FIRST QUARTER 2009 GROUNDWATER MONITORING AND OXYGEN RELEASE COMPOUND™ TREATMENT CORRECTIVE ACTION REPORT

REDWOOD REGIONAL PARK
SERVICE YARD
OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

April 2009

STELLAR
ENVIRONMENTAL SOLUTIONS, INC.
GEOSCIENCE & ENGINEERING CONSULTING

FIRST QUARTER 2009 GROUNDWATER MONITORING AND OXYGEN RELEASE COMPOUND™ TREATMENT CORRECTIVE ACTION REPORT

REDWOOD REGIONAL PARK SERVICE YARD OAKLAND, CALIFORNIA

Prepared for:

EAST BAY REGIONAL PARK DISTRICT
OAKLAND, CALIFORNIA

Prepared by:

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

April 10, 2009

Project No. 2008-02

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

April 10, 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: First Quarter 2009 Groundwater Monitoring and Oxygen Release Compound™ Treatment Corrective Action 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 January 1 and March 31, 2009 (First Quarter 2009), as well as the remedial action conducted on March 10, 2009. 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. SES has reviewed your letter of March 24, 2009 and will be responding as requested.

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

TABLE OF CONTENTS (continued)

Section **Page**

Appendices

TABLES AND FIGURES

Tables **Page**

Figures **Page**

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 January 1 and March 31, 2009 (First Quarter 2009):

- Collecting water levels in site wells to determine shallow groundwater flow direction
- Sampling site wells for contaminant analysis and natural attenuation indicators
- Collecting surface water samples for contaminant analysis
- Conducting quarterly monitoring and maintenance of bioventing system operation
- Injecting Oxygen Release Compound (ORC)™ near well MW-2

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 49 groundwater monitoring events, conducted on a quarterly basis since project inception (November 1994). A total of 11 groundwater monitoring wells are currently available for monitoring.
- A bioventing pilot test conducted in September and October 2004 to evaluate the feasibility of this corrective action strategy, and installation of the full-scale bioventing system in November and December 2005. Bioventing well VW-3 was decommissioned and two additional bioventing wells (VW-4 and VW-5) were installed on March 4, 2008. However, the bioventing remedy has not been effective to date. Bioventing activities conducted to date have been, and will continue to be, discussed in bioventing-specific technical reports, and updates will be provided in groundwater monitoring progress reports as they relate to this ongoing program.
- An additional ORC™ injection was conducted during this quarter on March 10, 2009 to control elevated levels of hydrocarbons in the source area represented by MW-2.

SITE DESCRIPTION

The site slopes to the west, from an elevation of approximately 564 feet above mean sea level (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:

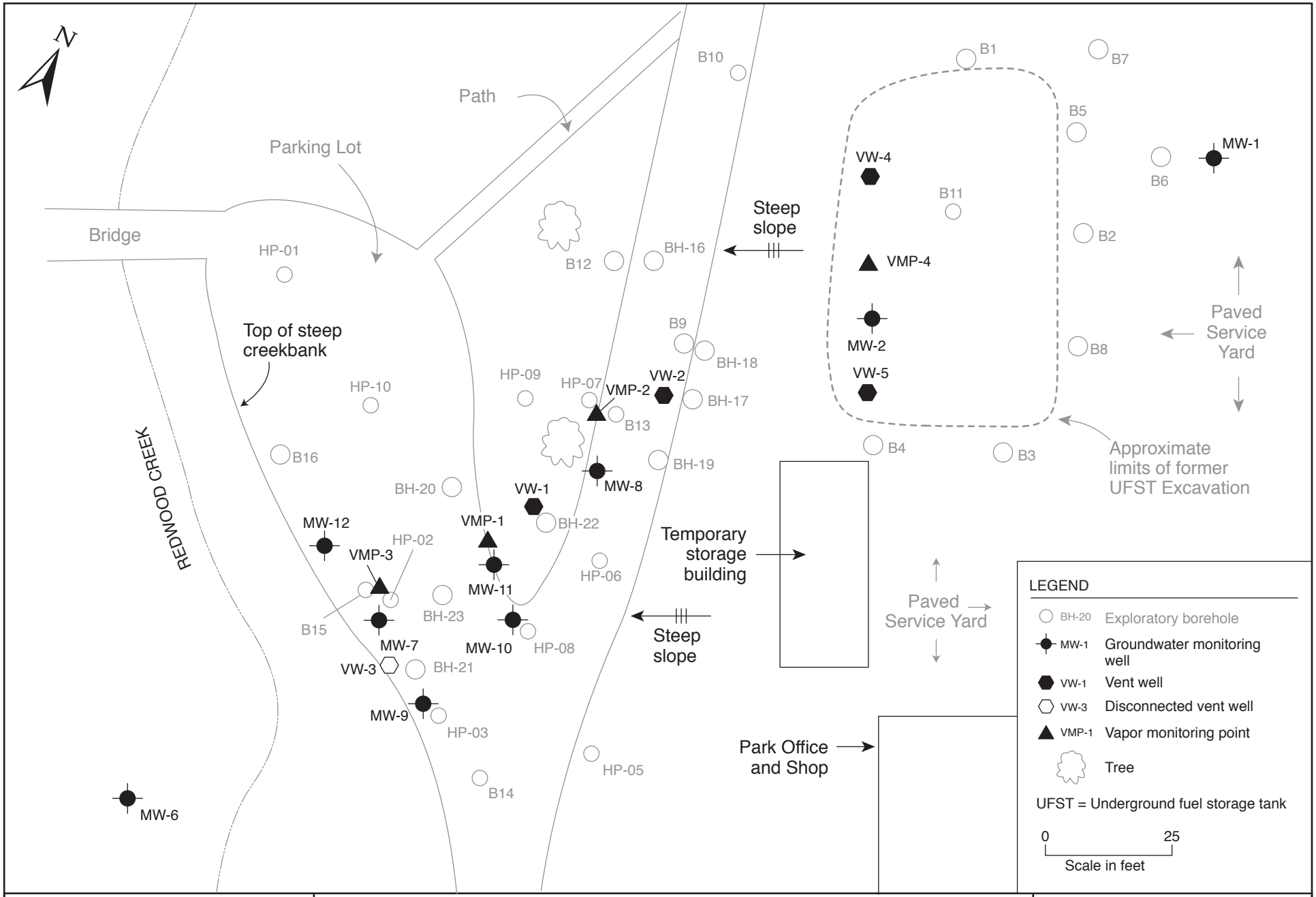
N

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

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

STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

2006-17-01



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 2

by: MJC | MARCH 2008

2008-02-02

- 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.

A Letter dated March 24, 2009 from Mr. Wickham commented on the review of the workplan to inject ORC™ in the area near site well MW-2, which has shown a recent history of increased concentrations. The letter commented that the workplan implementation would not reduce the overall source area contaminant contribution. SES agrees with that assessment. However, the small injected volumes were not intended to achieve a broad remediation goal. The intent was to determine if a pathway to well MW-2 was achievable through nearby injections, as well as locally reduce the high gasoline concentrations exhibited in MW-2. SES will provide responses to the timetable set for the technical reports requested.

2.0 PHYSICAL SETTING

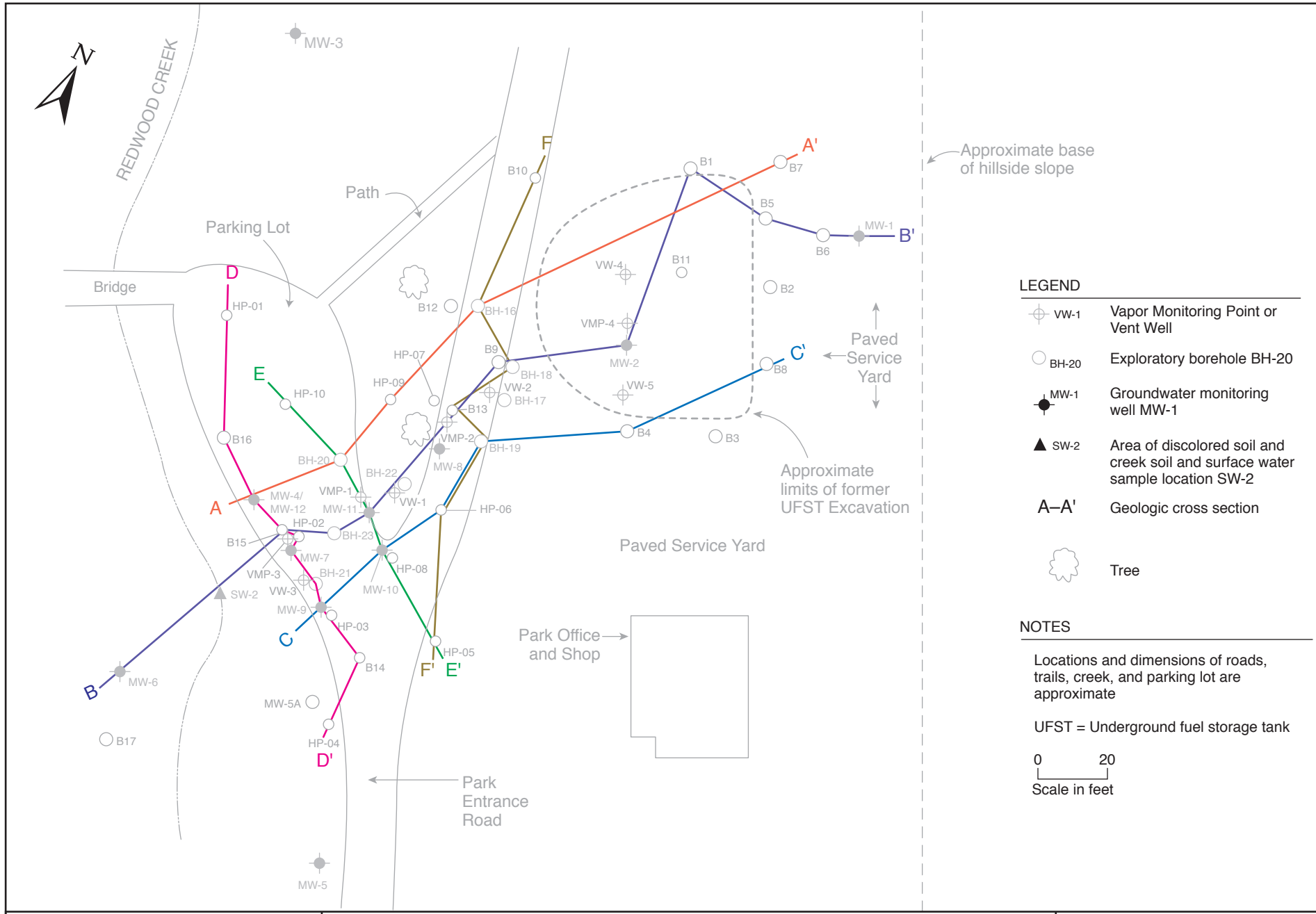
This section discusses the site hydrogeologic conditions based on geologic logging and water level measurements collected at the site since September 1993. Previous SES reports have included detailed discussions of site lithologic and hydrogeologic conditions. In May 2004, ACEH requested, via email,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

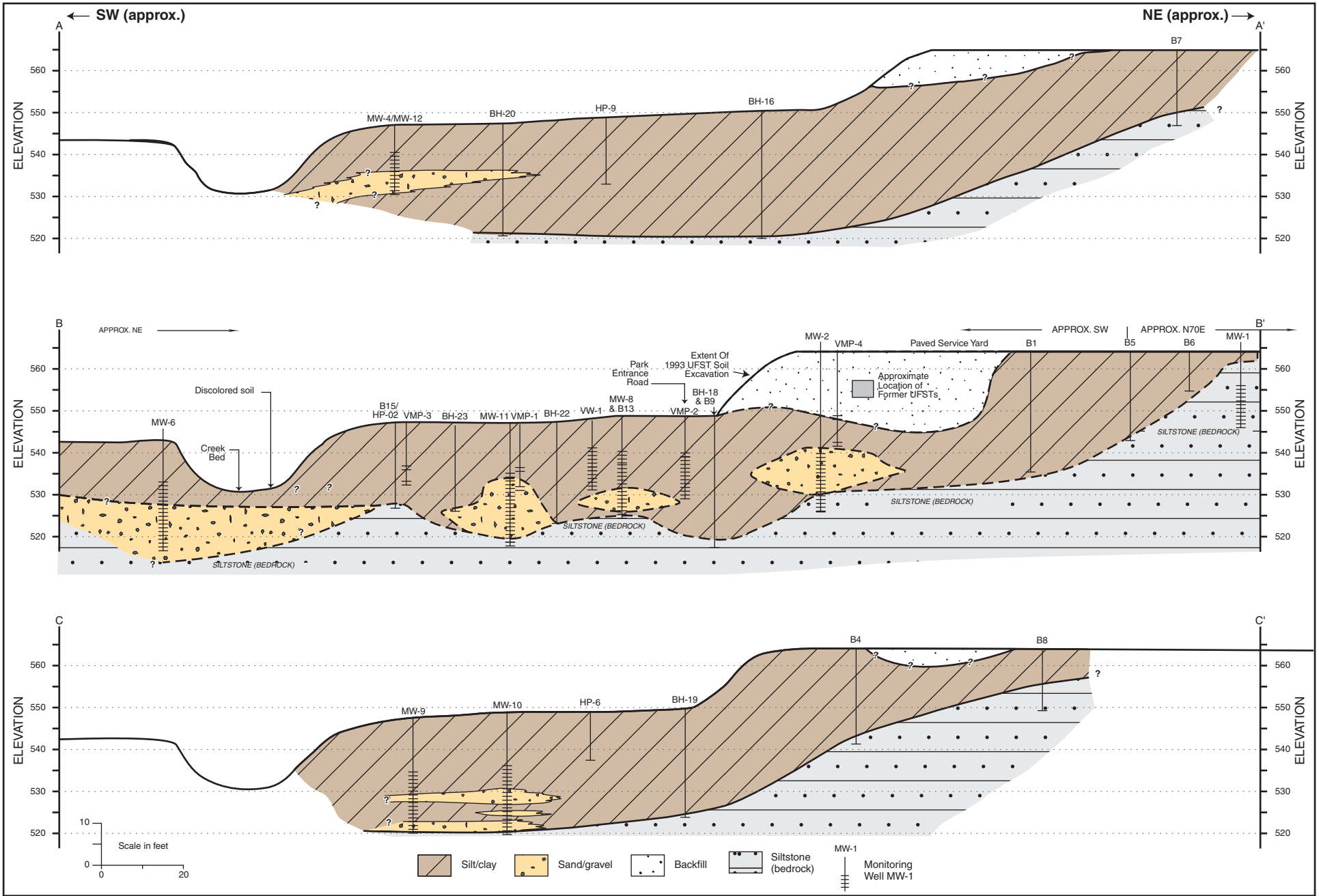
STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 3

