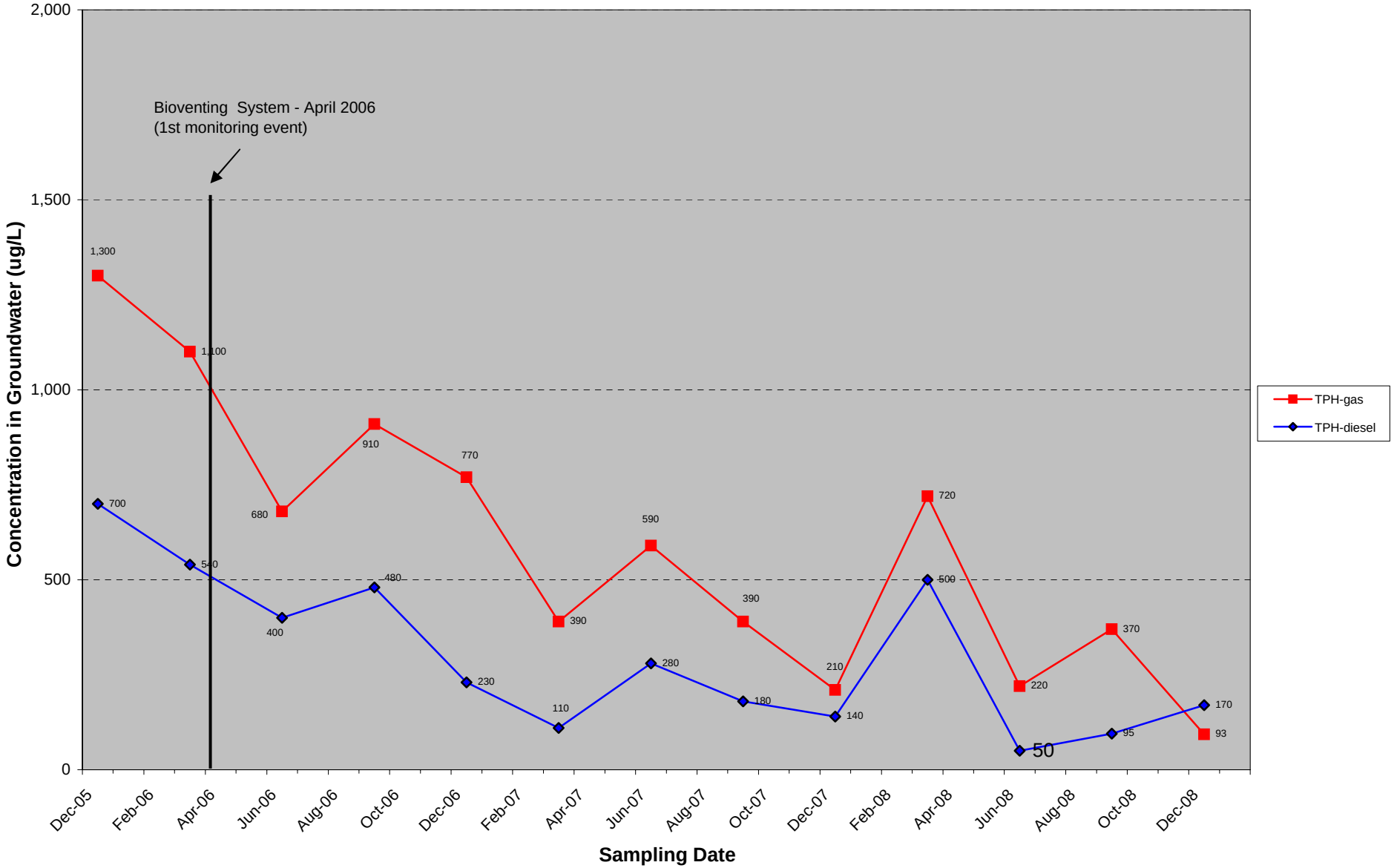


Figure 15: Gasoline and Diesel Hydrochemical Trends: Well MW-12
Redwood Regional Park Service Yard, Oakland, California



Over the past year, maximum contaminant concentrations have been exceeded in several of the wells. This suggests that the drought-like conditions experienced during 2006-2007, and even more so in 2007-2008, have allowed the desorption of previously confined pockets of residual contamination.

CLOSURE CRITERIA ASSESSMENT AND PROPOSED ACTIONS

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

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

7.0 SUMMARY, CONCLUSIONS AND PROPOSED ACTIONS

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

SUMMARY AND CONCLUSIONS

- Groundwater sampling has been conducted on an approximately quarterly basis since November 1994 (48 events in the initial site wells). A total of 11 site wells are available for monitoring; 7 of the available wells are currently 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 and TPHd in surface water.
- The primary environmental risk is discharge of contaminated groundwater to the adjacent Redwood Creek. A stream bioassessment concluded that there were no direct impacts to the surface water benthic community; however, groundwater contamination is sporadically detected in surface water samples, and there is historical visual evidence of plume discharge at the creek/groundwater interface. Surface water samples have sporadically exceeded surface water ESL criteria for gasoline, diesel, and benzene, and generally only under low creek flow conditions. An in-stream bioassessment evaluation conducted in 1999 to 2000 determined that there were no impacts to the benthic macroinvertebrate community.
- The existing well layout adequately constrains the lateral extent of groundwater contamination, and the vertical limit is very likely the top of the near-surface (25 to 28 feet) siltstone bedrock. The saturated interval extends approximately 12 to 15 feet from top of bedrock through the capillary fringe. Groundwater elevations fluctuate seasonally, creating a capillary fringe that varies seasonally in thickness.
- The plume of groundwater contamination above screening levels appears to be approximately 130 feet long and approximately 50 feet wide. The zone of greatest contamination (greater than 10,000 µg/L of TVHg) is currently centered around well MW-2, which has been historically below the detection limit.
- The contaminant plume is neither stable nor reducing, as groundwater contaminant concentrations fluctuate seasonally, and the center of mass of the contaminant plume (represented by maximum concentrations) has alternated between the upgradient, mid-

plume, and downgradient wells in recent history. The increases in MW-2 indicate that further increases will be observed downgradient, as the plume moves towards the downgradient direction.

- A two-phase ORC™ injection corrective action program was implemented at the site. In September 2001, approximately 3,000 pounds of ORC™ was injected into 44 boreholes over a 4,400-square foot area of the maximum groundwater contamination. In June 2002, approximately 1,000 pounds of ORC™ was injected in 30 boreholes over a smaller area that showed residual high contaminant concentrations following the initial injection phase. The ORC™ was injected over the full saturated interval (including the capillary fringe). The findings indicate that the corrective action was partially effective in reducing the lateral extent of the groundwater contaminant plume; however, initial contaminant reductions were followed by rebounding to pre-injection concentrations. The data suggest that site conditions support aerobic biodegradation when not limited by oxygen concentrations, notably on the plume margins and upgradient former source area, but not along the centerline of the contaminant plume.
- 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 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, drought like conditions in the 2006-2008 years should have shown a relative increase in the effectiveness of the system. It appears as if tight soil morphology is preventing air saturation in several of the vent wells, and the system is therefore performing at a less-than-optimal level.

PROPOSED ACTIONS

The EBRPD proposes to implement the following actions in 2009 to address the site conditions that emerged from the analyses of the 2008 site data and regulatory concerns:

- Conduct an ORC™ injection in the area of MW-2 to address the persistently high hydrocarbon concentrations. SES will communicate with ACEH to inform them of the proposed ORC™ injection and the locations of the proposed injection points. The ORC™ technology involves pressure injection of water-hydrated slurry using direct-push technology so that it infiltrates the formation. The ORC™ is injected over the saturated interval (5 to 10 feet bgs in this case) including the capillary fringe just above the saturated interval. The magnesium hydroxide (active ingredient of the ORC™) then slowly diffuses into groundwater, releasing oxygen that facilitates the aerobic degradation of the hydrocarbons. The injection casing will be pushed to the base of the saturated interval (total depth approximately 20 to 25 feet bgs). The ORC slurry will then be injected from the bottom of the borehole up, as the casing is withdrawn, at a rate that allows sufficient injection pressure to ensure the ORC™ is infiltrating the formation. The ORC™ injection program will be conducted in one phase. We estimate nine (9) direct-push boreholes to be drilled in a grid pattern separated by about 10-15 feet. The borehole arrays will be within the approximate 300 square foot area at the top of the break in the slope where the original UFST excavation was located. Monitoring well MW-2 is also located in this area, referred to as the "source" area. The exact locations of the boreholes will be determined in the field to make sure there are no site constraints, and then a figure with the locations will be submitted to the client and ACEH.

  All injection points will be advanced to a depth of approximately 20 to 25 feet bgs, with ORC™ injected across the approximately 5 to 10 foot-thick saturated zone and associated capillary fringe. The upper 10 feet of each borehole will be tremie-grouted with a hydrated slurry of bentonite powder and Portland cement to the ground surface. Using the site data, the manufacturer recommends pressure injecting a hydrated slurry containing approximately 6 pounds of ORC™ per linear foot of borehole.

  At least 4 samplings of MW-2 spaced between regular quarterly sampling events will be conducted to monitor the ORC® injection remedy effect at lowering hydrocarbon concentrations.

- Continue the quarterly program of creek and groundwater sampling and reporting.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Operate the bioventing system as a corrective action to move the site toward closure, and report those results in bioventing-specific technical reports.

- Conduct another in-situ respiration test to access oxygenation and microbial activity in the contaminated zone.
- Continue to evaluate analytical results (and bioventing contaminant removal data) in the context of hydrochemical trends, impacts of groundwater contamination on Redwood Creek, and effectiveness of the corrective action.
- Continue to make required Electronic Data Format uploads to the State of California GeoTracker database, and upload an electronic copy of technical reports to ACEH's ftp system.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.0 LIMITATIONS

This report has been prepared for the exclusive use of the East Bay Regional Park District, its authorized representatives, and the regulatory agencies. No reliance on this report shall be made by anyone other than those for whom it was prepared.