by: MJC | MARCH 2008

2008-02-05



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

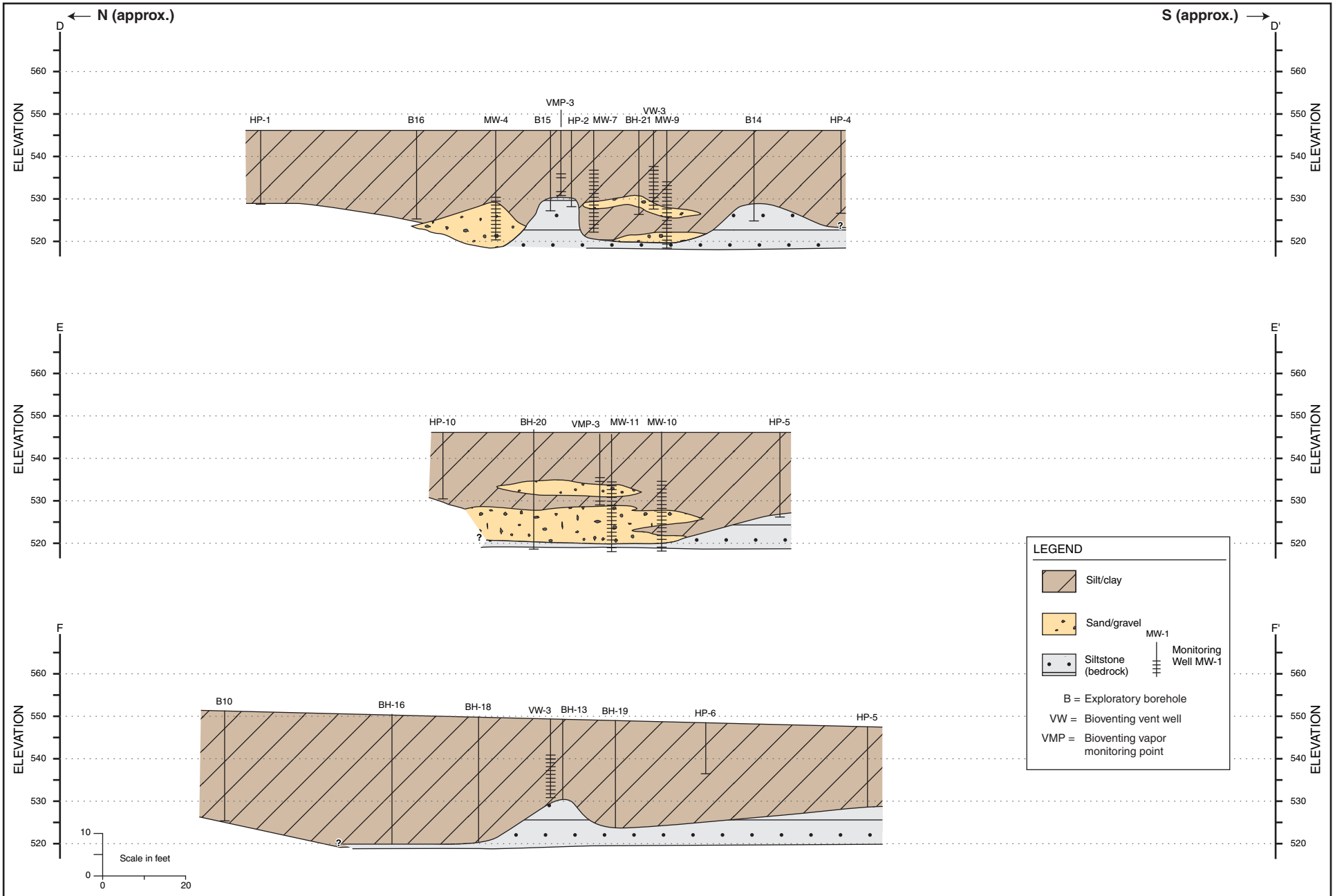
Redwood Regional Park Service Yard, Oakland, CA

Figure 4

by: MJC

DECEMBER 2007

2005-66-14



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

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

Figure 5

by: MJC | DECEMBER 2005

2005-66-13

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.

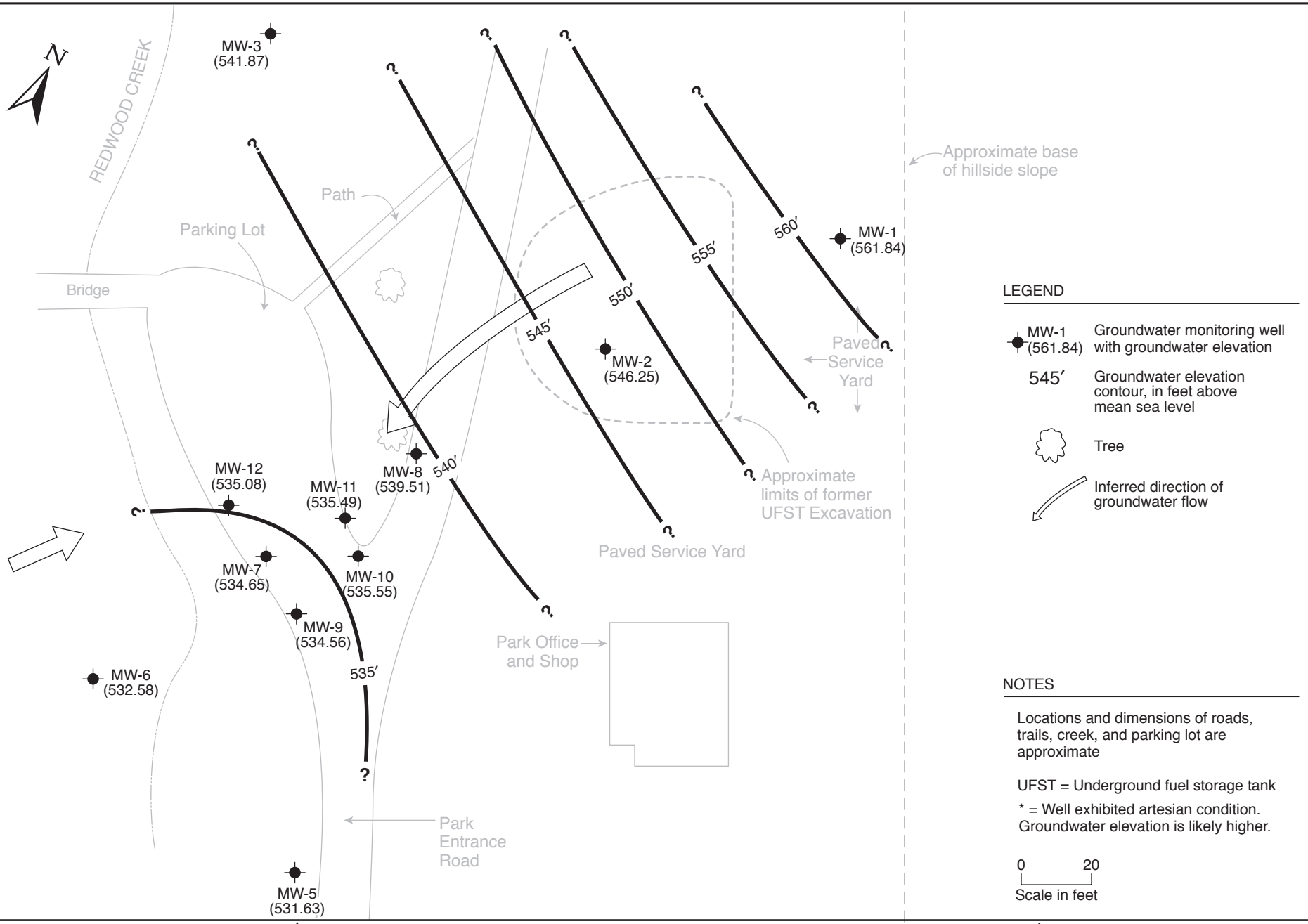
In the central and downgradient portions of the groundwater contaminant plume (under the entrance road and the parking area), the bedrock surface has local, fairly steep elevation highs and lows, expressing a hummocky surface. Bedrock elevations vary by up to 10 feet over distances of less than 20 feet 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 it may have historically 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 surface affects local groundwater depth and flow direction. This is an important hydrogeologic control that should be considered if groundwater-specific corrective action is contemplated.

HYDROGEOLOGY

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

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



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

GROUNDWATER ELEVATION MAP–March 16, 2009
Redwood Regional Park Service Yard, Oakland, CA

Figure 6

by: MJC | APRIL 2009

2008-02-15

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 during this event was measured at approximately 0.22 feet per foot.

Downgradient from (west of) the UFST source area (between MW-2 and Redwood Creek), the groundwater gradient during this event was approximately 0.1 feet per foot. The average groundwater elevation was 2.36 feet higher than the previous (December 2008) event, with the greatest increase of 5.5 feet measured in MW-8 and the lowest increase measured in MW-1 of 0.7 foot. The direction of shallow groundwater flow during the current event was to the west-southwest (toward Redwood Creek), which is consistent with historical site groundwater flow 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 <u>is</u> a current or potential drinking water source; and 2) ESLs for residential sites where groundwater <u>is not</u> a current or potential drinking water source.

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

SURFACE WATER CONTAMINATION

As summarized in Table 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 FIRST QUARTER 2009 ACTIVITIES

This section presents the creek surface water and groundwater sampling and analytical methods for the most recent groundwater monitoring event (Q1 2009), conducted in March 2009. A summary of bioventing-related activities is also provided.

Groundwater and surface water analytical results are summarized in Section 5.0. Monitoring and sampling protocols were in accordance with the ACEH-approved SES technical workplan (SES, 1998a). Current Q1 2009 event activities included:

- Measuring static water levels in all 11 of the site wells.
- Collecting post-purge groundwater samples for laboratory analysis of site contaminants from wells located within (or potentially within) the groundwater plume (MW-2, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12).
- Collecting Redwood Creek surface water samples for laboratory analysis from locations SW-2 and SW-3.

Redwood Creek surface water sampling and groundwater monitoring and sampling were conducted on March 16, 2009. The locations of all site monitoring wells and creek water sampling locations are shown on Figure 2 (in Section 1.0). Well construction information and water level data are summarized in Table 1. Appendix B contains the groundwater monitoring field records for the current event.

Table 1
Groundwater Monitoring Well Construction and Groundwater Elevation Data –
March 16, 2009 Monitoring Event
Redwood Regional Park Corporation Yard, Oakland, California

Well	Well Depth	Screened Interval	TOC Elevation	Groundwater Elevation (3/16/09)
MW-1	18	7 to17	565.83	561.84
MW-2	36	20 to 35	566.42	546.25
MW-3	42	7 to 41	560.81	541.87
MW-5	26	10 to 25	547.41	531.63
MW-6	26	10 to 25	545.43	532.58
MW-7	24	9 to24	547.56	534.65
MW-8	23	8 to 23	549.13	539.51
MW-9	26	11 to 26	549.28	534.56
MW-10	26	11 to 26	547.22	535.55
MW-11	26	11 to 26	547.75	535.49
MW-12	25	10 to 25	544.67	535.08

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. In addition to the aquifer stability parameters, dissolved oxygen is being measured in monitoring well MW-2 to

evaluate the effects of the March 2009 ORC™ application. 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 62 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 March 16, 2009. Surface water samples were collected from Redwood Creek location SW-2 (immediately downgradient of the former UFST source area and within the area of documented creek bank soil contamination), and at SW-3 (located approximately 500 feet downstream of the SW-2 location). In accordance with a previous SES recommendation approved by ACEH, upstream sample location SW-1 is no longer part of the surface water sampling program.

At the time of sampling, the creek was at a high stage due to recent rain events; water depths ranged from approximately 1 to 2 feet and it was flowing steadily. SES did not observe any orange algae or sheen during this event or smell any odors.

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 one month in January and February 2006. Bioventing system operations and maintenance (O&M) events had been conducted monthly since March 2006; however, they have been reduced to quarterly events beginning in 2009. East Bay Regional Redwood Park staff have been checking the system on a weekly basis to ensure it is functioning properly, and will notify SES in the event of a problem. 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.

5.0 FIRST QUARTER 2009 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

First quarter 2009 site groundwater contaminant concentrations exceeded the groundwater ESL for TVHg in six of the seven wells sampled (MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12). TVHg was also detected in MW-10, but below the ESL. Contaminant concentrations of TEHd exceeded the ESL in all seven of the wells sampled. The ESL for benzene was exceeded in MW-2, MW-7, MW-8, and MW-11; the ESL for ethylbenzene was exceeded in MW-7, MW-8, MW-9, and MW-11; the ESL for total xylenes was exceeded in MW-2, MW-8, and MW-9; and the ESL for methyl tertiary-butyl ether (MTBE) was exceeded in MW-2 and MW-7. Toluene was not detected in any of the seven wells sampled above the ESL. Toluene was detected in MW-2, but below the ESL.

The maximum concentration of TVHg was detected in MW-7 (located on the eastern side of Redwood Creek, downgradient of the original source area). MW-2 (located in the upgradient area of the plume in the location of the historical excavation) contained the highest concentration of TEHd. 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.

To monitor the affects of the ORC™ injection (discussed in the next section), DO was measured in MW-2 at 0.2 mg/L. This measurement will serve as the baseline measurement for comparison in future monitoring events to determine the affect of the ORC™ injection.

There were no contaminants detected above their respective laboratory detection limits in either surface water sample location SW-2 or SW-3 during this March 2009 sampling event.

Table 2
Groundwater and Surface Water Sample
Analytical Results – March 16, 2009
Redwood Regional Park Corporation Yard, Oakland, California

Location	Contaminant Concentrations						
	TVHg	**TEHd**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Total Xylenes**	**MTBE**
GROUNDWATER SAMPLES							
MW-2	**3,100**	**37,000**	**1.1**	1.4	7.9	**35**	**14**
MW-7	**5,100**	**6,700**	**19**	<0.5	**140**	12.3	**51**
MW-8	**4,600**	**7,300**	**55**	<5.0	**410**	**639**	<20
MW-9	**4,000**	**2,200**	<2.0	<0.5	**160**	**34.9**	<2.0
MW-10	76	**230**	<2.0	<0.5	1.4	<0.5	<2.0
MW-11	**4,100**	**4,600**	**18**	<0.5	**82**	8.0	<2.0
MW-12	**180**	**130**	<0.5	<0.5	1.7	<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	<0.5	<5.0	<5.0	<5.0	<5.0	<2.0
SW-3	<50	<0.5	<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)