The findings and conclusions presented in this report are based on the review of previous investigators' findings at the site, as well as onsite activities conducted by SES since September 1998. This report has been prepared in accordance with generally accepted methodologies and standards of practice. The SES personnel who performed this work are qualified to perform such investigations and have accurately reported the information available, but cannot attest to the validity of that information. No warranty, expressed or implied, is made as to the findings, conclusions, and recommendations included in the report.

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

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

HISTORICAL GROUNDWATER ELEVATIONS IN MONITORING WELLS

REDWOOD REGIONAL PARK SERVICE YARD

7867 REDWOOD ROAD, OAKLAND, CALIFORNIA

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	545.6						
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

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 12-17-08
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)	Analysis Required: BTEX/MTBE (8021)	Analysis Required: TEH-D (8015)	Remarks
MW-2		12-17-08	1215	W	1L Amber/3 VOAs	Y	HCl		4	X	X	X	
MW-10			1012						4	X	X	X	
MW-7			1040						4	X	X	X	
MW-12			1102						4	X	X	X	
MW-9			1159						4	X	X	X	
MW-8			1248						4	X	X	X	
MW-11			1316						4	X	X	X	

Relinquished by:
Signature _____
Printed Mardodi
Company ~~Stellar Environmental~~ BLAINE TECH

Date 12-17-08
Time 1415

Received by:
Signature _____
Printed Pat Gonzalez
Company Curtis & Tompkins

Date 12/17/08
Time 1415

Relinquished by:
Signature _____
Printed _____
Company _____

Date _____
Time _____

Received by:
Signature _____
Printed _____
Company _____

Date _____
Time _____

Relinquished by:
Signature _____
Printed _____
Company _____

Date _____
Time _____

Received by:
Signature _____
Printed _____
Company _____

Date _____
Time _____

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.
GLOBAL ID # T0600100489

2000-00-01

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)* Teal Glass

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVHg MBTEX	TPHd	Remarks
SW-1	SW1	12-17-08	1015	W	L, VOA	Y	(a)	N	4	X	X	
SW-2	SW2	↓	1045	W	L, VOA	Y	↓	N	4	X	X	

Analysis Required

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Teal Glass	12-17-08	Signature	12.17.08	Signature	12.17.08	Signature Pat Gonzalez	12/17/08
Printed Teal Glass	Time 1110	Printed Max Todi	Time 1110	Printed Max Todi	Time 1415	Printed Pat Gonzalez	Time 1415
Company Stellar Environmental		Company BTS		Company BTS		Company Curtis & Tompkins	

Turnaround Time: 5 Day TAT - Standard

Comments: Samples on ice
(a) VOA w HCL

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

2000-00-01

WELLHEAD INSPECTION CHECKLIST

Date 12·17·08 Client Stellar

Site Address Redwoods Reg. Park

Job Number 081217MT1 Technician M. Todi

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	→	2/3 Bolts missing						
MW-9	X							
MW-10	X							
MW-11	X							
MW-12	X							

NOTES:

WELL GAUGING DATA

Project # 080217-MT1 Date 12-17-08 Client Stellar

Site Redwoods Reg. Park OAKLAND, CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-1	840	4					4.72			
MW-2	845	4	0				25.54			
MW-3	851	4					24.04			
MW-5	857	4					16.73			
MW-6	933	4					13.76			
MW-7	917	2					14.30			
MW-8	920	2					15.09			
MW-9	922	2					16.93			
MW-10	902	2					14.28			
MW-11	913	2					14.46			
MW-12	907	2					11.01			

WELL MONITORING DATA SHEET

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD): 38.66	Depth to Water (DTW): 25.54
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

1 Case Volume	Specified Volumes	Calculated Volume
8.5 (Gals.) X	3	= 25.5 Gals.

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
941	55.4	7.39	865.3	23.1	8.5	odor
946	57.8	6.98	860.6	201	17	
Dewatered @ 18gls						
1215	56.7	7.19	851.9	196	—	Odor

Did well dewater? (Yes) No Gallons actually evacuated: 18

Sampling Date: 12-17-08 Sampling Time: 1215 Depth to Water:

Sample I.D.: MW-2 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:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

L MONITORING DATA SH

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 25.33	Depth to Water (DTW): 14.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

1.8 (Gals.) X	3	=	5.4 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	radius^2 * 0.163

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1026	54.5	7.01	812.8	342	1.8	
1030	55.8	6.88	789.1	376	3.6	
1034	56.2	6.92	784.4	521	5.4	

Did well dewater? Yes (No) Gallons actually evacuated: 5.4

Sampling Date: 12-17-08 Sampling Time: 1040 Depth to Water:

Sample I.D.: MW-7 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:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

.L MONITORING DATA SH

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 22.23	Depth to Water (DTW): 15.09
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

1 Case Volume	Specified Volumes	Calculated Volume
1.1 (Gals.) X	3 =	3.3 Gals.

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
1238	59.0	7.05	787.9	303	1.1	
1240	63.3	7.04	767.6	689	2.2	
1242	63.9	7.03	772.8	786	3.3	

Did well dewater? Yes (No) Gallons actually evacuated: 3.3

Sampling Date: 12-17-08 Sampling Time: 1248 Depth to Water:

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

WELL MONITORING DATA SHEET

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 30.27	Depth to Water (DTW): 16.93
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

2.1	(Gals.) X	3	=	6.3	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	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1136	55.7	6.68	918.8	641	2.1	
1141	56.3	6.77	944.5	911	4.2	
1148	56.9	6.85	962.4	71000	6.3	

Did well dewater? Yes (No) Gallons actually evacuated: 6.3

Sampling Date: 12-17-08 Sampling Time: 1159 Depth to Water:

Sample I.D.: MW-9 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:	mg/L	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV	

L MONITORING DATA SH

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 24.34	Depth to Water (DTW): 14.28
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

1.6 (Gals.) X 3 = 4.8 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
1001	56.6	7.57	776.4	247	1.6	
1005	58.1	7.45	779.8	259	3.2	
1008	58.2	7.36	807.2	449	4.8	

Did well dewater? Yes (No) Gallons actually evacuated: 4.8

Sampling Date: 12-17-08 Sampling Time: 1012 Depth to Water:

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

.L MONITORING DATA SH

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 28.72	Depth to Water (DTW): 14.46
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

2.3	(Gals.) X	3	=	6.9	Gals.
1 Case Volume		Specified Volumes		Calculated Volume	

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

Time	Temp (°F or (°C))	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1259	58.6	7.03	758.5	625	2.3	
1303	59.3	6.89	783.3	575	4.6	
1307	59.4	6.86	780.2	504	6.9	

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

Sampling Date: 12-17-08 Sampling Time: 1316 Depth to Water:

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

V .L MONITORING DATA SH

Project #: 081217-MT1	Client: Stellar
Sampler: MT	Date: 12-17-08
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.86	Depth to Water (DTW): 11.01
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

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

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

2 (Gals.) X 3 = 6 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1050	53.7	7.04	692.2	782 a	2	
1054	55.6	6.76	685.2	71000	4	
1058	55.9	6.72	684.8	71000	6	

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Date: 12-17-08 Sampling Time: 1102 Depth to Water:

Sample I.D.: MW-12 Laboratory: Kiff CalScience Other CAT

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

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

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

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

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record

Chain of Custody Record

Lab job no. 208737
Date 12-17-08
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	TVH-G (8015)	BTEX/MTBE (8021)	TEH-D (8015)	Remarks
1	MW-2		12-17-08	1215	W	1L Amber/3 VOAs	Y	HCl		4	X	X	X	
2	MW-10			1012						4	X	X	X	
3	MW-7			1040						4	X	X	X	
4	MW-12			1102						4	X	X	X	
5	MW-9			1159						4	X	X	X	
6	MW-8			1248						4	X	X	X	
7	MW-11			1316						4	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	12-17-08	Signature Pat Gonzalez	12/17/08	Signature		Signature	
Printed Mark Todi	Time 1415	Printed Pat Gonzalez	Time 1415	Printed	Time	Printed	Time
Company ~~Stellar Environmental~~ Blaine Tech		Company Curtis & Tompkins		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.
GLOBAL ID # T0600100489

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

2000-00-01

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 208737 Date Received 12-17-09 Number of coolers 1
Client Stellar Env. Solutions Project Redwood Regional Park

Date Opened 12-17-09 By (print) S. Rasmussen (sign)
Date Logged in ✓ By (print) M. Villanueva (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) _____

☒ 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., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 208737
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-2	208737-001
MW-10	208737-002
MW-7	208737-003
MW-12	208737-004
MW-9	208737-005
MW-8	208737-006
MW-11	208737-007
MW-2-RE	208737-008
MW-10-RE	208737-009
MW-7-RE	208737-010
MW-12-RE	208737-011
MW-9-RE	208737-012
MW-8-RE	208737-013
MW-11-RE	208737-014

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

Signature: _____ Date: 01/06/2009
Project Manager

Signature: _____ Date: 01/13/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**208737**
Client:	**Stellar Environmental Solutions**
Project:	**2008-02**
Location:	**Redwood Regional Park**
Request Date:	**12/17/08**
Samples Received:	**12/17/08**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 12/17/08. The samples were received cold and intact.

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

Low response was observed for gasoline C7-C12 in the CCV analyzed 12/23/08 17:43; affected data was qualified with "b". Those samples were reanalyzed outside of hold time; affected data was also qualified with "b". Both sets of results have been reported. Various high surrogate recoveries were observed in a number of samples, due to interference from coeluting hydrocarbon peaks. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-2	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-001		

Analyte	Result	RL	Analysis
Gasoline C7-C12	7,300 b	50	EPA 8015B
MTBE	11	2.0	EPA 8021B
Benzene	0.99 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	20 C	0.50	EPA 8021B
m,p-Xylenes	110	0.50	EPA 8021B
o-Xylene	110	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	169 *	61-149	EPA 8015B
Bromofluorobenzene (FID)	254 *	65-146	EPA 8015B
Trifluorotoluene (PID)	135	52-143	EPA 8021B
Bromofluorobenzene (PID)	171 *	56-141	EPA 8021B

Field ID:	MW-10	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-002		

Analyte	Result	RL	Analysis
Gasoline C7-C12	67 b	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	1.7 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	116	61-149	EPA 8015B
Bromofluorobenzene (FID)	118	65-146	EPA 8015B
Trifluorotoluene (PID)	113	52-143	EPA 8021B
Bromofluorobenzene (PID)	116	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-7	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-003		

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,100 b	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	110	0.50	EPA 8021B
m,p-Xylenes	9.5	0.50	EPA 8021B
o-Xylene	0.79 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	180 *	61-149	EPA 8015B
Bromofluorobenzene (FID)	145	65-146	EPA 8015B
Trifluorotoluene (PID)	131	52-143	EPA 8021B
Bromofluorobenzene (PID)	139	56-141	EPA 8021B

Field ID:	MW-12	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-004		

Analyte	Result	RL	Analysis
Gasoline C7-C12	160 b	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	0.81 C	0.50	EPA 8021B
Ethylbenzene	1.2 C	0.50	EPA 8021B
m,p-Xylenes	0.53 C	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	135	61-149	EPA 8015B
Bromofluorobenzene (FID)	130	65-146	EPA 8015B
Trifluorotoluene (PID)	126	52-143	EPA 8021B
Bromofluorobenzene (PID)	127	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-9	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-005		

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,100 b	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	81	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	380	0.50	EPA 8021B
m,p-Xylenes	40	0.50	EPA 8021B
o-Xylene	4.2	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	111	61-149	EPA 8015B
Bromofluorobenzene (FID)	166 *	65-146	EPA 8015B
Trifluorotoluene (PID)	124	52-143	EPA 8021B
Bromofluorobenzene (PID)	143 *	56-141	EPA 8021B

Field ID:	MW-8	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-006		

Analyte	Result	RL	Analysis
Gasoline C7-C12	520 b	50	EPA 8015B
MTBE	4.9 C	2.0	EPA 8021B
Benzene	4.2	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	21	0.50	EPA 8021B
m,p-Xylenes	4.8 C	0.50	EPA 8021B
o-Xylene	1.2 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	137	61-149	EPA 8015B
Bromofluorobenzene (FID)	125	65-146	EPA 8015B
Trifluorotoluene (PID)	129	52-143	EPA 8021B
Bromofluorobenzene (PID)	125	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-11	Batch#:	146385
Type:	SAMPLE	Analyzed:	12/23/08
Lab ID:	208737-007		

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,100 b	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	100	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	100	0.50	EPA 8021B
m,p-Xylenes	2.7	0.50	EPA 8021B
o-Xylene	3.2	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	146	61-149	EPA 8015B
Bromofluorobenzene (FID)	176 *	65-146	EPA 8015B
Trifluorotoluene (PID)	198 *	52-143	EPA 8021B
Bromofluorobenzene (PID)	163 *	56-141	EPA 8021B

Field ID:	MW-2-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/05/09
Lab ID:	208737-008		

Analyte	Result	RL	Analysis
Gasoline C7-C12	9,200 b	50	EPA 8015B
MTBE	12 b	2.0	EPA 8021B
Benzene	0.52 b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	ND b	0.50	EPA 8021B
m,p-Xylenes	110 b	0.50	EPA 8021B
o-Xylene	91 b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	117 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	201 * b	65-146	EPA 8015B
Trifluorotoluene (PID)	102 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	122 b	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-10-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/05/09
Lab ID:	208737-009		

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND b	50	EPA 8015B
MTBE	2.1 C b	2.0	EPA 8021B
Benzene	0.89 C b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	ND b	0.50	EPA 8021B
m,p-Xylenes	ND b	0.50	EPA 8021B
o-Xylene	ND b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	98 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	94 b	65-146	EPA 8015B
Trifluorotoluene (PID)	93 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	91 b	56-141	EPA 8021B

Field ID:	MW-7-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/05/09
Lab ID:	208737-010		

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,500 b	50	EPA 8015B
MTBE	ND b	2.0	EPA 8021B
Benzene	5.0 C b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	100 b	0.50	EPA 8021B
m,p-Xylenes	9.1 b	0.50	EPA 8021B
o-Xylene	ND b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	113 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	107 b	65-146	EPA 8015B
Trifluorotoluene (PID)	112 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	98 b	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-12-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/05/09
Lab ID:	208737-011		

Analyte	Result	RL	Analysis
Gasoline C7-C12	93 b	50	EPA 8015B
MTBE	ND b	2.0	EPA 8021B
Benzene	ND b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	0.76 b	0.50	EPA 8021B
m,p-Xylenes	ND b	0.50	EPA 8021B
o-Xylene	ND b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	102 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	99 b	65-146	EPA 8015B
Trifluorotoluene (PID)	97 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	94 b	56-141	EPA 8021B

Field ID:	MW-9-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/06/09
Lab ID:	208737-012		

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,300 b	50	EPA 8015B
MTBE	ND b	2.0	EPA 8021B
Benzene	45 b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	330 b	0.50	EPA 8021B
m,p-Xylenes	36 b	0.50	EPA 8021B
o-Xylene	3.1 C b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	123 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	111 b	65-146	EPA 8015B
Trifluorotoluene (PID)	113 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	100 b	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Field ID:	MW-8-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/06/09
Lab ID:	208737-013		

Analyte	Result	RL	Analysis
Gasoline C7-C12	520 b	50	EPA 8015B
MTBE	4.5 b	2.0	EPA 8021B
Benzene	1.5 C b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	20 b	0.50	EPA 8021B
m,p-Xylenes	4.4 b	0.50	EPA 8021B
o-Xylene	ND b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	113 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	106 b	65-146	EPA 8015B
Trifluorotoluene (PID)	103 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	94 b	56-141	EPA 8021B

Field ID:	MW-11-RE	Batch#:	146648
Type:	SAMPLE	Analyzed:	01/06/09
Lab ID:	208737-014		

Analyte	Result	RL	Analysis
Gasoline C7-C12	2,800 b	50	EPA 8015B
MTBE	ND b	2.0	EPA 8021B
Benzene	93 b	0.50	EPA 8021B
Toluene	ND b	0.50	EPA 8021B
Ethylbenzene	82 b	0.50	EPA 8021B
m,p-Xylenes	0.69 C b	0.50	EPA 8021B
o-Xylene	ND b	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	116 b	61-149	EPA 8015B
Bromofluorobenzene (FID)	129 b	65-146	EPA 8015B
Trifluorotoluene (PID)	123 b	52-143	EPA 8021B
Bromofluorobenzene (PID)	98 b	56-141	EPA 8021B

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

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000		

Type: BLANK Batch#: 146385
Lab ID: QC477021 Analyzed: 12/23/08

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	102	61-149	EPA 8015B
Bromofluorobenzene (FID)	101	65-146	EPA 8015B
Trifluorotoluene (PID)	106	52-143	EPA 8021B
Bromofluorobenzene (PID)	102	56-141	EPA 8021B

Type: BLANK Batch#: 146648
Lab ID: QC478102 Analyzed: 01/05/09

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	93	61-149	EPA 8015B
Bromofluorobenzene (FID)	85	65-146	EPA 8015B
Trifluorotoluene (PID)	89	52-143	EPA 8021B
Bromofluorobenzene (PID)	83	56-141	EPA 8021B

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

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC477022	Batch#:	146385
Matrix:	Water	Analyzed:	12/23/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	851.6	85	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	61-149
Bromofluorobenzene (FID)	109	65-146

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	146385
Units:	ug/L	Analyzed:	12/23/08
Diln Fac:	1.000		

Type: BS Lab ID: QC477023

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.056	91	61-143
Benzene	10.00	8.987	90	80-120
Toluene	10.00	10.52	105	77-120
Ethylbenzene	10.00	10.68	107	79-123
m,p-Xylenes	10.00	10.64	106	78-123
o-Xylene	10.00	10.96	110	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	100	52-143
Bromofluorobenzene (PID)	100	56-141

Type: BSD Lab ID: QC477024

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	9.788	98	61-143	8	32
Benzene	10.00	9.303	93	80-120	3	20
Toluene	10.00	10.21	102	77-120	3	20
Ethylbenzene	10.00	10.33	103	79-123	3	20
m,p-Xylenes	10.00	9.641	96	78-123	10	21
o-Xylene	10.00	10.14	101	78-122	8	20

Surrogate	%REC	Limits
Trifluorotoluene (PID)	107	52-143
Bromofluorobenzene (PID)	106	56-141

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	SW-3	Batch#:	146385
MSS Lab ID:	208736-002	Sampled:	12/17/08
Matrix:	Water	Received:	12/17/08
Units:	ug/L	Analyzed:	12/23/08
Diln Fac:	1.000		

Type: MS Lab ID: QC477069

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	20.24	2,000	1,555 b	77	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	144	61-149
Bromofluorobenzene (FID)	122	65-146

Type: MSD Lab ID: QC477070

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,585 b	78	65-120	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	145	61-149
Bromofluorobenzene (FID)	120	65-146

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC478103	Batch#:	146648
Matrix:	Water	Analyzed:	01/05/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	887.4	89	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	61-149
Bromofluorobenzene (FID)	92	65-146

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC478104	Batch#:	146648
Matrix:	Water	Analyzed:	01/05/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	9.368	94	61-143
Benzene	10.00	8.860	89	80-120
Toluene	10.00	9.443	94	77-120
Ethylbenzene	10.00	9.652	97	79-123
m,p-Xylenes	10.00	9.488	95	78-123
o-Xylene	10.00	9.176	92	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	90	52-143
Bromofluorobenzene (PID)	87	56-141

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	146648
MSS Lab ID:	208991-002	Sampled:	12/29/08
Matrix:	Water	Received:	12/31/08
Units:	ug/L	Analyzed:	01/05/09
Diln Fac:	1.000		

Type: MS Lab ID: QC478111

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	31.92	2,000	1,737	85	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	115	61-149
Bromofluorobenzene (FID)	99	65-146

Type: MSD Lab ID: QC478112

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,730	85	65-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	61-149
Bromofluorobenzene (FID)	99	65-146