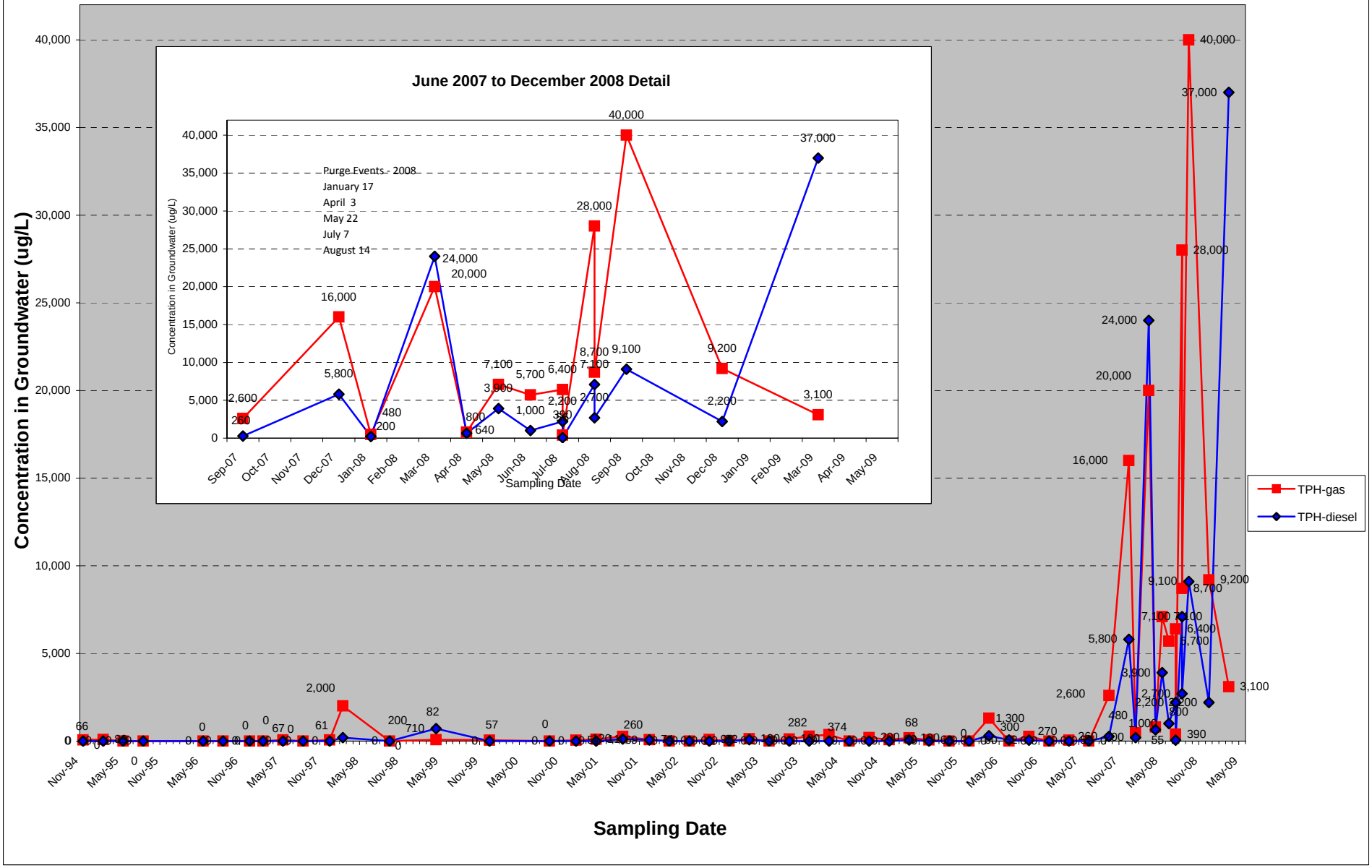
MTBE = methyl *tertiary*-butyl ether
TVHg = total volatile hydrocarbons - gasoline range
TEHd = total extractable hydrocarbons - diesel range

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).

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



6.0 ORC™ INJECTION CORRECTIVE ACTION PROGRAM

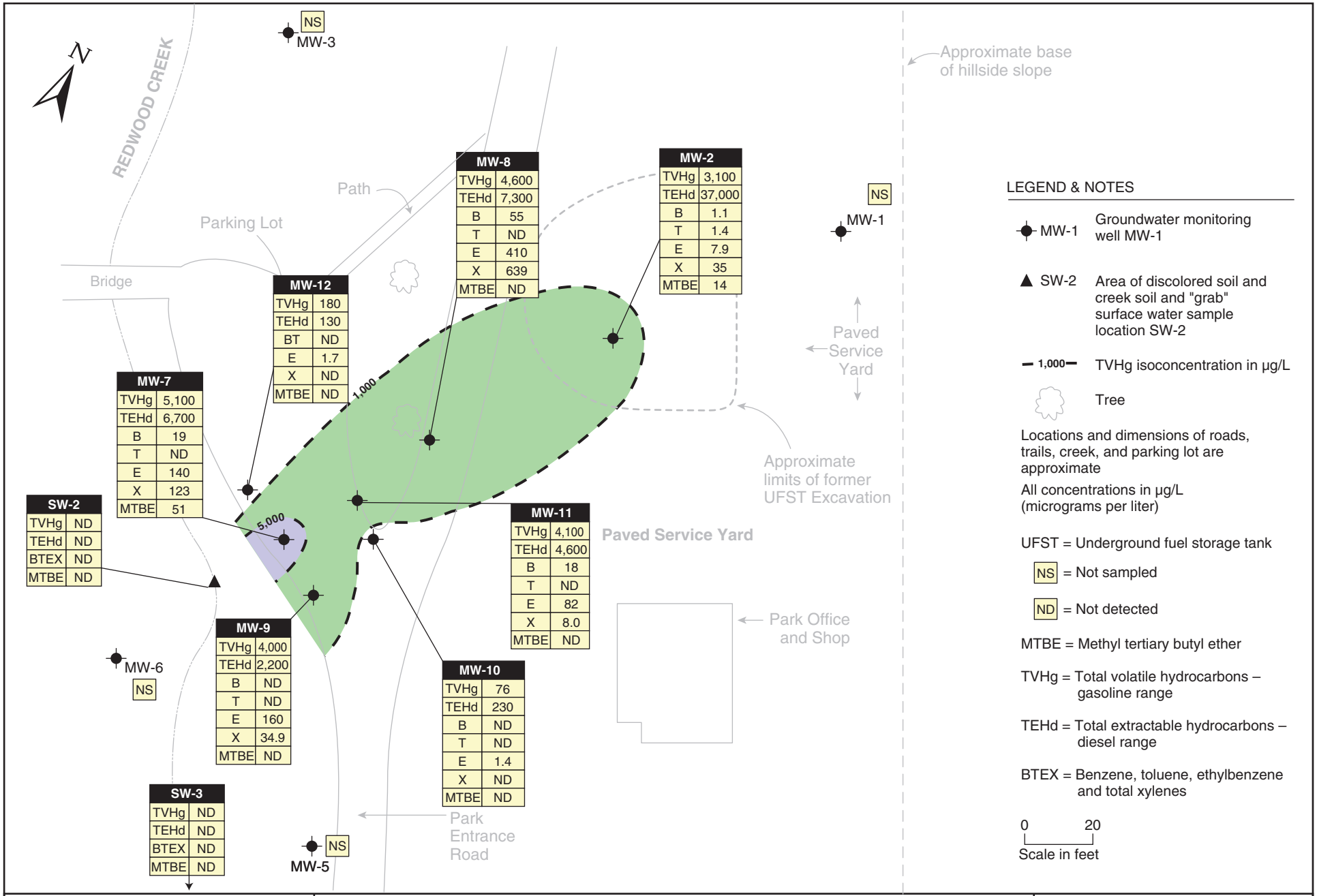
The following discusses the Oxygen Release Compound ORC™ injection corrective action at the site that was conducted on March 10, 2009 in accordance with the SES Workplan, dated February 12, 2009. This pilot test injection was conducted by RSI Drilling, a California licensed hazardous drilling contractor, under the direct supervision of SES. Figure 8 shows the array of injection points around MW-2. These are numbered in the order in which they were injected.

OBJECTIVES OF CORRECTIVE ACTION

This treatment entailed a limited remedial application of ORC™ into the upper yard area (source area) to address the rising hydrocarbon concentration observed at well MW-2. The three principal objectives of the pilot test injection were to:

- Determine if a pathway to well MW-2 was achievable through nearby injection at the depth intervals used;
- Ascertain if the injected ORC™ resulted in beneficial reduction of the high gasoline concentrations previously reported; and
- Evaluate the the efficacy of using ORC™ or a similar oxygen introducing compound to further reduce source area residual contamination.

Monitoring well MW-2, installed in the area of the former UFSTs, historically has shown low to trace (sometimes non-detectable) contaminant levels. However, since September 2007, well MW-2 concentrations increased dramatically, suggesting desorption from the original upgradient source area as a result of the drought-induced drop in water levels. The increase in all petroleum hydrocarbons at MW-2 initially raised concern that the cause was local (a significant reduction occurred after pumping 100 gallons or less). In 2008, SES initialized a program of more frequent monitoring and purging at MW-2 to mitigate against higher concentrations migrating downgradient toward Redwood Creek. The program showed limited success, with concentrations declining after limited purging, but rapidly increasing between monitoring events. This was the basis for this aggressive corrective action program involving the injection of the ORC™ compound to provide a catalyst for enhanced biodegradation to occur. The remedy was designed to coincide with the higher groundwater elevations typically observed in spring.



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

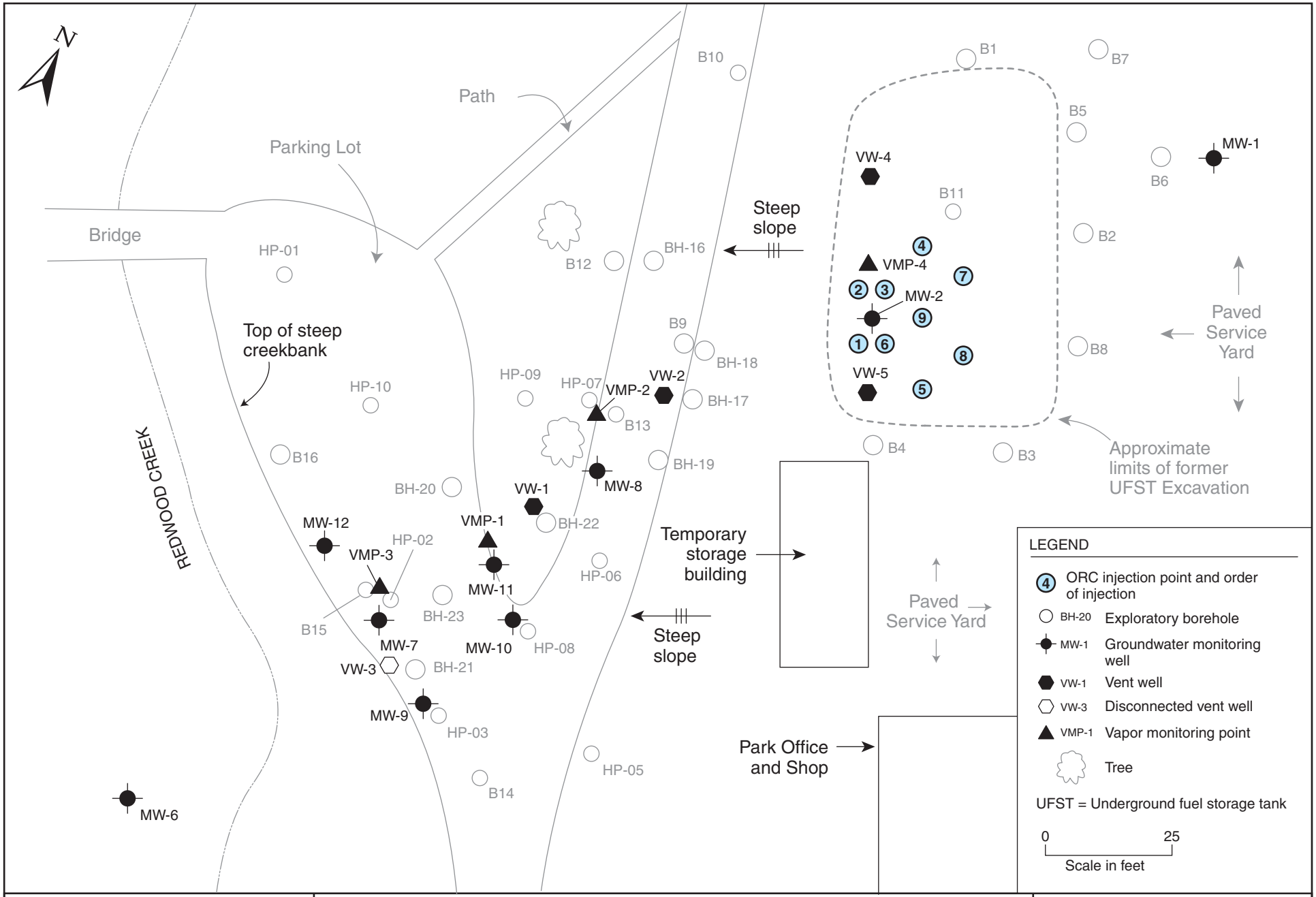
ANALYTICAL RESULTS AND GASOLINE PLUME—MARCH 2009

Redwood Regional Park Service Yard, Oakland, CA

Figure 8

by: MJC | APRIL 2009

2006-17-19



STELLAR ENVIRONMENTAL SOLUTIONS, INC
GEOSCIENCE & ENGINEERING CONSULTING

SITE PLAN SHOWING ORC INJECTION POINT LOCATIONS

Redwood Regional Park Service Yard, Oakland, CA

Figure 9

by: MJC | MARCH 2009

2008-02-14

METHOD DESCRIPTION

The ORC™ product is a patented formulation of magnesium peroxide that produces a slow and sustained (generally 6- to 12-month duration) release of molecular oxygen when in contact with soil moisture or groundwater. The oxygen release function stimulates the growth of naturally-occurring microbes that will aerobically degrade petroleum hydrocarbons, using the carbon as a food source. This process is especially useful in areas where elevated levels of petroleum hydrocarbons have inhibited naturally-occurring oxygen to levels below those required for microbial degradation. A smaller percentage of hydrocarbon degradation is anticipated via direct oxidation, especially in close proximity to the injection boreholes.

INJECTION PROCEDURE

The oxygen releasing compound ORC™ was selected to inoculate the groundwater in accessible areas surrounding monitoring well MW-2. This passive remedial technique creates a highly oxygenated zone in the areas where natural attenuation is limited by oxygen availability. For the subject site, the ORC™ was delivered as a slurry across the saturated interval via injection by a direct-push Geoprobe® rig. The nine injection points are shown on Figure 8.

The injection system equipment mobilized to the site for the injection consisted of:

- Direct-push Geoprobe® rig;
- Drive rods (typically 1½-inch outside diameter) and injection tooling with fluid delivery sub-assembly;
- Injection pump rated for 5 gallons per minute (gpm) at 200 pound per square inch (psi) for sandy formations, and 800 psi for silt and clay formations;
- Injection hosing with pressure gauge and a pressure relief valve with a bypass;
- Power drill paint stirrer (3-inch-diameter or smaller propeller tip);
- Truck mounted mixing ORC™ tank and hopper;
- Granular bentonite, quick-set grout concrete for closing and sealing injection holes;
- Water supply; and
- Electrical generator.

The specifications of the injection included:

- The projected “hot spot” area covered an estimated 300 square feet area: approximately 20 feet by 15 feet.

- A total of 9 injection points were drilled using direct-push technology to a depth of 25 feet.
- A total of approximately 270 pounds of ORC™ mixed with water to achieve a 30 percent solid slurry was delivered to the subsurface (30 lbs of ORC™ mixed with 12 gallons of water was injected into each bore)
- The oxidant loading was approximately 3 pounds per foot.
- Delivery point spacing was approximately 7-10 feet.
- The saturated thickness of the treatment zone (including capillary fringe) is 10 feet, from 15 to 25 feet below bgs or between elevations 538 to 548 feet amsl.

The ORC™ injection should be effective in reducing the contaminant concentration in MW-2 by accelerating the biodegradation significantly within the first 6-12 months or so. The mobility of the plume will likewise be reduced in the area, although historical data suggests that this "hotspot" area in the vicinity of monitoring well MW-2 exhibits low mobility due to other, possibly lithologic reasons. The volume of dissolved hydrocarbons within the MW-2 area will likely be reduced within the first 6 to 9 months by 50 percent of more—according to the manufacturer's data.