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000	Prepared:	12/19/08
Batch#:	146285		

Field ID: MW-2 Lab ID: 208737-001
Type: SAMPLE Analyzed: 12/30/08

Analyte	Result	RL
Diesel C10-C24	2,200 Y	50

Surrogate	%REC	Limits
Hexacosane	99	58-127

Field ID: MW-10 Lab ID: 208737-002
Type: SAMPLE Analyzed: 12/30/08

Analyte	Result	RL
Diesel C10-C24	66 Y	50

Surrogate	%REC	Limits
Hexacosane	106	58-127

Field ID: MW-7 Lab ID: 208737-003
Type: SAMPLE Analyzed: 12/30/08

Analyte	Result	RL
Diesel C10-C24	3,600 Y	50

Surrogate	%REC	Limits
Hexacosane	90	58-127

Field ID: MW-12 Lab ID: 208737-004
Type: SAMPLE Analyzed: 12/30/08

Analyte	Result	RL
Diesel C10-C24	170 Y	50

Surrogate	%REC	Limits
Hexacosane	111	58-127

Field ID: MW-9 Lab ID: 208737-005
Type: SAMPLE Analyzed: 01/02/09

Analyte	Result	RL
Diesel C10-C24	2,300 Y	50

Surrogate	%REC	Limits
Hexacosane	100	58-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000	Prepared:	12/19/08
Batch#:	146285		

Field ID: MW-8 Lab ID: 208737-006
Type: SAMPLE Analyzed: 12/31/08

Analyte	Result	RL
Diesel C10-C24	400 Y	50

Surrogate	%REC	Limits
Hexacosane	125	58-127

Field ID: MW-11 Lab ID: 208737-007
Type: SAMPLE Analyzed: 12/30/08

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

Surrogate	%REC	Limits
Hexacosane	98	58-127

Type: BLANK Analyzed: 12/24/08
Lab ID: QC476648

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	118	58-127

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 #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC476649	Batch#:	146285
Matrix:	Water	Prepared:	12/19/08
Units:	ug/L	Analyzed:	12/24/08

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,561	102	52-120

Surrogate	%REC	Limits
Hexacosane	111	58-127

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	208737	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	146285
MSS Lab ID:	208749-002	Sampled:	12/15/08
Matrix:	Water	Received:	12/18/08
Units:	ug/L	Prepared:	12/19/08
Diln Fac:	1.000	Analyzed:	12/24/08

Type: MS Lab ID: QC476650

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	36.15	2,500	2,327	92	43-121

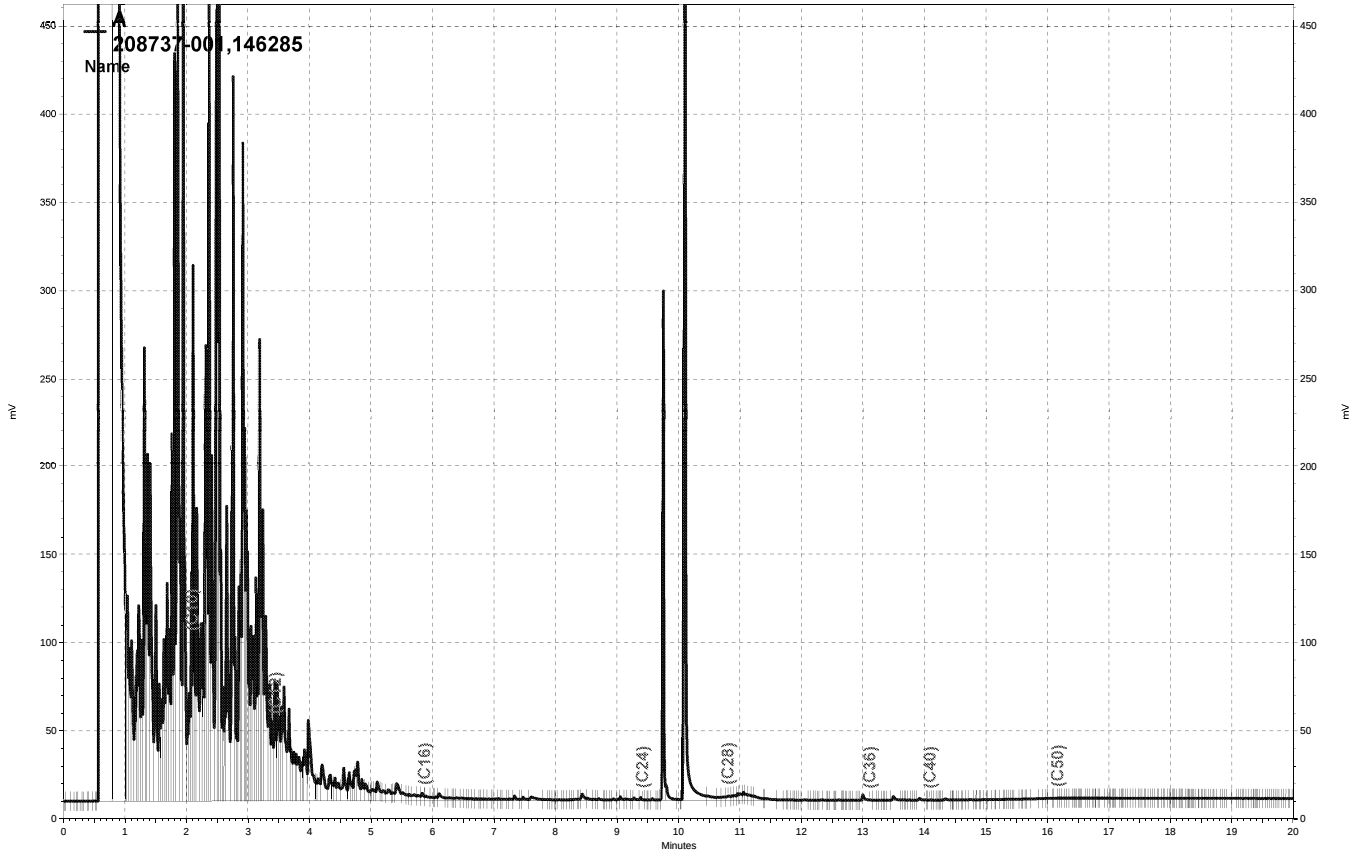
Surrogate	%REC	Limits
Hexacosane	102	58-127

Type: MSD Lab ID: QC476651

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,525	100	43-121	8	36

Surrogate	%REC	Limits
Hexacosane	106	58-127

RPD= Relative Percent Difference



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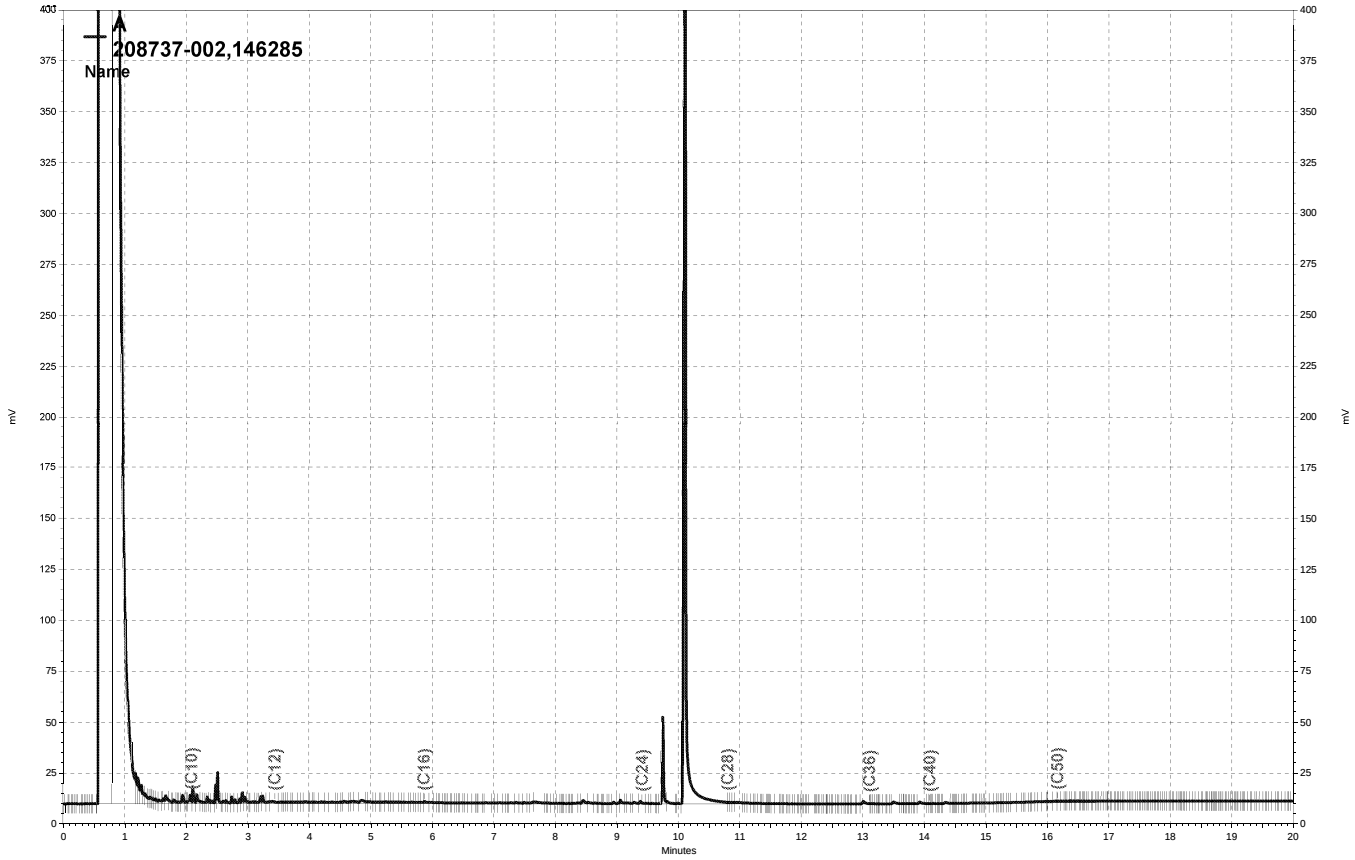

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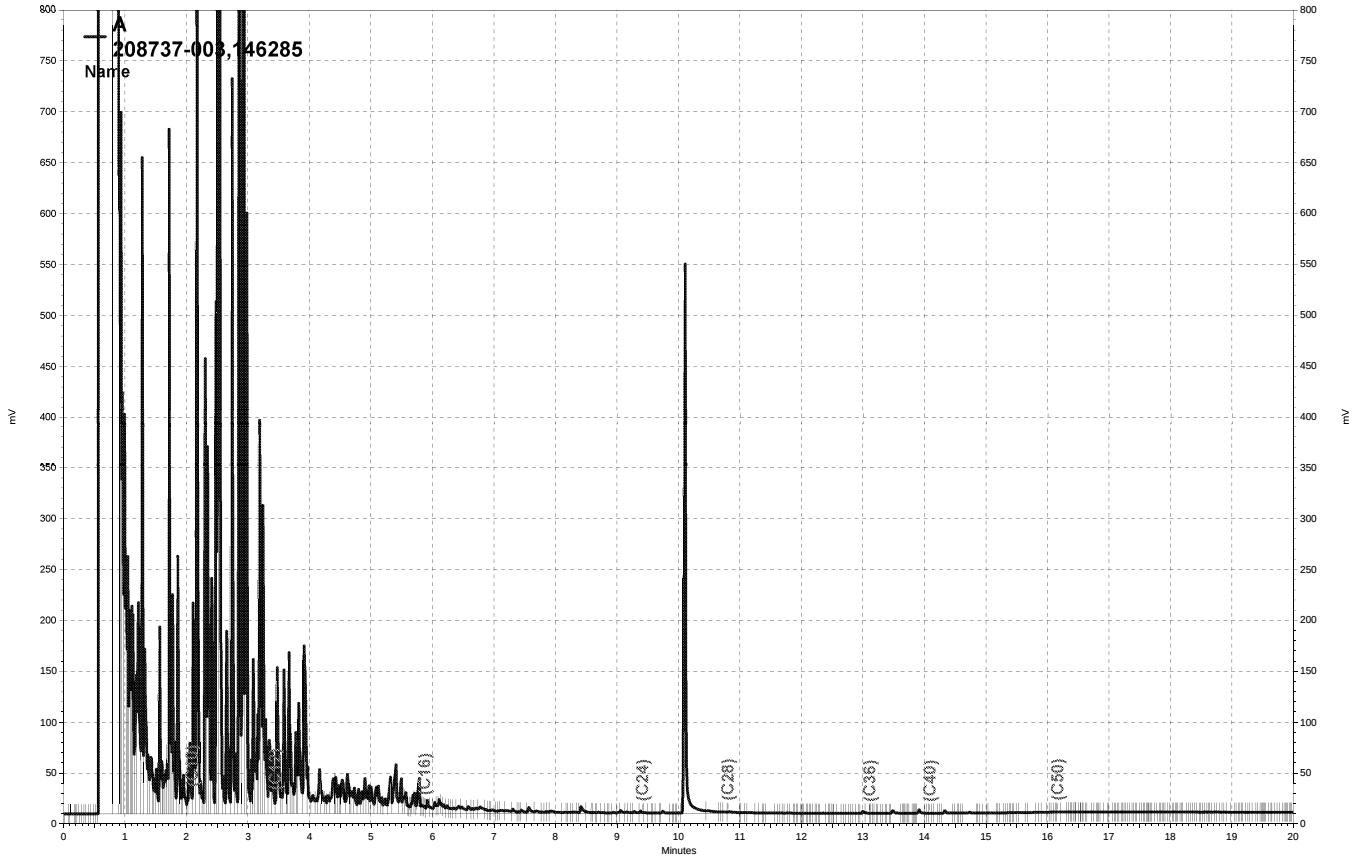

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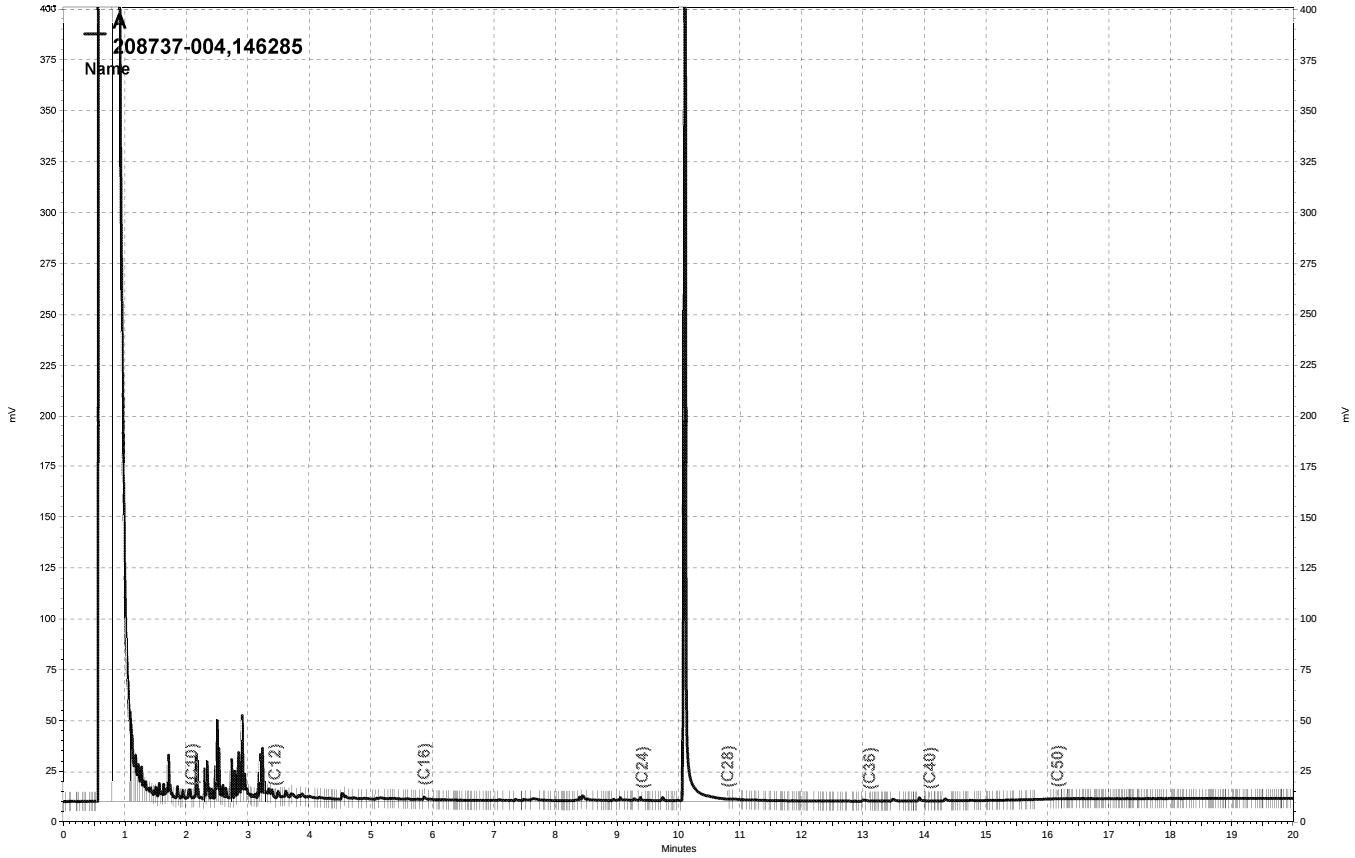

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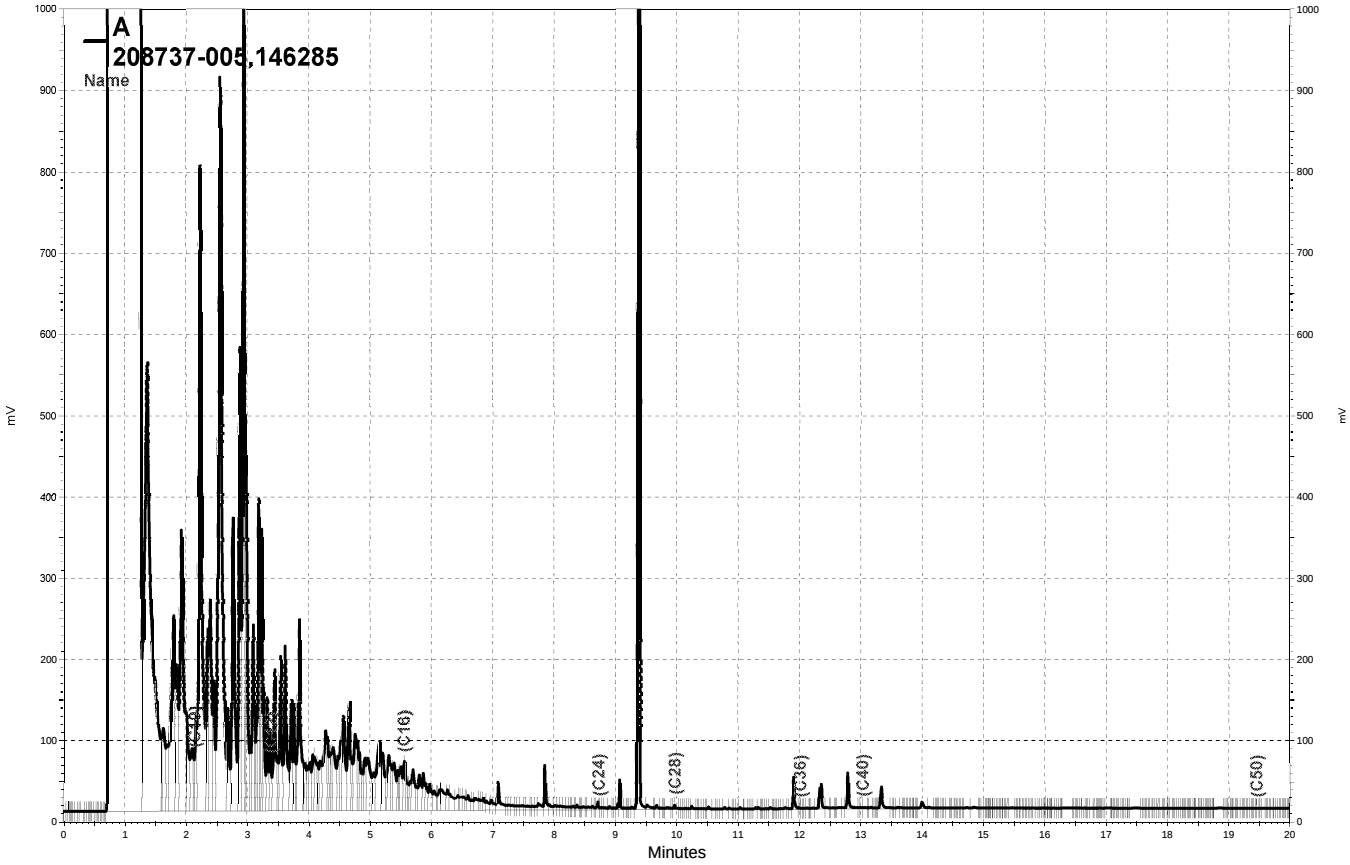