The Geoprobe® rig advanced an approximately 1.5-inch-diameter, hollow, steel drive casing to 25 feet bgs, the bottom of the pre-determined saturated interval. The casing was then lifted approximately 1 foot to drop the sacrificial drive point and expose the inner screened casing through which the ORC™ slurry was pumped. A slurry of approximately 1.25 gallons of water to 3 pounds of ORC™ powder was mixed in buckets. The slurry was transferred to an in-line hopper and pumped down the casing, through the screen, and into the formation at a pressure of approximately 200 psi. Care was taken to deliver an approximately uniform mass of ORC™ over each saturated interval. A waiting period of about 15 minutes was needed before disconnecting the injection apparatus and extracting the drill rods to allow the system to depressurize and prevent the ORC™ product from being extruded back up the rod assembly to the surface. "Short-circuiting" of the ORC™ slurry around the drive casing and to ground surface was not observed during the injection indicating that the product was successfully delivered to the desired depth interval. Following full injection over the interval, the drive casing was fully withdrawn and the open portion of the borehole was filled with bentonite chips and hydrated.

Communication between boreholes was observed only between injection boreholes 5 and 6 in which product was observed to extrude to the surface through borehole 5 while injecting into borehole 6. The injection was immediately stopped, the formation was allowed to depressurize for about 15 minutes at which time borehole 5 was replugged with bentonite chips from a depth

of 10 feet bgs to the surface prior to resuming the injection of borehole 6. Approximately 1.5 gallons of slurry observed exit borehole 5 was recovered and injected down borehole 6.

FUTURE ACTIVITIES

The ORC™ was able to migrate to the area of the MW-2 but preferential pathways also clearly occur in the subsurface environment in this area. The effectiveness of the ORC™ injection corrective action program in reducing groundwater contaminant concentrations in MW-2 will continue to be evaluated. This evaluation will occur though the comparison of the pre-injection baseline data with post-injection groundwater monitoring well analytical results over subsequent quarterly and monthly sampling events. The post-injection groundwater data will be evaluated in the context of effectiveness of the corrective action, including indicators of dissolved oxygen and hydrochemical trends. It is possible that an additional injection will be required if groundwater contamination persists beyond the active life of the ORC™ (estimated to be approximately 9 months).

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 (49 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 from 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 bgs) 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.
- First quarter 2009 site groundwater contaminant concentrations exceeded the groundwater ESL for TVHg in six of the seven wells sampled (MW-2, MW-7, MW-8, MW-9, MW-11, and MW-12). TVHg was also detected in MW-10, but below the ESL. Contaminant concentrations of TEHd exceeded the ESL in all seven of the wells sampled.
- The ESL for benzene was exceeded in MW-2, MW-7, MW-8, and MW-11; the ESL for ethylbenzene was exceeded in MW-7, MW-8, MW-9, and MW-11; the ESL for total

xylenes was exceeded in MW-2, MW-8, and MW-9; and the ESL for methyl tertiary-butyl ether (MTBE) was exceeded in MW-2 and MW-7. Toluene was not detected in any of the seven wells sampled above the ESL. Toluene was detected in MW-2, but below the ESL.

- 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 for TVHg is currently centered around MW-7 (greater than 5,000 µg/L) while the greatest zone of TEHd contamination is currently centered around MW-2 (greater than 10,000 µg/L).
- 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.
- Since September 2007, contaminant concentrations in well MW-2 (located in the source area) have increased dramatically, suggesting desorption from the original upgradient source area as a result of a drought-induced drop in water levels. Additional groundwater purging on MW-2 failed to reduce concentrations over time; therefore, a limited remedial application of ORC™ was injected into the upper yard area (source area) in March 2009.
- The pilot test was conducted to evaluate subsurface acceptance of the injected compound, and its affect on reducing gasoline concentrations at MW-2. A total of 9 injection points were drilled using direct-push technology to a depth of 25 feet bgs. A total of approximately 270 pounds of ORC™ was mixed with water to achieve a 30 percent solid slurry and was delivered to the subsurface. The ORC™ injection should be effective in reducing the contaminant concentration of the plume in MW-2 by accelerating the biodegradation significantly within approximately the first 6-12 months.
- Soil bioventing is a proven technology for contaminant mass removal in the unsaturated zone, under conditions similar to the site. However, the heterogeneous environment where the plume is located limits effectiveness; with only MW-8 in the upper center of the plume area showing a significant reduction in hydrocarbon concentrations. In other areas of the plume, 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.
- A letter dated March 24, 2009 from Mr. Wickham of ACEH, written after reviewing the ORC™ injection workplan, commented that it would not do much to reduce the overall source area contribution. SES agrees with that assessment. However, the small injected volumes were not intended to achieve a broad remediation goal. The intent was to determine if a pathway to well MW-2 was achievable through nearby injections, as well

as locally reduce the high gasoline concentrations exhibited in MW-2. SES will provide responses to the timetable set for the technical reports requested.

PROPOSED ACTIONS

The EBRPD proposes to implement the following actions to address regulatory concerns:

- Respond to the technical report request in the ACEH letter dated March 24, 2009.
- Sample MW-2 between regular quarterly sampling events to monitor the ORC™ injection remedy effectiveness as part of the pilot test follow up.
- Continue the quarterly monitoring program of creek and groundwater sampling and reporting.
- Continue to inform regulators of site progress and seek their concurrence with proposed actions.
- Continue to operate the bioventing system as a part of the overall corrective action program, although it has limited potential to achieve significant reduction in contaminant mass throughout the affected area.
- 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.

8.0 REFERENCES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Stellar Environmental Solutions, Inc. (SES), 2009b. Remedial Action Workplan for Oxygen Releasing Compound ORC® Application to Source Area Contamination, Redwood Regional Park Service Yard, 7867 Redwood Road, Oakland, California. February 12.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.0 LIMITATIONS

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

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

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

APPENDIX A

Historical Groundwater Monitoring Well Water Level Data

HISTORICAL GROUNDWATER ELEVATIONS IN MONITORING WELLS

REDWOOD REGIONAL PARK SERVICE YARD

7867 REDWOOD ROAD, OAKLAND, CALIFORNIA

Well I.D.	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
TOC Elevation (a)	565.83	566.42	560.81	548.10	547.41	545.43	547.56	549.13	549.28	547.22	547.75	544.67
Date Monitored	Groundwater Elevations (feet above mean sea level)											
09/18/98	563.7	544.2	540.8	534.5	531.1	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
9/14/07	560.71	541.02	536.99	(b)	530.46	531.58	533.42	534.86	532.64	533.47	533.68	533.74
12/6/07	560.62	541.22	536.85	(b)	530.68	531.48	533.21	535.08	532.62	533.3	533.61	533.64
3/14/08	561.76	545.73	541.63	(b)	531.34	532.30	534.88	539.30	534.67	536.04	535.89	535.72
6/13/08	560.92	543.61	540.6	(b)	530.83	532.02	534.42	536.86	533.81	534.84	535.16	534.67
9/18/08	560.43	540.15	536.41	(b)	529.85	531.11	532.69	534.15	531.97	532.65	533.09	533.12
12/17/08	561.11	540.88	536.77	(b)	530.68	531.67	533.26	534.04	532.35	532.94	533.29	533.66
3/16/09	561.84	546.25	539.51	(b)	531.63	532.58	534.65	539.51	534.56	535.55	535.49	535.08

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

WELL GAUGING DATA

Project # 090316-201 Date 3/16/09 Client Stellar

Site Redwood Regional Park Service Yard. OAKLAND, CA

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
MW-3	0830	4					18.94	45.01		G.O
MW-7	0835	2					12.91	25.35		S
MW-9	0839	2					14.72	30.18		S
MW-5	0841	4					15.78	26.94		G.O.
MW-12	0845	2					9.59	23.84		S
MW-11	0850	2					12.26	28.71		S
MW-10	0853	2					11.67	28.34		S
MW-8	0900	2					9.62	22.29		S
MW-6	0905	4					12.85	14.56		G.O
MW-2	0912	4	odor				20.17	38.84		D.O S
MW-1	0917	4					3.99	19.11		G.O

WELLHEAD INSPECTION CHECKLIST

Date 3/16/09 Client Stellar

Site Address Redwood Regional Park service yard

Job Number 090316-JO1 Technician JO/AC

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-3	✓		Stand Pipe					
MW-7	✓		Stand Pipe					
MW-9	✓		Stand Pipe					
MW-5	✓		Stand Pipe					
MW-12	✓							
MW-11	✓		Stand Pipe					
MW-10	✓							
MW-4		X	3/3 Bolts missing					
MW-6	✓		stand pipe					
MW-2	✓		Stand Pipe					
MW-1	✓		Stand Pipe					

NOTES:

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Redwood Regional Park				PROJECT NUMBER 090316-J01			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
YSI 550 DO meter	09B100951	3/16/09 0650		91.3 %	yes	17.8°C	SD
Myron L Ultrameter II	6222814	" "	pH 4 3900 us 7 10	4 3898 7 10	yes yes	17.8°C	SD
Hach Turbidimeter	07090C025694	0655 "	5 / 500 / 800	4.8 / 496 / 791	yes	17.8°C	SD

.LL MONITORING DATA SH. .T

Project #: 090316-S01	Client: Stellar
Sampler: SO/AC	Date: 3/16/09
Well I.D.: MW-2	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD): 38.84	Depth to Water (DTW): 20.17
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]: 23.90	

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

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

12.1 (Gals.) X 3 = 36.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
939	60.0	6.40	1043	38	12.5	odor
	dewatered @ 20 gallons					
1100	58.4	6.88	9423	405	—	odor

Did well dewater? (Yes) No Gallons actually evacuated: 20.0

Sampling Date: 3/16/09 Sampling Time: 1100 Depth to Water: 23.40

Sample I.D.: MW-2 Laboratory: Kiff CalScience Other C.T

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

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

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

D.O. (if req'd):	Pre-purge:	mg/L	(Post-purge:)	0.12	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

LL MONITORING DATA SH T

Project #: 090316-SO1	Client: Stellar
Sampler: SO/AC	Date: 3/16/09
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 25.35	Depth to Water (DTW): 12.91
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.40	

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

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

2.0 (Gals.) X 3 = 6.0 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1037	55.0	6.76	891	244	2	
1043	55.1	6.67	866	398	4	
1048	55.3	6.73	872	957	6	

Did well dewater? Yes (No) Gallons actually evacuated: 6.0

Sampling Date: 3/16/09 Sampling Time: 1055 Depth to Water: 14.60

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

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

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

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

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

ELL MONITORING DATA SHEET

Project #: 090316-SO1	Client: Stellar
Sampler: SO/AC	Date: 3/16/09
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 22.29	Depth to Water (DTW): 9.62
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.15	

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

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

2.0 (Gals.) X 3 = 6.0 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
1125	59.4	7.02	845.	158	2	
1130	59.8	7.01	895	981	4	
135	60.6	6.98	893	>1000	6	

Did well dewater? Yes (No) Gallons actually evacuated: 6.0

Sampling Date: 3/16/09 Sampling Time: 1145 Depth to Water: 10.55

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

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

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

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

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

WELL MONITORING DATA SHEET

Project #: 090316-SD1	Client: Stellar
Sampler: JD/AC	Date: 3/16/09
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth (TD): 30.16	Depth to Water (DTW): 14.72
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 17.81	

Purge Method: Bailer; ~~Disposable Bailer~~; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ___

Sampling Method: Bailer; ~~Disposable Bailer~~; Extraction Port; Dedicated Tubing; Other: ___

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

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1115	56.6	6.73	943	~~4.5~~ 694	2.5	
1118	56.3	6.74	965	~~5.0~~ >1000	5.0	
1121	56.9	6.79	965	~~7.5~~ >1000	7.5	

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

Sampling Date: 3/16/09 Sampling Time: 1130 Depth to Water: 17.80

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

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

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

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

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

LL MONITORING DATA SH T

Project #: 090316-501	Client: Stellar
Sampler: JO/AC	Date: 3/16/09
Well I.D.: MW-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.34	Depth to Water (DTW): 11.67
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.00	

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

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

2.6 (Gals.) X 3 = 7.8 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	radius^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1011	57.9	7.99	768	207	2.6	
1015	58.0	7.95	795	748	5.2	
1019	58.1	7.92	833	>1000	7.8	

Did well dewater? Yes (No) Gallons actually evacuated: 7.8

Sampling Date: 3/16/09 Sampling Time: 1025 Depth to Water: 15.00

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

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

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

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

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

LL MONITORING DATA SH T

Project #: 090316-501	Client: Stellar
Sampler: SO/AC	Date: 3/16/09
Well I.D.: MW-11	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 28.71	Depth to Water (DTW): 12.26
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.55	

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

Sampling Method: Bailer; Disposable Bailer; Extraction Port; Dedicated Tubing; Other: ____

2.6 (Gals.) X 3 = 7.8 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	radius^2 * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1150	56.8	7.04	703	>1000	2.6	
1155	56.6	7.04	712	>1000	5.2	
1200	56.6	7.03	730	>1000	7.8	

Did well dewater? Yes (No) Gallons actually evacuated: 7.8

Sampling Date: 3/16/09 Sampling Time: 1205 Depth to Water: 13.17

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

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

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

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

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

ELL MONITORING DATA SHEET

Project #: 090316-501	Client: Stellar
Sampler: JO/AC	Date: 3/16/09
Well I.D.: MW-12	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth (TD): 23.84	Depth to Water (DTW): 9.59
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 12.44	

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) 3 = 6.9 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

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

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1039	54.2	6.92	644	462	2.3	
1044	54.7	6.91	661	776	4.6	
1049	54.8	6.93	665	>1000	6.9	

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

Sampling Date: 3/16/09 Sampling Time: 1055 Depth to Water: 12.00

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

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

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

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

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

Chain of Custody Record

Lab job no. 090316-801
Date 3/16/09
Page 1 of 1

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

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

Project Name Redwood Regional Park
Project Number 2006-16

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 (8015/8021)	BTEX (8015/8021)	MTBE (8015/8021)	TEH-D (8015)	Remarks
MW-2	23.40	3/16	1100	W	3 HCl VOAs 1 NP Amber 1L	Y	Y HCl		4	X	X	X	X	
MW-7	14.60		1055							X	X	X	X	
MW-8	10.55		1145							X	X	X	X	
MW-9	17.80		1130							X	X	X	X	
MW-10	15.00		1025							X	X	X	X	
MW-11	13.17		1205							X	X	X	X	
MW-12	12.00		1055							X	X	X	X	

Analysis Required

Relinquished by:	Date	Received by:	Date
Signature	3/16/09	Signature Pat Gonzalez	3/16/09
Printed	Time 1327	Printed Pat Gonzalez	Time 1327
Company Stellar Environmental		Company Curtis & Tompkins	

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

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

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

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

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

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVH g MBTEX	TEPH d	Remarks
SW-2	Creek	3-16-09	0945	W	4 VOA, 1 L	Y	Yes (a)	N	5	X	X	
SW-3	Creek	3-16-09	1020	W	4 VOA, 1 L	Y	Yes (a)	N	5	X	X	

Analysis Required

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature [signature]	3-16-09	Signature [signature]	3-16-09	Signature [signature]	3/16/09	Signature [signature]	3/16/09
Printed Teal Glass	Time 1030	Printed Jose ortiz	Time	Printed Jose ortiz	Time 1327	Printed Pat Gonzalez	Time
Company Stellar Environmental		Company Blaine Tech		Company Blaine Tech		Company Curtis & Tompkins	1:27

Turnaround Time: Standard - 5 Day

Comments: (a) VOA w/ HCL

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

2000-00-01

APPENDIX C

Analytical Laboratory Report and Chain-of-Custody Record


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 210695
ANALYTICAL REPORT

Stellar Environmental Solutions	Project : 2006-16
2198 6th Street	Location : Redwood Regional Park
Berkeley, CA 94710	Level : II

Sample ID	Lab ID
MW-2	210695-001
MW-7	210695-002
MW-8	210695-003
MW-9	210695-004
MW-10	210695-005
MW-11	210695-006
MW-12	210695-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following 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: 03/24/2009
Project Manager

Signature: _____ Date: 03/24/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**210695**
Client:	**Stellar Environmental Solutions**
Project:	**2006-16**
Location:	**Redwood Regional Park**
Request Date:	**03/16/09**
Samples Received:	**03/16/09**

This data package contains sample and QC results for seven water samples, requested for the above referenced project on 03/16/09. 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 trifluorotoluene (PID) in MW-7 (lab # 210695-002); the corresponding bromofluorobenzene (PID) surrogate recovery was within limits. High surrogate recoveries were observed for trifluorotoluene (FID) in MW-9 (lab # 210695-004) and MW-11 (lab # 210695-006); the corresponding bromofluorobenzene (FID) surrogate recoveries were within limits. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):

No analytical problems were encountered.