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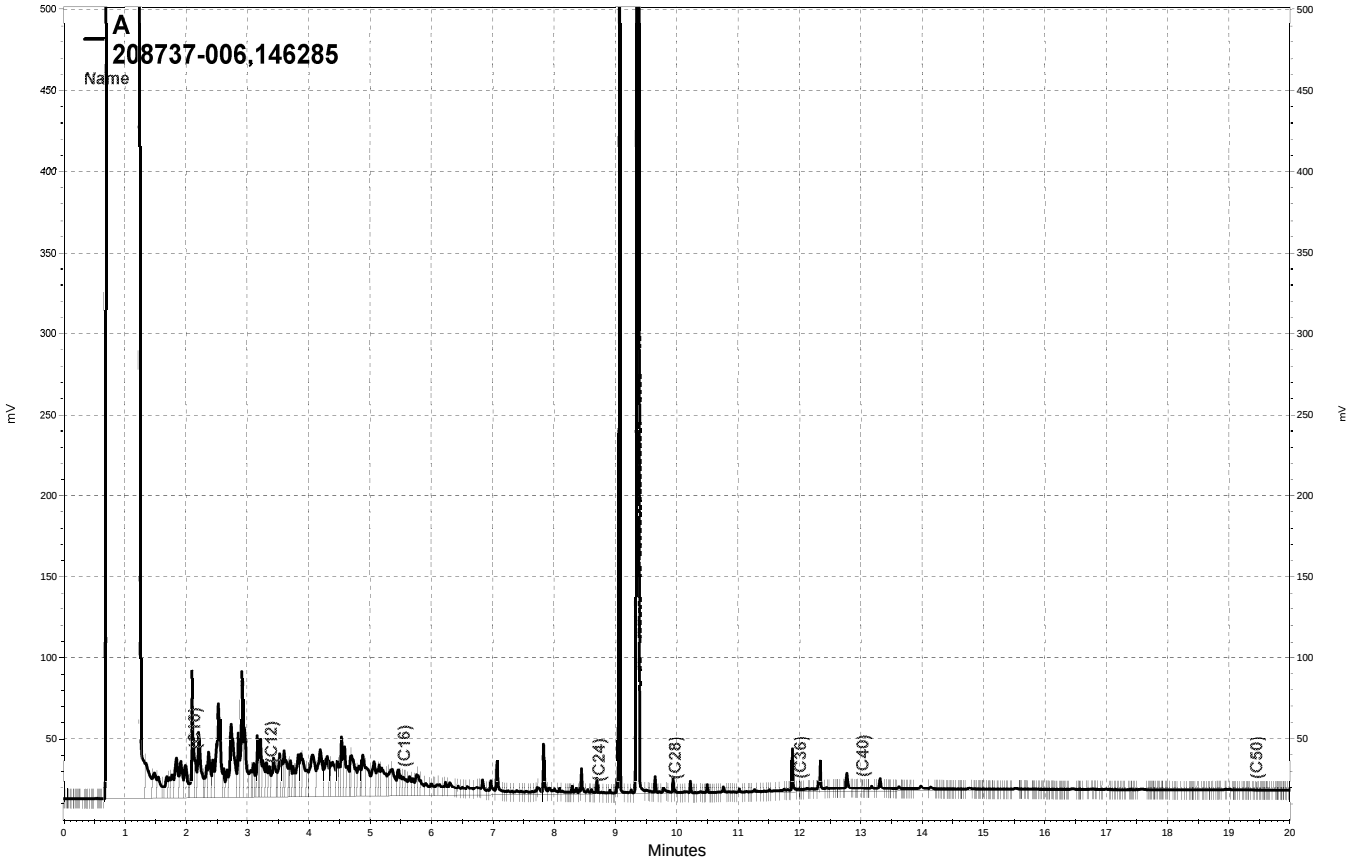

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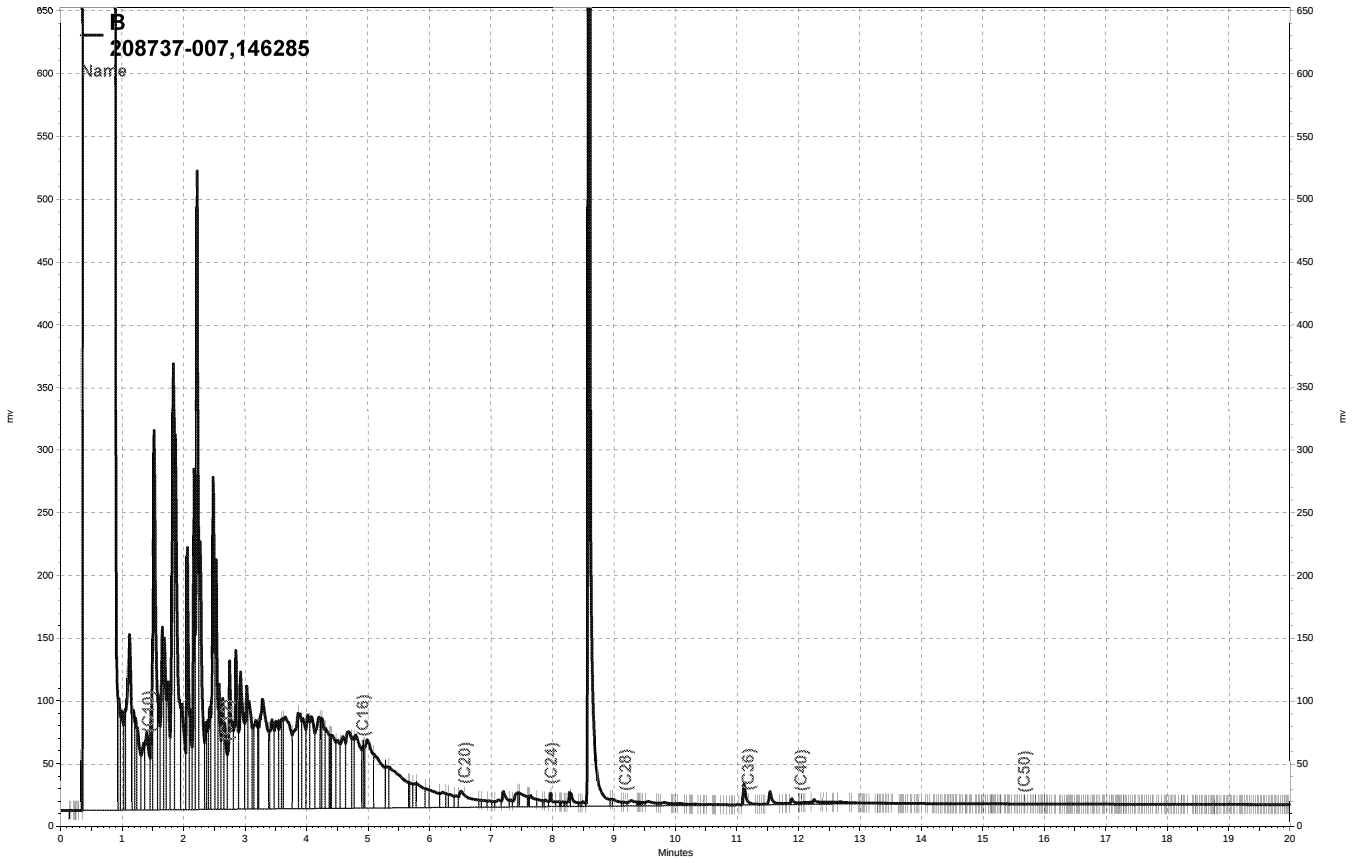