210695

Chain of Custody Record

Lab job no. 090316-307
Date 3/16/09
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 Manager Richard Makdisi
Telephone No. (510) 644-3123
Fax No. (510) 644-3859
Samplers: (Signature)

Project Owner East Bay Regional Park District
Site Address 7867 Redwood Road
Oakland, California
Project Name Redwood Regional Park
Project Number 2006-16

	Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	TVH-G (8015/8021)	BTEX (8015/8021)	MTBE (8015/8021)	TEH-D (8015)	Remarks
1	MW-2	23.40	3/16	1100	W	3 HCl VOAs 1 NP Amber 1L	Y	Y HCl		4	X	X	X	X	
2	MW-7	14.60		1055							X	X	X	X	
3	MW-8	10.55		1145							X	X	X	X	
4	MW-9	17.80		1130							X	X	X	X	
5	MW-10	15.00		1025							X	X	X	X	
6	MW-11	13.17		1205							X	X	X	X	
7	MW-12	12.00		1055							X	X	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature	3/16/09	Signature Pat Gonzalez	3/16/09	Signature		Signature	
Printed	Time 1327	Printed Pat Gonzalez	Time 1327	Printed	Time	Printed	Time
Company Stellar Environmental		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.

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

2000-00-01

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 210695 Date Received 3/16/09 Number of coolers 1
Client Stellar Project Redwood regional park

Date Opened 3/16/09 By (print) Phuong. (sign) P Le
Date Logged in / By (print) / (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.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09

Field ID:	MW-2	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-001	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	3,100	50	EPA 8015B
MTBE	14	2.0	EPA 8021B
Benzene	1.1 C	0.50	EPA 8021B
Toluene	1.4 C	0.50	EPA 8021B
Ethylbenzene	7.9 C	0.50	EPA 8021B
m,p-Xylenes	13 C	0.50	EPA 8021B
o-Xylene	22 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	120	63-146	EPA 8015B
Bromofluorobenzene (FID)	134	70-140	EPA 8015B
Trifluorotoluene (PID)	113	50-140	EPA 8021B
Bromofluorobenzene (PID)	112	56-132	EPA 8021B

Field ID:	MW-7	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-002	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	5,100	50	EPA 8015B
MTBE	51 C	2.0	EPA 8021B
Benzene	19 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	140 C	0.50	EPA 8021B
m,p-Xylenes	8.3 C	0.50	EPA 8021B
o-Xylene	4.0 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	141	63-146	EPA 8015B
Bromofluorobenzene (FID)	114	70-140	EPA 8015B
Trifluorotoluene (PID)	151 *	50-140	EPA 8021B
Bromofluorobenzene (PID)	100	56-132	EPA 8021B

*= Value outside of QC limits; see narrative
C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09

Field ID:	MW-8	Diln Fac:	10.00
Type:	SAMPLE	Batch#:	148981
Lab ID:	210695-003	Analyzed:	03/18/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,600	500	EPA 8015B
MTBE	ND	20	EPA 8021B
Benzene	55	5.0	EPA 8021B
Toluene	ND	5.0	EPA 8021B
Ethylbenzene	410	5.0	EPA 8021B
m,p-Xylenes	610	5.0	EPA 8021B
o-Xylene	29	5.0	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	108	63-146	EPA 8015B
Bromofluorobenzene (FID)	102	70-140	EPA 8015B
Trifluorotoluene (PID)	123	50-140	EPA 8021B
Bromofluorobenzene (PID)	109	56-132	EPA 8021B

Field ID:	MW-9	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-004	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,000	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	18 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	160 C	0.50	EPA 8021B
m,p-Xylenes	31 C	0.50	EPA 8021B
o-Xylene	3.9 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	148 *	63-146	EPA 8015B
Bromofluorobenzene (FID)	108	70-140	EPA 8015B
Trifluorotoluene (PID)	132	50-140	EPA 8021B
Bromofluorobenzene (PID)	96	56-132	EPA 8021B

*= Value outside of QC limits; see narrative
C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09

Field ID:	MW-10	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-005	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	76 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	1.4	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	1.4	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	104	63-146	EPA 8015B
Bromofluorobenzene (FID)	95	70-140	EPA 8015B
Trifluorotoluene (PID)	93	50-140	EPA 8021B
Bromofluorobenzene (PID)	88	56-132	EPA 8021B

Field ID:	MW-11	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-006	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	4,100 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	18 C	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	82 C	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	8.0 C	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	223 *	63-146	EPA 8015B
Bromofluorobenzene (FID)	126	70-140	EPA 8015B
Trifluorotoluene (PID)	124	50-140	EPA 8021B
Bromofluorobenzene (PID)	115	56-132	EPA 8021B

*= Value outside of QC limits; see narrative
C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09

Field ID:	MW-12	Diln Fac:	1.000
Type:	SAMPLE	Batch#:	149017
Lab ID:	210695-007	Analyzed:	03/19/09

Analyte	Result	RL	Analysis
Gasoline C7-C12	180 Y	50	EPA 8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	1.7	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)	112	63-146	EPA 8015B
Bromofluorobenzene (FID)	95	70-140	EPA 8015B
Trifluorotoluene (PID)	102	50-140	EPA 8021B
Bromofluorobenzene (PID)	89	56-132	EPA 8021B

Type:	BLANK	Batch#:	148981
Lab ID:	QC487771	Analyzed:	03/18/09
Diln Fac:	1.000		

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	91	63-146	EPA 8015B
Bromofluorobenzene (FID)	88	70-140	EPA 8015B
Trifluorotoluene (PID)	88	50-140	EPA 8021B
Bromofluorobenzene (PID)	90	56-132	EPA 8021B

*= Value outside of QC limits; see narrative
C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09

Type:	BLANK	Batch#:	149017
Lab ID:	QC487904	Analyzed:	03/19/09
Diln Fac:	1.000		

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

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	103	63-146	EPA 8015B
Bromofluorobenzene (FID)	99	70-140	EPA 8015B
Trifluorotoluene (PID)	99	50-140	EPA 8021B
Bromofluorobenzene (PID)	94	56-132	EPA 8021B

*= Value outside of QC limits; see narrative
C= Presence confirmed, but RPD between columns exceeds 40%
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC487772	Batch#:	148981
Matrix:	Water	Analyzed:	03/18/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	873.1	87	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	63-146
Bromofluorobenzene (FID)	105	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	148981
Units:	ug/L	Analyzed:	03/18/09
Diln Fac:	1.000		

Type: BS Lab ID: QC487773

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.17	102	53-152
Benzene	10.00	10.02	100	79-120
Toluene	10.00	10.62	106	76-122
Ethylbenzene	10.00	11.06	111	77-125
m,p-Xylenes	10.00	10.81	108	76-126
o-Xylene	10.00	10.82	108	77-126

Surrogate	%REC	Limits
Trifluorotoluene (PID)	99	50-140
Bromofluorobenzene (PID)	101	56-132

Type: BSD Lab ID: QC487774

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	18.48	92	53-152	10	37
Benzene	20.00	18.77	94	79-120	7	20
Toluene	20.00	18.36	92	76-122	15	21
Ethylbenzene	20.00	18.46	92	77-125	18	21
m,p-Xylenes	20.00	18.05	90	76-126	18	23
o-Xylene	20.00	18.40	92	77-126	16	21

Surrogate	%REC	Limits
Trifluorotoluene (PID)	104	50-140
Bromofluorobenzene (PID)	107	56-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	148981
MSS Lab ID:	210699-001	Sampled:	03/13/09
Matrix:	Water	Received:	03/16/09
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	1.000		

Type: MS Lab ID: QC487775

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	19.61	2,000	1,617	80	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	106	63-146
Bromofluorobenzene (FID)	103	70-140

Type: MSD Lab ID: QC487776

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,568	77	66-120	3	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	63-146
Bromofluorobenzene (FID)	115	70-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	149017
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	1.000		

Type: BS Lab ID: QC487908

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	10.00	100	53-152
Benzene	10.00	9.238	92	79-120
Toluene	10.00	9.564	96	76-122
Ethylbenzene	10.00	9.893	99	77-125
m,p-Xylenes	10.00	10.01	100	76-126
o-Xylene	10.00	9.623	96	77-126

Surrogate	%REC	Limits
Trifluorotoluene (PID)	97	50-140
Bromofluorobenzene (PID)	94	56-132

Type: BSD Lab ID: QC487909

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	12.11	121	53-152	19	37
Benzene	10.00	9.604	96	79-120	4	20
Toluene	10.00	10.10	101	76-122	5	21
Ethylbenzene	10.00	10.29	103	77-125	4	21
m,p-Xylenes	10.00	10.64	106	76-126	6	23
o-Xylene	10.00	10.29	103	77-126	7	21

Surrogate	%REC	Limits
Trifluorotoluene (PID)	101	50-140
Bromofluorobenzene (PID)	94	56-132

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2006-16	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	149017
Units:	ug/L	Analyzed:	03/19/09
Diln Fac:	1.000		

Type: BS Lab ID: QC488097

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	994.4	99	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	116	63-146
Bromofluorobenzene (FID)	103	70-140

Type: BSD Lab ID: QC488098

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,804	90	76-121	10	21

Surrogate	%REC	Limits
Trifluorotoluene (FID)	132	63-146
Bromofluorobenzene (FID)	104	70-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09
Diln Fac:	1.000	Prepared:	03/18/09
Batch#:	148997		

Field ID: MW-2 Lab ID: 210695-001
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	37,000 Y	50

Surrogate	%REC	Limits
o-Terphenyl	100	61-127

Field ID: MW-7 Lab ID: 210695-002
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	6,700 Y	50

Surrogate	%REC	Limits
o-Terphenyl	106	61-127

Field ID: MW-8 Lab ID: 210695-003
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	7,300 Y	50

Surrogate	%REC	Limits
o-Terphenyl	101	61-127

Field ID: MW-9 Lab ID: 210695-004
Type: SAMPLE Analyzed: 03/23/09

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

Surrogate	%REC	Limits
o-Terphenyl	107	61-127

Field ID: MW-10 Lab ID: 210695-005
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	230 Y	50

Surrogate	%REC	Limits
o-Terphenyl	111	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09
Diln Fac:	1.000	Prepared:	03/18/09
Batch#:	148997		

Field ID: MW-11 Lab ID: 210695-006
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	4,600 Y	50

Surrogate	%REC	Limits
o-Terphenyl	110	61-127

Field ID: MW-12 Lab ID: 210695-007
Type: SAMPLE Analyzed: 03/23/09

Analyte	Result	RL
Diesel C10-C24	130 Y	50

Surrogate	%REC	Limits
o-Terphenyl	121	61-127

Type: BLANK Analyzed: 03/22/09
Lab ID: QC487835

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	118	61-127

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 #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC487836	Batch#:	148997
Matrix:	Water	Prepared:	03/18/09
Units:	ug/L	Analyzed:	03/22/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,707	108	50-120

Surrogate	%REC	Limits
o-Terphenyl	109	61-127

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	210695	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2006-16	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	148997
MSS Lab ID:	210541-013	Sampled:	03/09/09
Matrix:	Water	Received:	03/10/09
Units:	ug/L	Prepared:	03/18/09
Diln Fac:	1.000		

Type:	MS	Analyzed:	03/22/09
Lab ID:	QC487837	Cleanup Method:	EPA 3630C

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<14.96	2,500	2,627	105	38-127

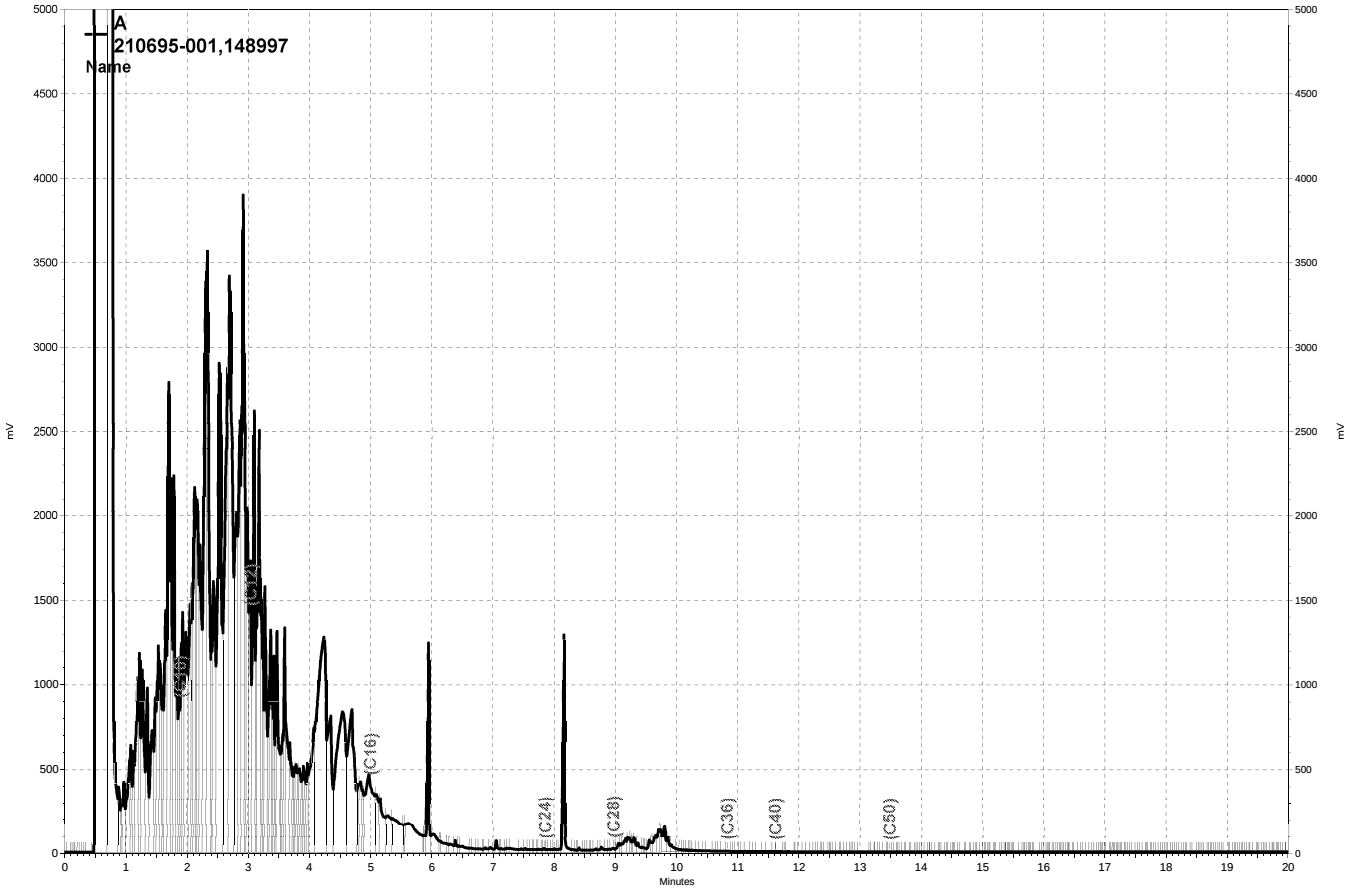
Surrogate	%REC	Limits
o-Terphenyl	109	61-127