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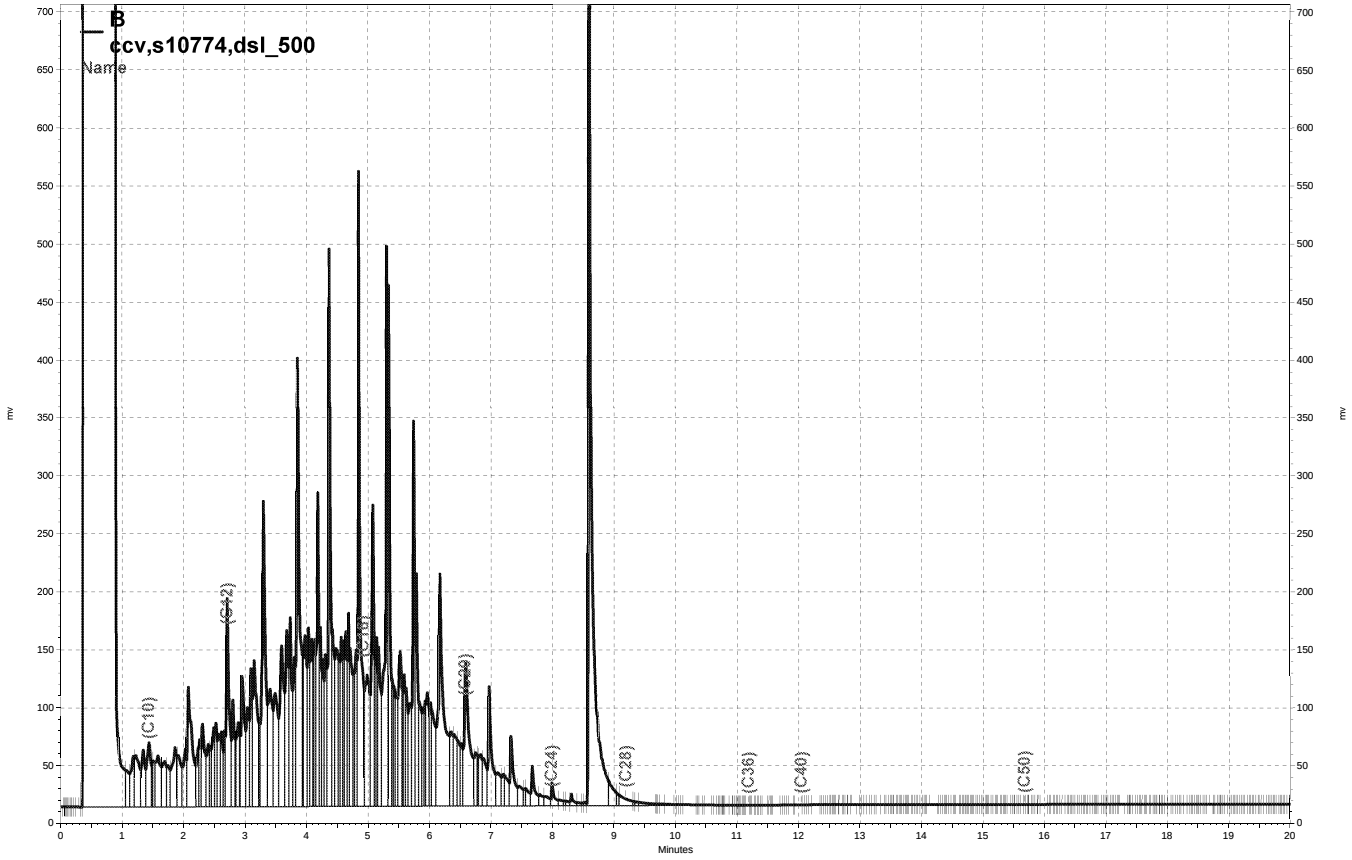

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Chain of Custody Record

Lab job no. 208736

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)

Analysis Required: TVHg MBTEX, TEPHd

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVHg MBTEX	TEPHd	Remarks
1	~~SW-1~~ SW-2	SW1	12-17-08	1015	W	L, VOA	Y	(a)	N	4	X	X	
2	~~SW-2~~ SW-3	SW2	↓	1045	W	L, VOA	Y	↓	N	4	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	12-17-08	Signature	12-17-08	Signature	12-17-08	Signature	12/17/08
Printed Teal Bloss	Time 1110	Printed Max Todd	Time 1110	Printed Max Todd	Time 1415	Printed Pat Gonzalez	Time 1417
Company Stellar Environmental		Company BTS		Company BTS		Company Curtis & Tompkins	

Turnaround Time: 5 Day TAT - Standard

Comments: Samples on ice
(a) VOA w HCL

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

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 208736 Date Received 12-17-09 Number of coolers 1
Client Stellar Env. Solutions Project Redwood Regional Park

Date Opened 12-17-09 By (print) S. Rasmussen (sign)
Date Logged in ✓ By (print) M. Villanueva (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)

☒ 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
LABEL ID's DO NOT MATCH COC FOR #1, LOGGED IN PER COC ID.

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

Laboratory Job Number 208736
ANALYTICAL REPORT

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

Sample ID	Lab ID
SW-2	208736-001
SW-3	208736-002

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 signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/06/2009
Project Manager

Signature: _____ Date: 01/06/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**208736**
Client:	**Stellar Environmental Solutions**
Project:	**2008-02**
Location:	**Redwood Regional Park**
Request Date:	**12/17/08**
Samples Received:	**12/17/08**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 12/17/08. The samples were received cold and intact.

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

High surrogate recovery was observed for bromofluorobenzene (FID) in SW-2 (lab # 208736-001); the corresponding trifluorotoluene (FID) surrogate recovery was within limits, and no target analytes were detected in the sample. High surrogate recovery was observed for bromofluorobenzene (PID) in SW-2 (lab # 208736-001); the corresponding trifluorotoluene (PID) surrogate recovery was within limits, and no target analytes were detected in the sample. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	146482
Units:	ug/L	Sampled:	12/17/08
Diln Fac:	1.000	Received:	12/17/08

Field ID: SW-2 Lab ID: 208736-001
Type: SAMPLE Analyzed: 12/30/08

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	109	61-149	EPA 8015B
Bromofluorobenzene (FID)	223 *	65-146	EPA 8015B
Trifluorotoluene (PID)	116	52-143	EPA 8021B
Bromofluorobenzene (PID)	182 *	56-141	EPA 8021B

Field ID: SW-3 Lab ID: 208736-002
Type: SAMPLE Analyzed: 12/30/08

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	96	61-149	EPA 8015B
Bromofluorobenzene (FID)	100	65-146	EPA 8015B
Trifluorotoluene (PID)	99	52-143	EPA 8021B
Bromofluorobenzene (PID)	104	56-141	EPA 8021B

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02		
Matrix:	Water	Batch#:	146482
Units:	ug/L	Sampled:	12/17/08
Diln Fac:	1.000	Received:	12/17/08

Type: BLANK Analyzed: 12/29/08
Lab ID: QC477403

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	96	61-149	EPA 8015B
Bromofluorobenzene (FID)	88	65-146	EPA 8015B
Trifluorotoluene (PID)	98	52-143	EPA 8021B
Bromofluorobenzene (PID)	93	56-141	EPA 8021B

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC477404	Batch#:	146482
Matrix:	Water	Analyzed:	12/29/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,805	90	78-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	147	61-149
Bromofluorobenzene (FID)	114	65-146

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC477405	Batch#:	146482
Matrix:	Water	Analyzed:	12/29/08
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.61	93	61-143
Benzene	20.00	19.10	96	80-120
Toluene	20.00	20.63	103	77-120
Ethylbenzene	20.00	20.26	101	79-123
m,p-Xylenes	20.00	20.23	101	78-123
o-Xylene	20.00	20.35	102	78-122

Surrogate	%REC	Limits
Trifluorotoluene (PID)	94	52-143
Bromofluorobenzene (PID)	93	56-141

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2008-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	146482
MSS Lab ID:	208741-004	Sampled:	12/16/08
Matrix:	Water	Received:	12/17/08
Units:	ug/L	Analyzed:	12/29/08
Diln Fac:	1.000		

Type: MS Lab ID: QC477406

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	33.39	2,000	1,780	87	65-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	136	61-149
Bromofluorobenzene (FID)	134	65-146

Type: MSD Lab ID: QC477407

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,793	88	65-120	1	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	137	61-149
Bromofluorobenzene (FID)	132	65-146

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/17/08
Units:	ug/L	Received:	12/17/08
Diln Fac:	1.000	Prepared:	12/22/08
Batch#:	146353		

Field ID: SW-2 Lab ID: 208736-001
Type: SAMPLE Analyzed: 12/25/08

Analyte	Result	RL
Diesel C10-C24	83 Y	50

Surrogate	%REC	Limits
Hexacosane	62	58-127

Field ID: SW-3 Lab ID: 208736-002
Type: SAMPLE Analyzed: 12/25/08

Analyte	Result	RL
Diesel C10-C24	360 Y	50

Surrogate	%REC	Limits
Hexacosane	70	58-127

Type: BLANK Analyzed: 12/24/08
Lab ID: QC476904

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
Hexacosane	114	58-127

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 #:	208736	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2008-02	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	146353
Units:	ug/L	Prepared:	12/22/08
Diln Fac:	1.000	Analyzed:	12/24/08