Type:	MSD	Analyzed:	03/23/09
Lab ID:	QC487838	Cleanup Method:	EPA 3630C

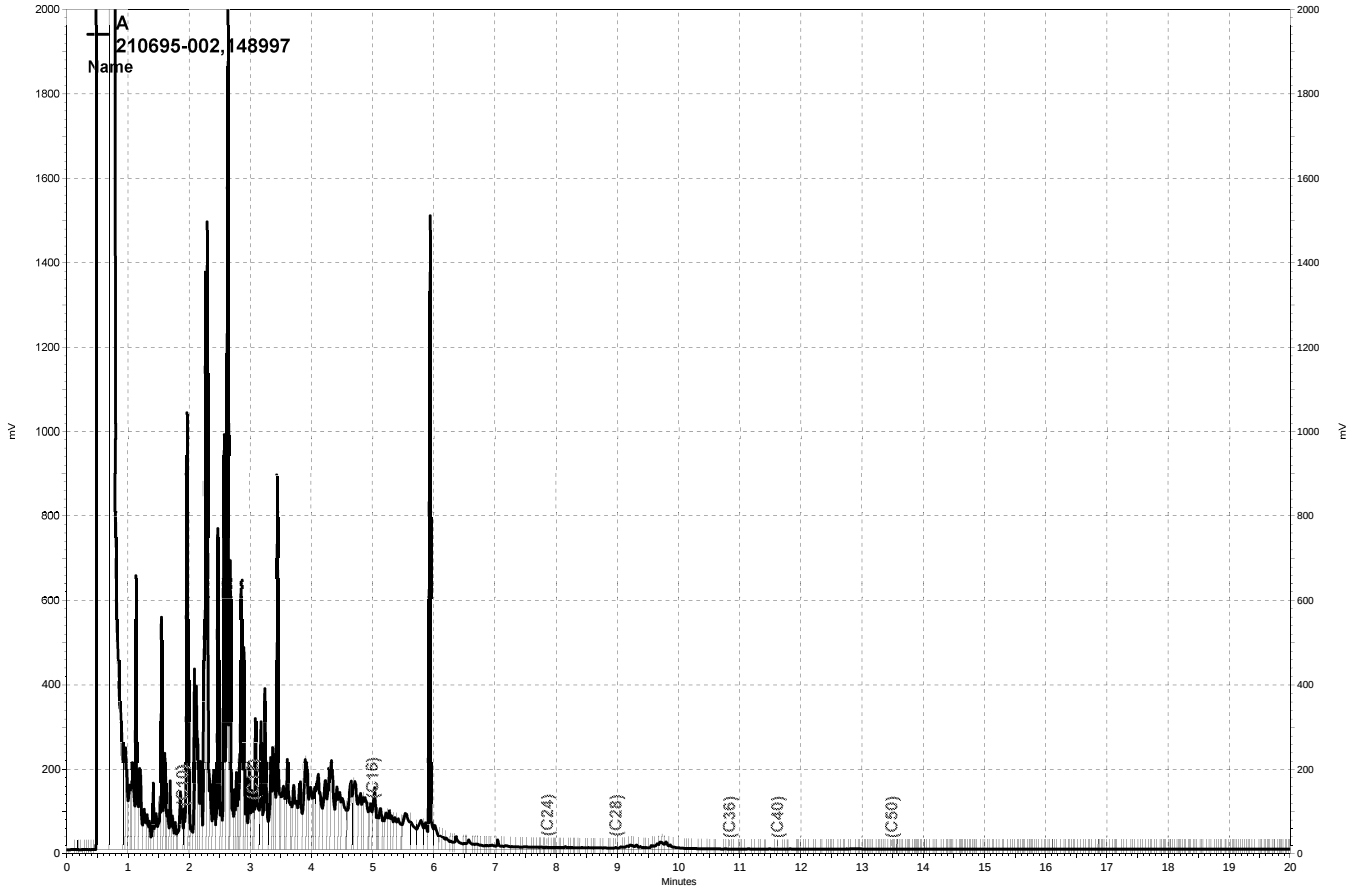
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,641	106	38-127	1	37

Surrogate	%REC	Limits
o-Terphenyl	113	61-127

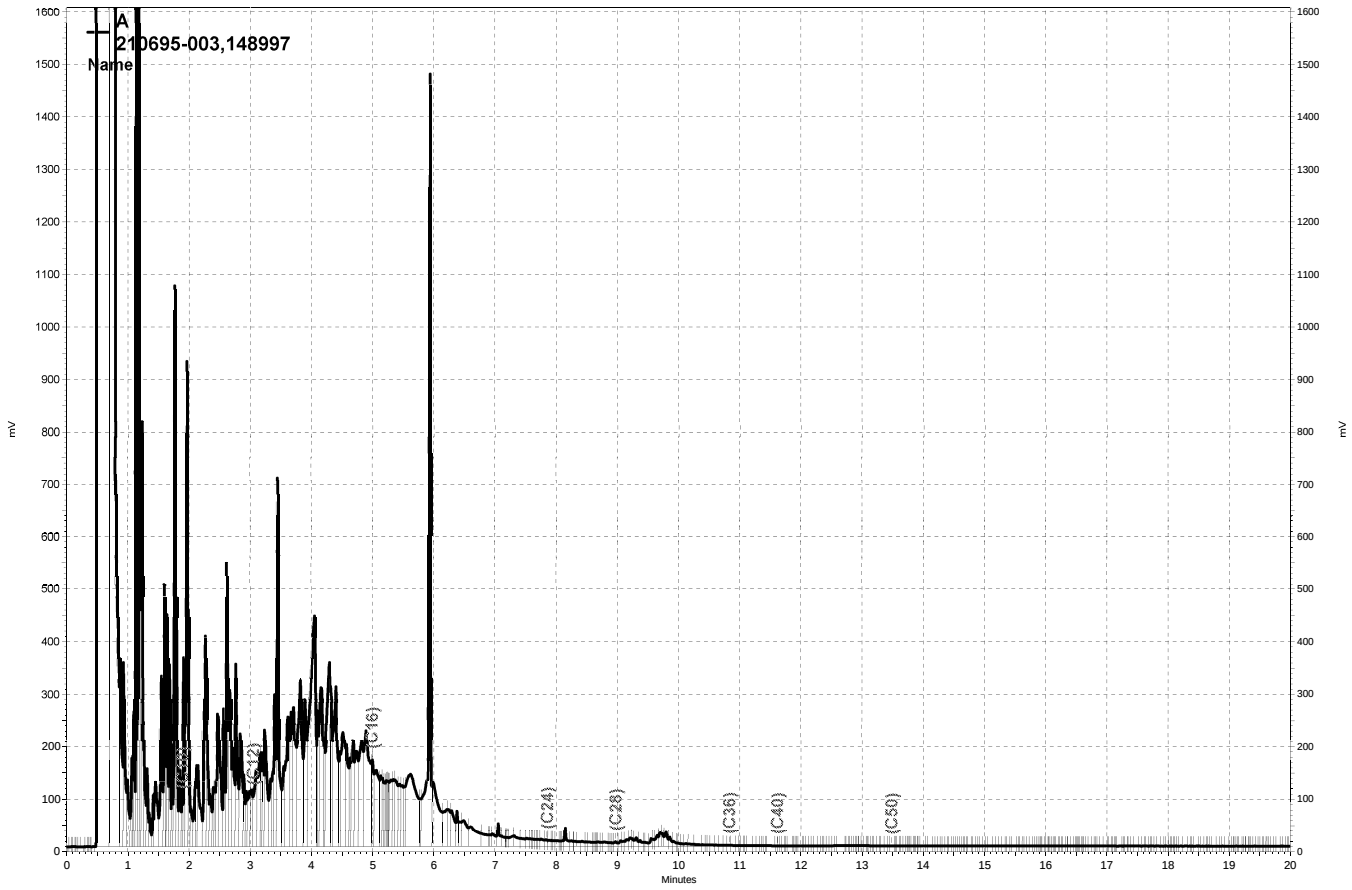
RPD= Relative Percent Difference



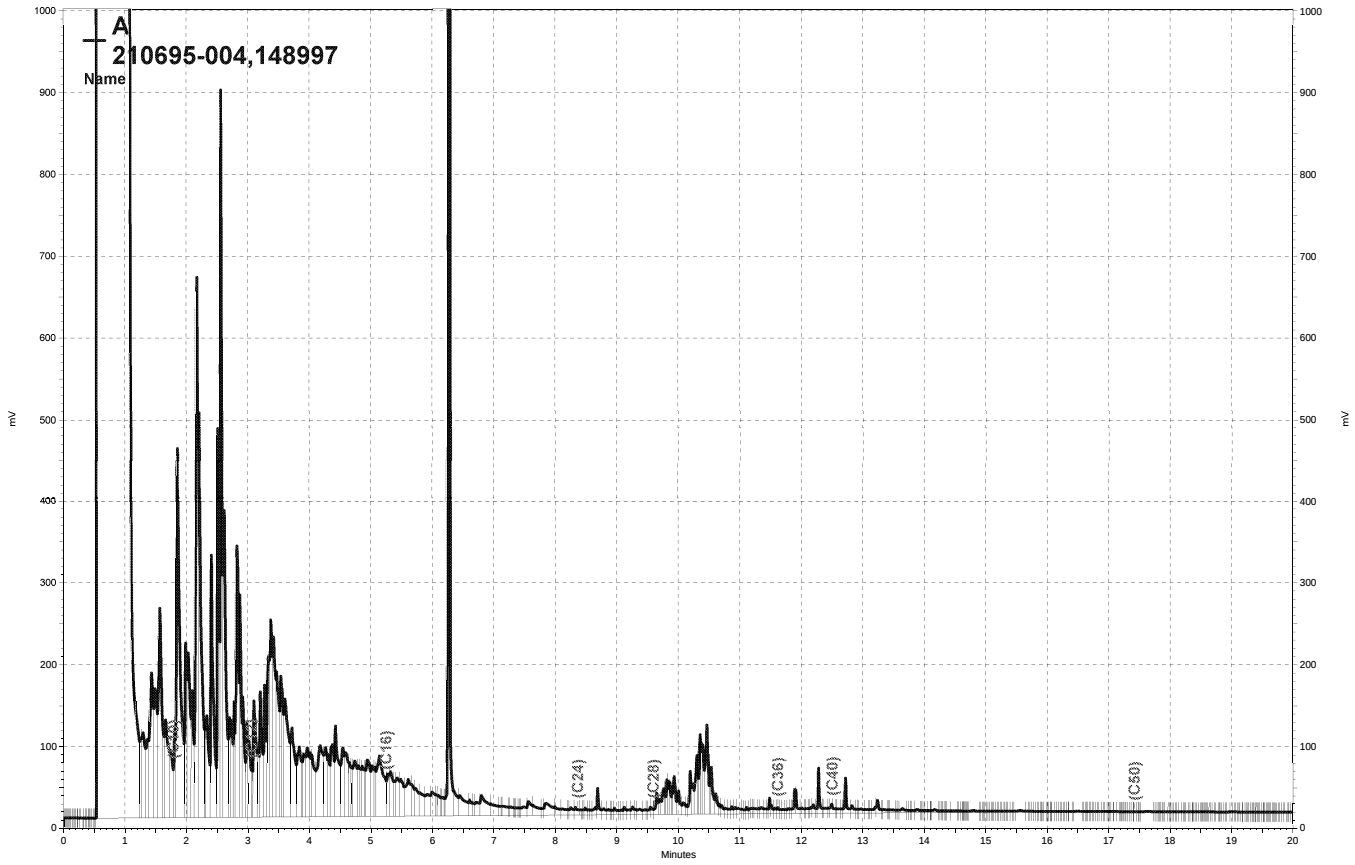
\\Lims\gdrive\ezchrom\Projects\GC26\Data\081a029, A



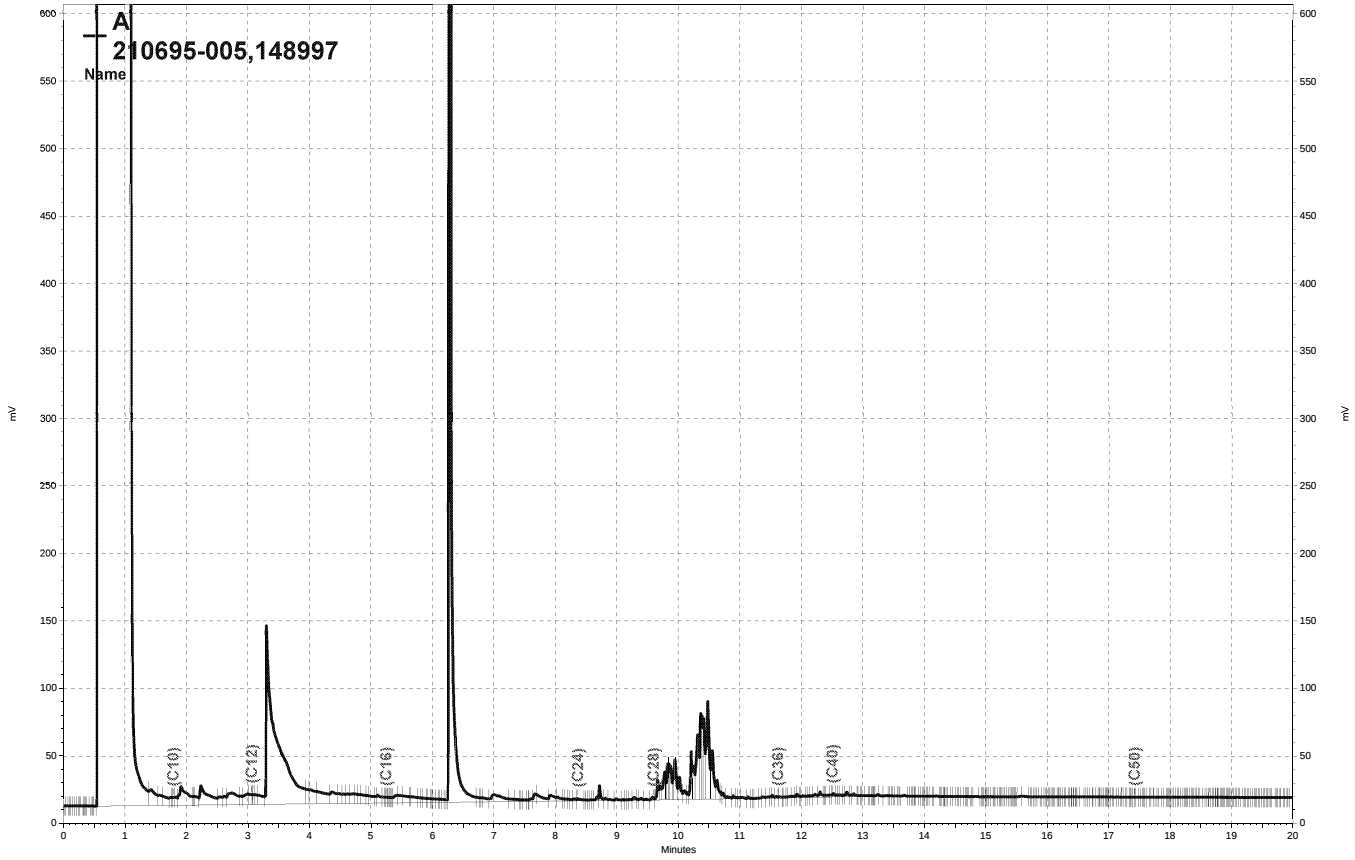
\\Lims\gdrive\ezchrom\Projects\GC26\Data\081a030, A