Type: BS Cleanup Method: EPA 3630C
Lab ID: QC476905

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,504	60	52-120

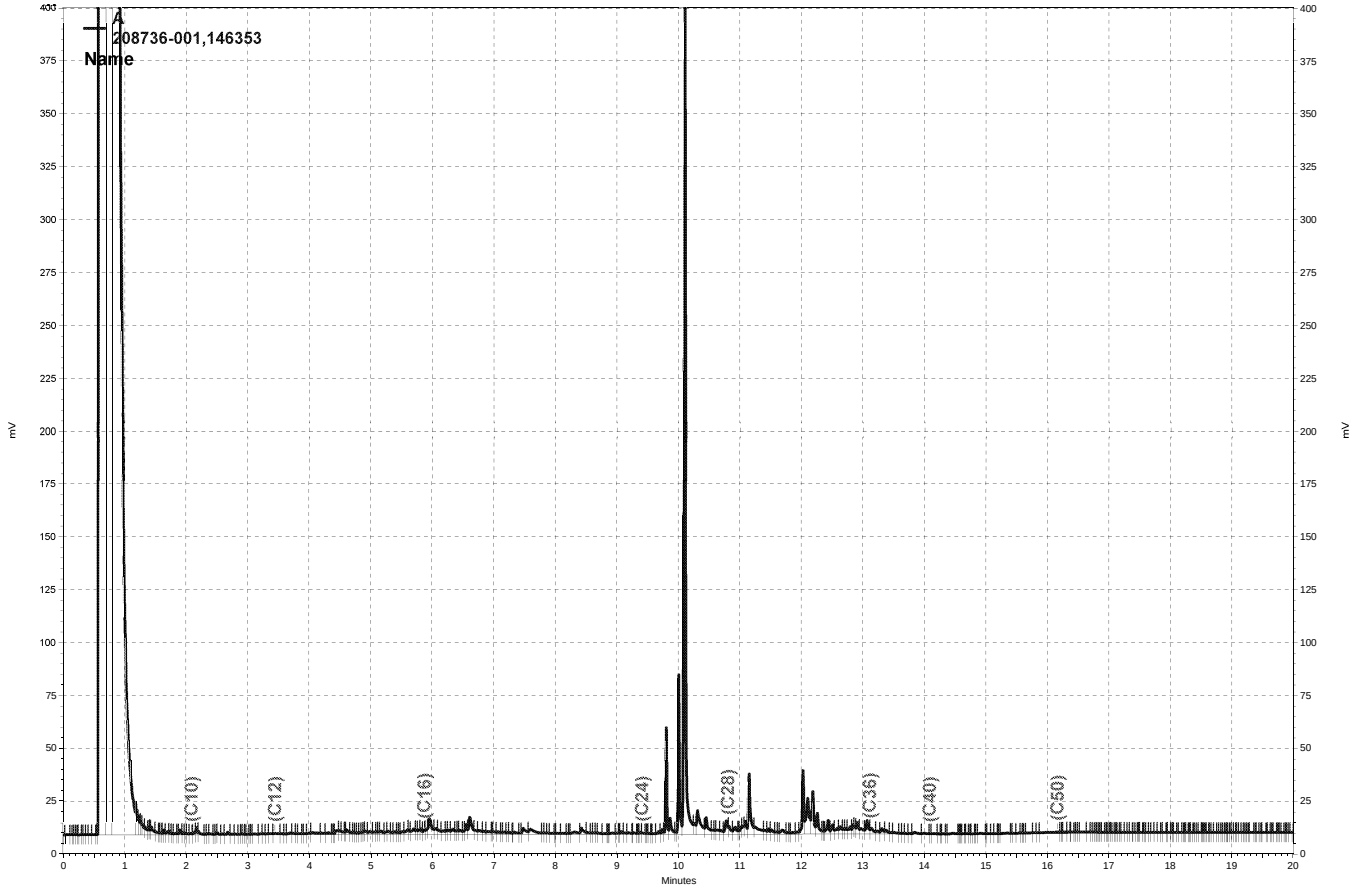
Surrogate	%REC	Limits
Hexacosane	77	58-127

Type: BSD Cleanup Method: EPA 3630C
Lab ID: QC476906

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,745	70	52-120	15	30

Surrogate	%REC	Limits
Hexacosane	83	58-127

RPD= Relative Percent Difference



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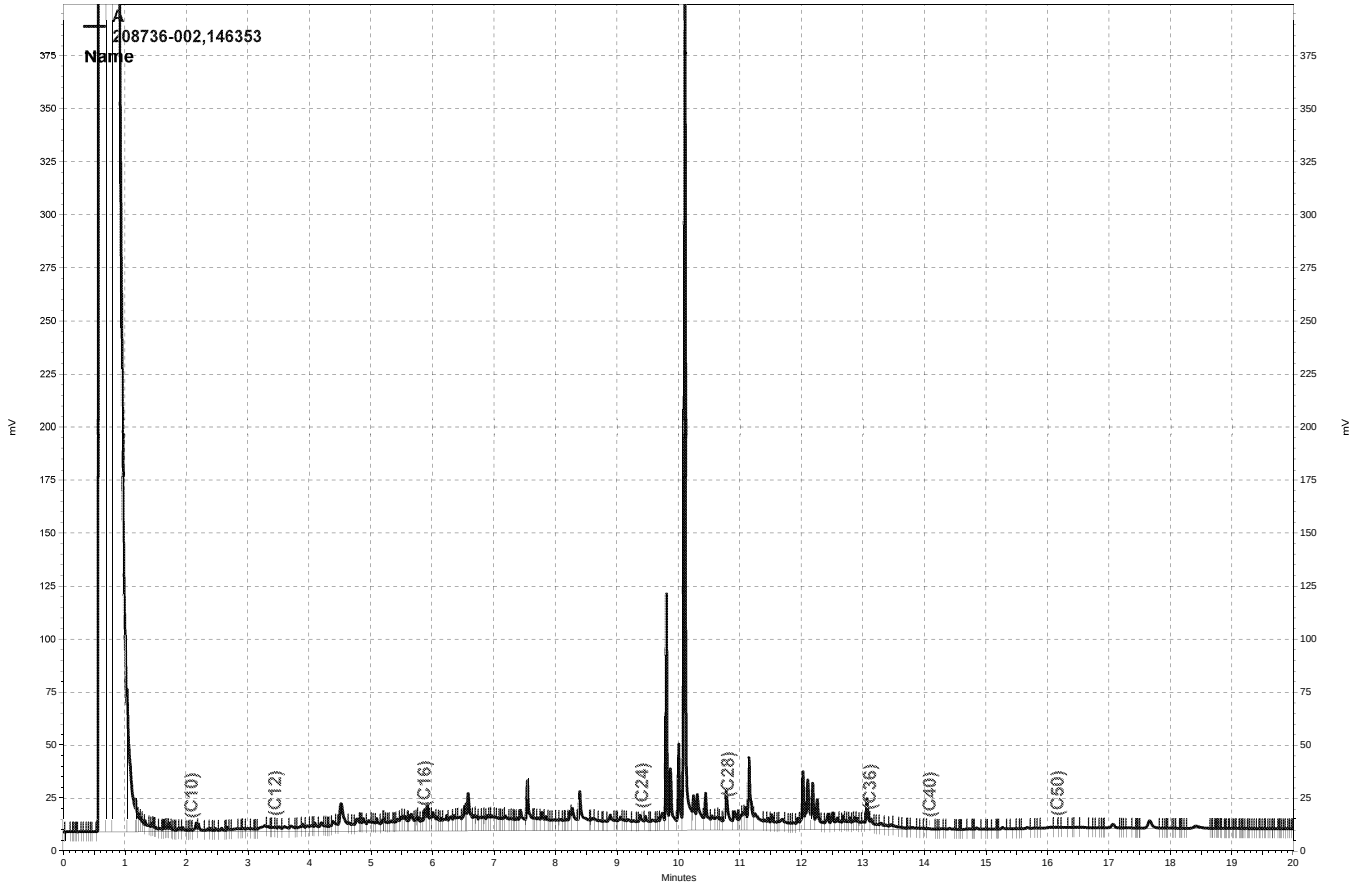

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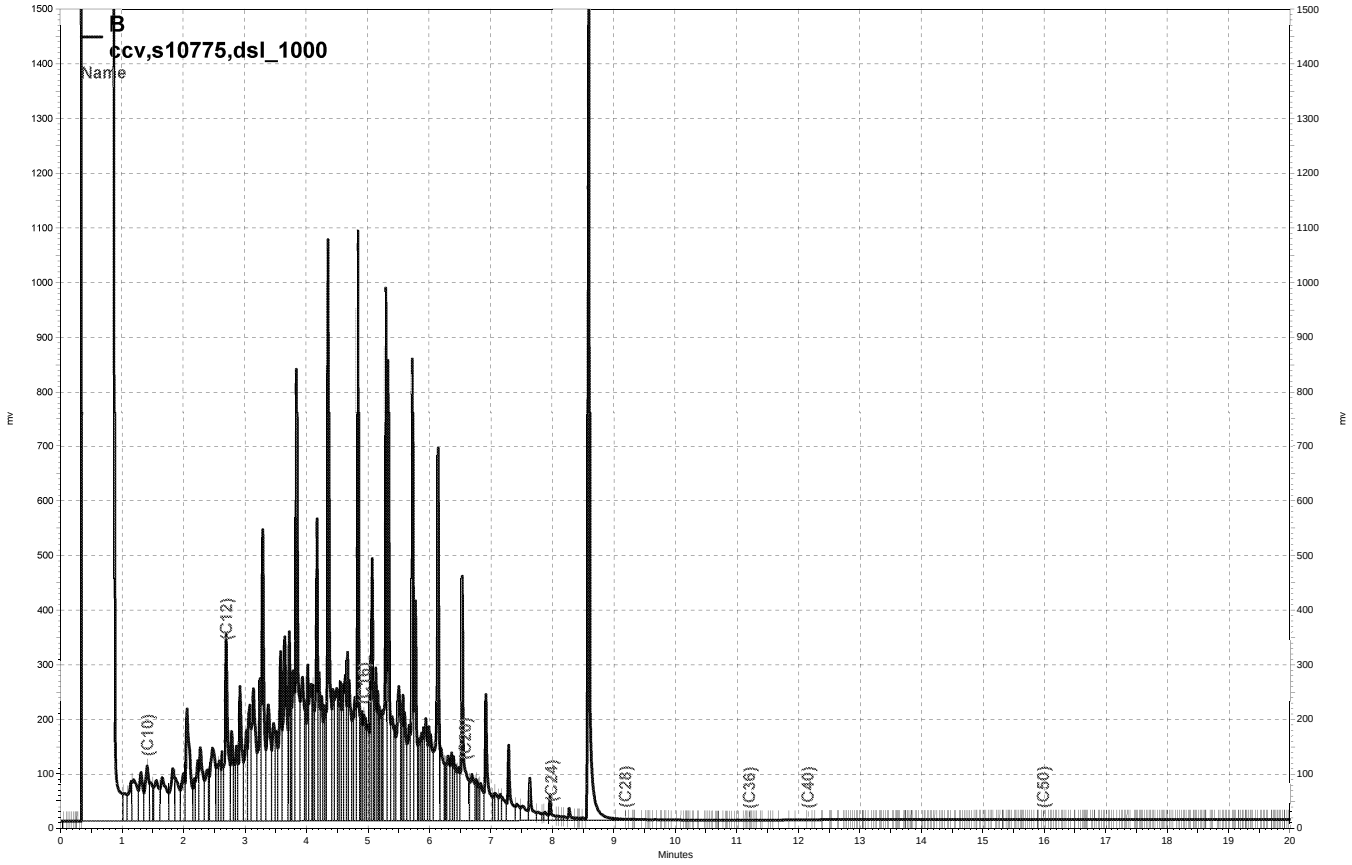

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APPENDIX D

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**

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*

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**

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*

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**

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*

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*

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*

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*

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