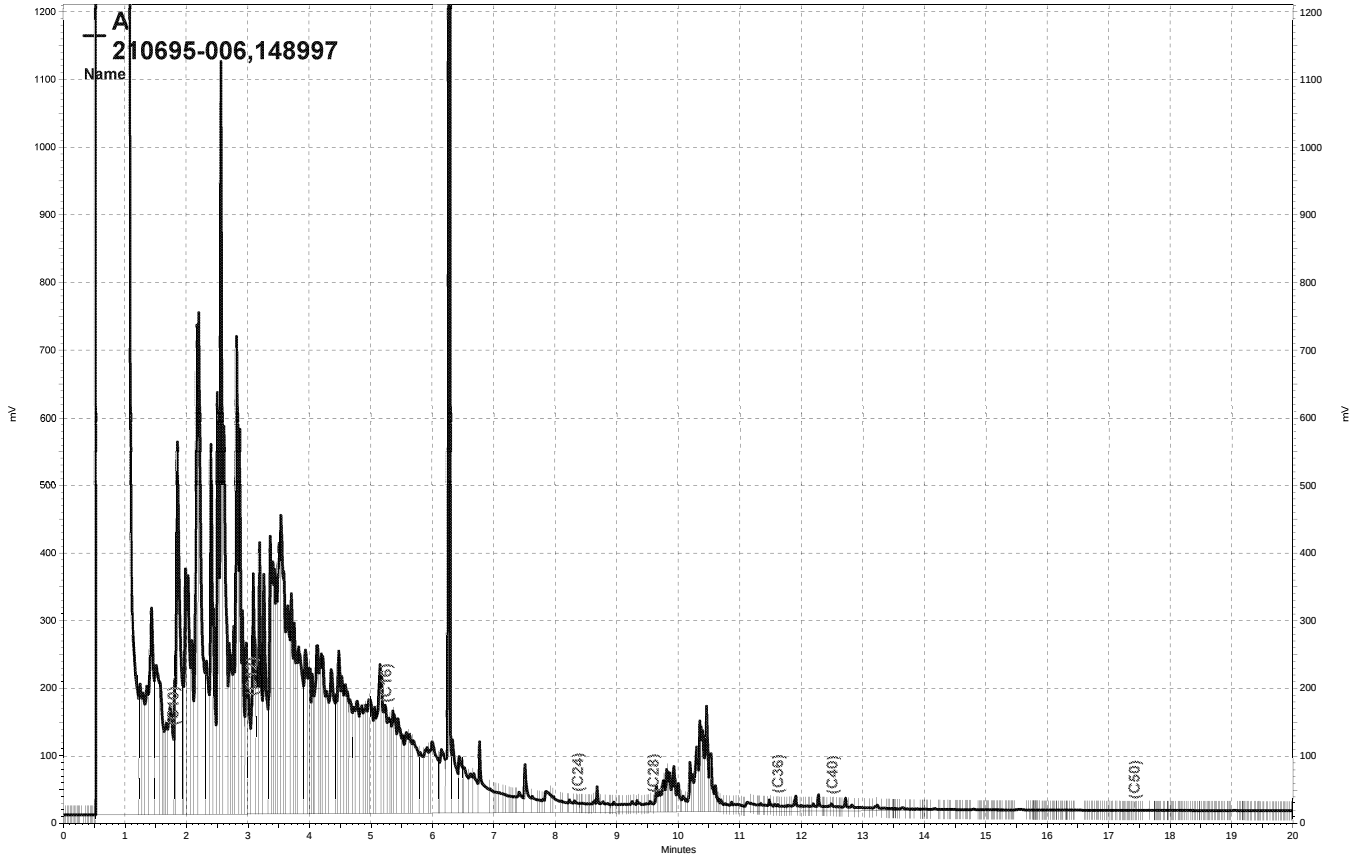
\\Lims\gdrive\ezchrom\Projects\GC26\Data\081a031, A



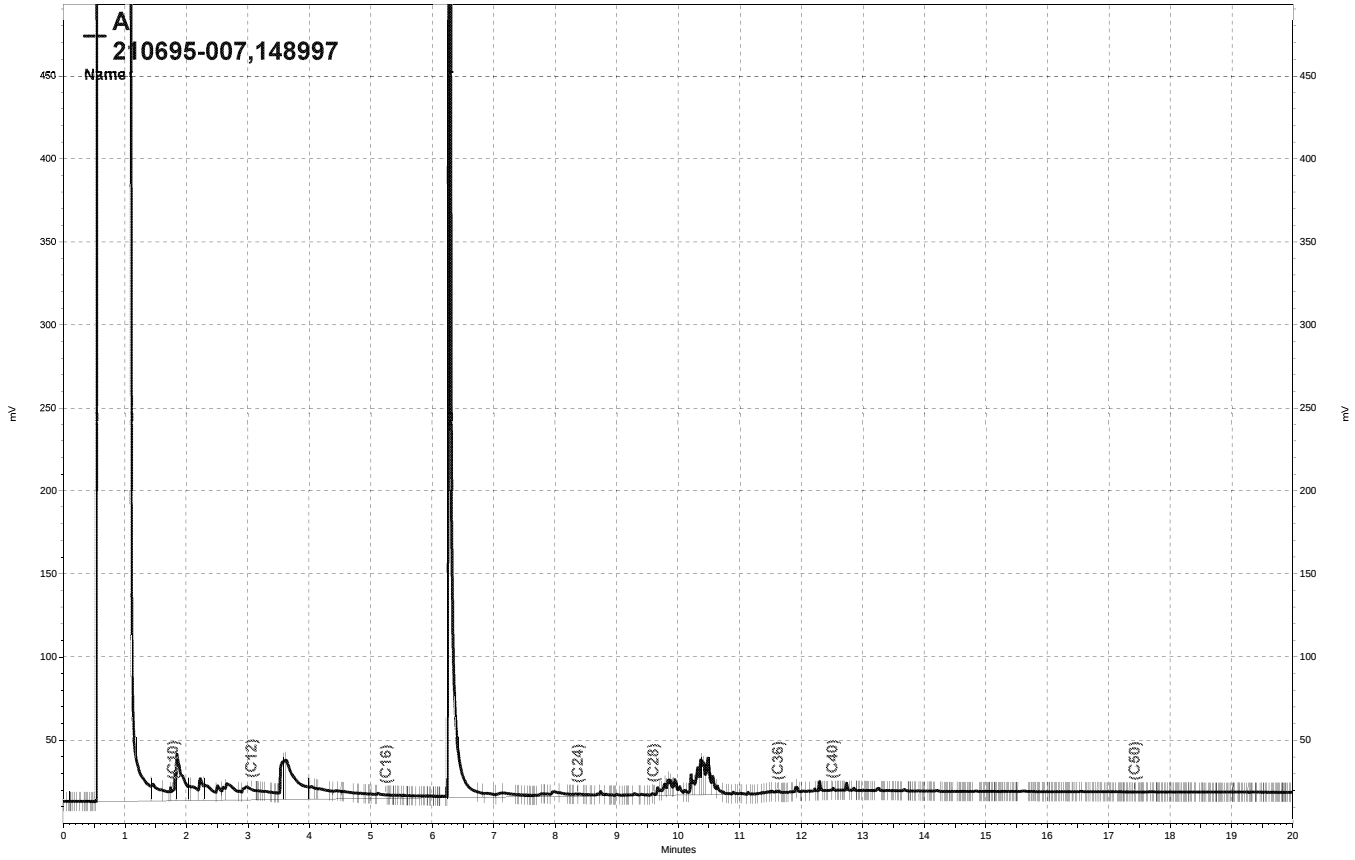
\\Lims\gdrive\ezchrom\Projects\GC17A\Data\081a029, A



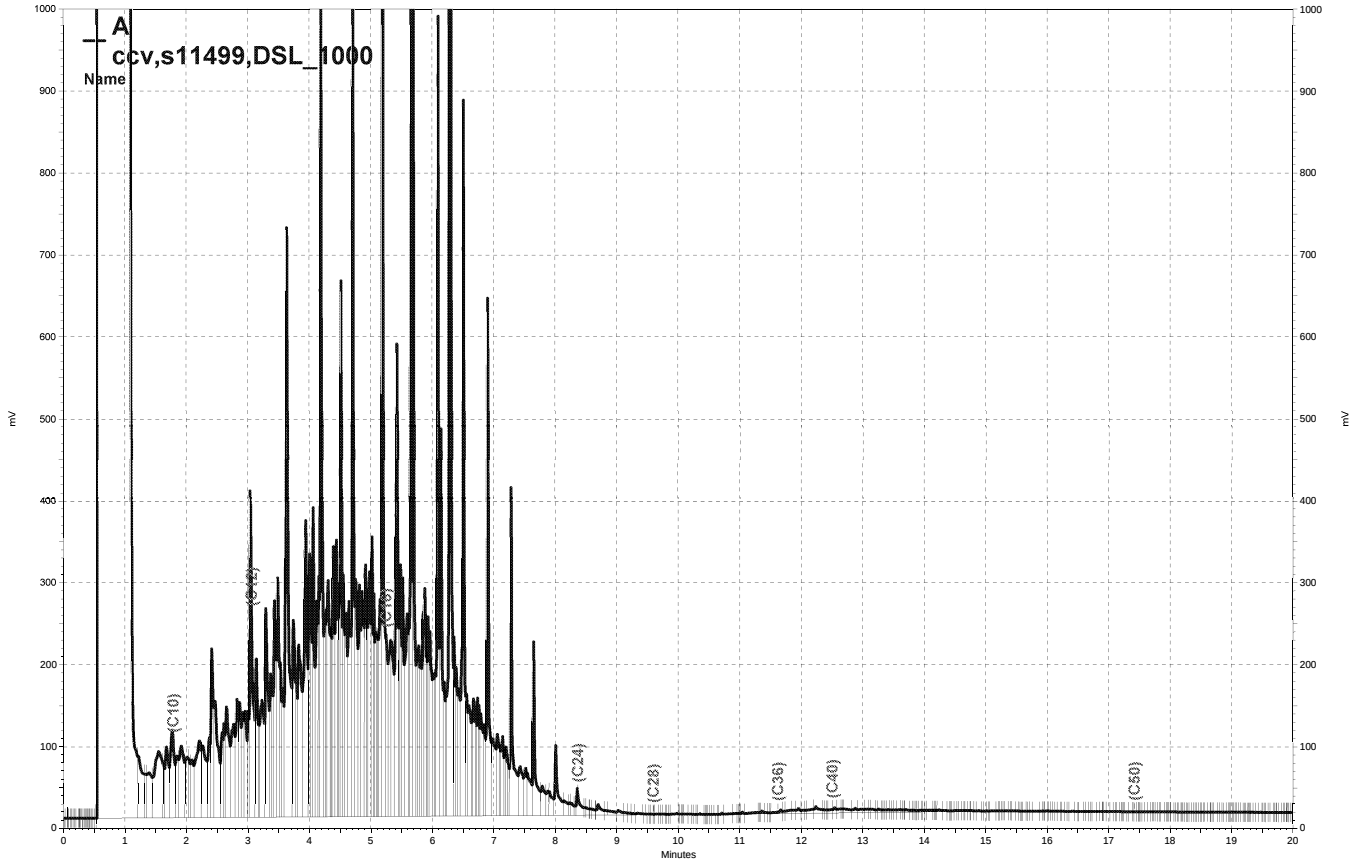
\\Lims\gdrive\ezchrom\Projects\GC17A\Data\081a030, A



\\Lims\gdrive\ezchrom\Projects\GC17A\Data\081a031, A



\\Lims\gdrive\ezchrom\Projects\GC17A\Data\081a032, A



\\Lims\gdrive\ezchrom\Projects\GC17A\Data\081a018, A


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 210675
ANALYTICAL REPORT

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

Sample ID	Lab ID
SW-2	210675-001
SW-3	210675-002

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: 03/23/2009
Project Manager

Signature: _____ Date: 03/23/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**210675**
Client:	**Stellar Environmental Solutions**
Project:	**2009-02**
Location:	**Redwood Regional Park**
Request Date:	**03/16/09**
Samples Received:	**03/16/09**

This data package contains sample and QC results for two water samples, requested for the above referenced project on 03/16/09. The samples were received cold and intact.

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

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

210675

Chain of Custody Record

Lab job no. _____

Date _____

Page 1 of 1

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

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

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

Field Sample Number	Location/ Depth	Date	Time	Sample Type	Type/Size of Container	Preservation: Cooler	Preservation: Chemical	Filtered	No. of Containers	Analysis Required: TVH & MBTEX	Analysis Required: TEPH	Remarks
1 SW-2	Creek	3-16-09	0945	W	4 VOA, 1 L	Y	Yes (a)	N	5	X	X	
2 SW-3	Creek	3-16-09	1020	W	4 VOA, 1 L	Y	Yes (a)	N	5	X	X	

Relinquished by:	Date	Received by:	Date	Relinquished by:	Date	Received by:	Date
Signature Teal Glass	3-16-09	Signature	3-16-09	Signature	3/16/09	Signature Pat Hayashi	3/16/09
Printed Teal Glass	Time 1030	Printed Jose ortiz	Time	Printed Jose ortiz	Time 1327	Printed Pat Gonzalez	Time 1:27
Company Stellar Environmental		Company Blaine Tech		Company Blaine Tech		Company Curtis & Tompkins	

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

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

2000-00-01

★ Stellar Environmental Solutions

2198 Sixth Street #201, Berkeley, CA 94710

3 of 1

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 210675 Date Received 3/16/09 Number of coolers 0
Client Stellar Project Redwood Regional park

Date Opened 3/16/09 By (print) Phuong (sign) P. Le
Date Logged in ↓ By (print) ↓ (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.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09
Diln Fac:	1.000	Analyzed:	03/17/09
Batch#:	148934		

Field ID: SW-2 Lab ID: 210675-001
Type: SAMPLE

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)	107	63-146	EPA 8015B
Bromofluorobenzene (FID)	107	70-140	EPA 8015B
Trifluorotoluene (PID)	79	50-140	EPA 8021B
Bromofluorobenzene (PID)	81	56-132	EPA 8021B

Field ID: SW-3 Lab ID: 210675-002
Type: SAMPLE

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)	110	63-146	EPA 8015B
Bromofluorobenzene (FID)	107	70-140	EPA 8015B
Trifluorotoluene (PID)	84	50-140	EPA 8021B
Bromofluorobenzene (PID)	83	56-132	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02		
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09
Diln Fac:	1.000	Analyzed:	03/17/09
Batch#:	148934		

Type: BLANK Lab ID: QC487573

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)	111	63-146	EPA 8015B
Bromofluorobenzene (FID)	108	70-140	EPA 8015B
Trifluorotoluene (PID)	82	50-140	EPA 8021B
Bromofluorobenzene (PID)	81	56-132	EPA 8021B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8021B
Matrix:	Water	Batch#:	148934
Units:	ug/L	Analyzed:	03/17/09
Diln Fac:	1.000		

Type: BS Lab ID: QC487574

Analyte	Spiked	Result	%REC	Limits
MTBE	10.00	8.485	85	53-152
Benzene	10.00	8.819	88	79-120
Toluene	10.00	9.123	91	76-122
Ethylbenzene	10.00	9.736	97	77-125
m,p-Xylenes	10.00	9.285	93	76-126
o-Xylene	10.00	9.766	98	77-126

Surrogate	%REC	Limits
Trifluorotoluene (PID)	83	50-140
Bromofluorobenzene (PID)	81	56-132

Type: BSD Lab ID: QC487575

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	10.00	9.898	99	53-152	15	37
Benzene	10.00	10.62	106	79-120	19	20
Toluene	10.00	11.20	112	76-122	20	21
Ethylbenzene	10.00	11.55	115	77-125	17	21
m,p-Xylenes	10.00	11.41	114	76-126	21	23
o-Xylene	10.00	11.48	115	77-126	16	21

Surrogate	%REC	Limits
Trifluorotoluene (PID)	83	50-140
Bromofluorobenzene (PID)	82	56-132

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC487576	Batch#:	148934
Matrix:	Water	Analyzed:	03/17/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	997.2	100	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	123	63-146
Bromofluorobenzene (FID)	105	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 5030B
Project#:	2009-02	Analysis:	EPA 8015B
Field ID:	SW-2	Batch#:	148934
MSS Lab ID:	210675-001	Sampled:	03/16/09
Matrix:	Water	Received:	03/16/09
Units:	ug/L	Analyzed:	03/17/09
Diln Fac:	1.000		

Type: MS Lab ID: QC487577

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	21.57	2,000	1,618	80	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	135	63-146
Bromofluorobenzene (FID)	113	70-140

Type: MSD Lab ID: QC487578

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,831	90	66-120	12	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	145	63-146
Bromofluorobenzene (FID)	118	70-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/16/09
Units:	ug/L	Received:	03/16/09
Diln Fac:	1.000	Prepared:	03/16/09
Batch#:	148922	Analyzed:	03/18/09

Field ID: SW-2 Lab ID: 210675-001
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	103	61-127

Field ID: SW-3 Lab ID: 210675-002
Type: SAMPLE

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	98	61-127

Type: BLANK Lab ID: QC487533

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	119	61-127

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC487534	Batch#:	148922
Matrix:	Water	Prepared:	03/16/09
Units:	ug/L	Analyzed:	03/18/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,996	80	50-120

Surrogate	%REC	Limits
o-Terphenyl	84	61-127

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	210675	Location:	Redwood Regional Park
Client:	Stellar Environmental Solutions	Prep:	EPA 3520C
Project#:	2009-02	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	148922
MSS Lab ID:	210606-002	Sampled:	03/11/09
Matrix:	Water	Received:	03/12/09
Units:	ug/L	Prepared:	03/16/09
Diln Fac:	1.000	Analyzed:	03/18/09

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC487535

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<8.115	2,500	2,132	85	38-127

Surrogate	%REC	Limits
o-Terphenyl	89	61-127

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC487536

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,323	93	38-127	9	37

Surrogate	%REC	Limits
o-Terphenyl	98	61-127

RPD= Relative Percent Difference

APPENDIX D

Historical Analytical Results

HISTORICAL GROUNDWATER MONITORING WELLS ANALYTICAL RESULTS

REDWOOD REGIONAL PARK SERVICE YARD, OAKLAND, CALIFORNIA

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

Well MW-2										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Nov-94	**66**	*< 50*	**3.4**	*< 0.5*	*< 0.5*	**0.9**	**4.3**	*NA*	**70.3**
2	Feb-95	**89**	*< 50*	**18**	**2.4**	**1.7**	**7.5**	**30**	*NA*	**118.6**
3	May-95	*< 50*	*< 50*	**3.9**	*< 0.5*	**1.6**	**2.5**	**8.0**	*NA*	**8**
4	Aug-95	*< 50*	*< 50*	**5.7**	*< 0.5*	*< 0.5*	*< 0.5*	**5.7**	*NA*	**5.7**
5	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*NA*	**0**
6	Aug-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*NA*	**0**
7	Dec-96	*< 50*	*< 50*	**6.3**	*< 0.5*	**1.6**	*< 0.5*	**7.9**	*NA*	**7.9**
8	Feb-97	*< 50*	*< 50*	**0.69**	*< 0.5*	**0.55**	*< 0.5*	**1.2**	*NA*	**1.24**
9	May-97	**67**	*< 50*	**8.9**	*< 0.5*	**5.1**	*< 1.0*	**14**	*NA*	**81**
10	Aug-97	*< 50*	*< 50*	**4.5**	*< 0.5*	**1.1**	*< 0.5*	**5.6**	*NA*	**5.6**
11	Dec-97	**61**	*< 50*	**21**	*< 0.5*	**6.5**	**3.9**	**31**	*NA*	**92.4**
12	Feb-98	**2,000**	**200**	**270**	**92**	**150**	**600**	**1,112**	*NA*	**3312**
13	Sep-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**7.0**	**7**
14	Apr-99	**82**	**710**	**4.2**	*< 0.5*	**3.4**	**4.0**	**12**	**7.5**	**811.1**
15	Dec-99	**57**	*< 50*	**20**	**0.6**	**5.9**	*<0.5*	**27**	**4.5**	**88.01**
16	Sep-00	*< 50*	*< 50*	**0.72**	*< 0.5*	*< 0.5*	*< 0.5*	**0.7**	**7.9**	**8.62**
17	Jan-01	**51**	*< 50*	**8.3**	*< 0.5*	**1.5**	*< 0.5*	**9.8**	**8.0**	**68.8**
18	Apr-01	**110**	*< 50*	**10**	*< 0.5*	**11**	**6.4**	**27**	**10**	**147.4**
19	Aug-01	**260**	**120**	**30**	**6.7**	**1.6**	**6.4**	**45**	**27**	**451.7**
20	Dec-01	**74**	**69**	**14**	**0.8**	**3.7**	**3.5**	**22**	**6.6**	**171.56**
21	Mar-02	*< 50*	*< 50*	**2.3**	**0.51**	**1.9**	**1.3**	**8.3**	**8.2**	**14.2**
22	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**7.7**	**7.7**
23	Sep-02	**98**	*< 50*	**5.0**	*< 0.5*	*< 0.5*	*< 0.5*	**—**	**13**	**116.0**
24	Dec-02	*< 50*	*< 50*	**4.3**	*< 0.5*	*< 0.5*	*< 0.5*	**—**	*< 2.0*	**4.3**
25	Mar-03	**130**	**82**	**39**	*< 0.5*	**20**	**4.1**	**63**	**16**	**291.1**
26	Jun-03	*< 50*	*< 50*	**1.9**	*< 0.5*	*< 0.5*	*< 0.5*	**1.9**	**8.7**	**10.6**
27	Sep-03	**120**	*< 50*	**8.6**	**0.51**	**0.53**	*< 0.5*	**9.6**	**23**	**152.6**
28	Dec-03	**282**	*<100*	**4.3**	**1.6**	**1.3**	**1.2**	**8.4**	**9.4**	**299.8**
29	Mar-04	**374**	*<100*	**81**	**1.2**	**36**	**7.3**	**126**	**18**	**517.5**
30	Jun-04	*< 50*	*< 50*	**0.75**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**15**	**15.8**
31	Sep-04	**200**	*< 50*	**23**	*< 0.5*	*< 0.5*	**0.70**	**24**	**16**	**239.7**
32	Dec-04	**80**	*< 50*	**14**	*< 0.5*	*2.9*	**0.72**	**18**	**20**	**117.6**
33	Mar-05	**190**	**68**	**27**	*<0.5*	**14**	**11**	**52**	**26**	**336.0**
34	Jun-05	**68**	*< 50*	**7.1**	*< 0.5*	**6.9**	**1.8**	**16**	**24**	**107.8**
35	Sep-05	*< 50*	*< 50*	**2.5**	*< 0.5*	*< 0.5*	*< 1.0*	**2.5**	**23**	**25.5**
36	Dec-05	*< 50*	*< 50*	**3.9**	*< 0.5*	*< 0.5*	*< 1.0*	**3.9**	**23**	**26.9**

Well MW-2 (con't)										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
37	Mar-06	**1300**	**300**	**77**	**4.4**	**91**	**250**	**422**	**18**	**2040.4**
38	Jun-06	*< 50*	**60**	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	**—**	**17**	**77.0**
39	Sep-06	**270**	**52**	**31**	*< 0.5*	**15**	**6.69**	**53**	**17**	**391.7**
40	Dec-06	*< 50*	*< 50*	**2.1**	*< 0.5*	*< 0.5*	*< 0.5*	**2**	**16**	**18.1**
41	Mar-07	**59**	*< 50*	**4**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**14**	**77.0**
42	Jun-07	*<50*	*<50*	**3.5**	*<0.5*	*<0.5*	*<0.5*	**3.5**	**8**	**11.5**
43	Sep-07	**2,600**	**260**	**160**	**44**	**86**	**431**	**721**	**15**	**3596.0**
44	Dec-07	**16,000**	**5,800**	**23**	**91**	**230**	**2,420**	**2764**	**16**	**24580.0**
44a	Jan-08	**480**	**200**	**1.1**	**3.2**	**5.5**	**68**	**77.8**	**11**	**768.8**
45	Mar-08	**20,000**	**24,000**	**21**	**39**	**300**	**2,620**	**2980**	**13**	**46993.0**
45a	Apr-08	**800**	**640**	**2.6**	**2.1**	**13**	**155**	**172.7**	**13**	**1625.7**
45b	May-08	**7,100**	**3,900**	**14**	**8.8**	**140**	**710**	**872.8**	**11**	**11883.8**
46	Jun-08	**5,700**	**1,000**	**9.4**	**5.2**	**80**	**550**	**644.6**	**11**	**7355.6**
46a	Jul-08	**6,400**	**2,200**	**13**	**5.1**	**140**	**570**	**728.1**	**2.9**	**9331.0**
46b	Jul-08	**390**	**55**	**1.3**	**0.77**	**4.6**	**44.4**	**51.07**	**9**	**505.1**
46c	Aug-08	**28,000**	**7,100**	**12**	**19**	**260**	**2,740**	**3031**	*<20*	**38131.0**
46d	Aug-08	**8,700**	**2,700**	**5.7**	**7.4**	**130**	**900.0**	**1043.1**	**3.5**	**12446.6**
47	Sep-08	**40,000**	**9,100**	**1.6**	*<0.5*	**110**	**910.0**	**1021.6**	**9.5**	**50131.1**
48	Dec-08	**9,200**	**2,200**	**0.52**	*<0.5*	*<0.5*	**201.0**	**201.52**	**12**	**11613.5**
49	Mar-09	**3,100**	**37,000**	**1.1**	**1.4**	**7.9**	**35.0**	**45.4**	**14**	**40159.4**

Well MW-4										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Nov-94	**2,600**	**230**	**120**	**4.8**	**150**	**88**	**363**	*NA*	**3,193**
2	Feb-95	**11,000**	**330**	**420**	**17**	**440**	**460**	**1,337**	*NA*	**12,667**
3	May-95	**7,200**	**440**	**300**	**13**	**390**	**330**	**1,033**	*NA*	**8,673**
4	Aug-95	**1,800**	**240**	**65**	**6.8**	**89**	**67**	**227**	*NA*	**2,267**
5	May-96	**1,100**	**140**	**51**	*< 0.5*	*< 0.5*	**47**	**98**	*NA*	**1,338**
6	Aug-96	**3,700**	**120**	**63**	**2.0**	**200**	**144**	**409**	*NA*	**4,229**
7	Dec-96	**2,700**	**240**	**19**	*< 0.5*	**130**	**93**	**242**	*NA*	**3,182**
8	Feb-97	**3,300**	*< 50*	**120**	**1.0**	**150**	**103**	**374**	*NA*	**3,674**
9	May-97	**490**	*< 50*	**2.6**	**6.7**	**6.4**	**6.7**	**22**	*NA*	**512**
10	Aug-97	**1,900**	**150**	**8.6**	**3.5**	**78**	**53**	**143**	*NA*	**2,193**
11	Dec-97	**1,000**	**84**	**4.6**	**2.7**	**61**	**54**	**123**	*NA*	**1,207**
12	Feb-98	**5,300**	**340**	**110**	**24**	**320**	**402**	**856**	*NA*	**6,496**
13	Sep-98	**1,800**	*< 50*	**8.9**	*< 0.5*	**68**	**27**	**104**	**23**	**1,927**
14	Apr-99	**2,900**	**710**	**61**	**1.2**	**120**	**80**	**263**	**32**	**3,905**
15	Dec-99	**1,000**	**430**	**4.0**	**2.0**	**26**	**14**	**46**	*< 2.0*	**1,476**
16	Sep-00	**570**	**380**	*< 0.5*	*< 0.5*	**16**	**4.1**	**20**	**2.4**	**973**
17	Jan-01	**1,600**	**650**	**4.2**	**0.89**	**46**	**13.8**	**65**	**8.4**	**2,323**
18	Apr-01	**1,700**	**1,100**	**4.5**	**2.8**	**48**	**10.7**	**66**	**5.0**	**2,871**
19	Aug-01	**1,300**	**810**	**3.2**	**4.0**	**29**	**9.7**	**46**	*< 2.0*	**2,156**
20	Dec-01	*< 50*	**110**	*< 0.5*	*< 0.5*	*< 0.5*	**1.2**	**1.2**	*< 2.0*	**111**
21	Mar-02	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
22	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
23	Sep-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
24	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
25	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
26	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
27	Sep-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	*0*
28	Dec-03	*<50*	*<100*	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*	*0*
29	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*	*0*
30	Jun-04	*<50*	**2,500**	*<0.3*	*<0.3*	*<0.3*	*<0.6*	—	*< 5.0*	*0*
31	Sep-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	*0*
32	Dec-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	*0*
33	Mar-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	*0*
34	Jun-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	*0*
35	Sep-05	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	*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**	**Total Hydrocarbons**
1	Nov-94	**50**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	**50**
2	Feb-95	**70**	*< 50*	**0.6**	*< 0.5*	*< 0.5*	*< 0.5*	**0.6**	*NA*	**70.6**
3	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
4	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
5	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
6	Aug-96	**80**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	**80**
7	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
8	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
9	May-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
10	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
11	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
12	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
13	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2*	0
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**	**5.9**
15	Sep-04	*<50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 1.0*	—	*< 2.0*	0

Well MW-7										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Jan-01	**13,000**	**3,100**	**95**	**4**	**500**	**289**	**888**	**95**	**17,083**
2	Apr-01	**13,000**	**3,900**	**140**	*< 0.5*	**530**	**278**	**948**	**52**	**17,900**
3	Aug-01	**12,000**	**5,000**	**55**	**25**	**440**	**198**	**718**	**19**	**17,737**
4	Dec-01	**9,100**	**4,600**	**89**	*< 2.5*	**460**	**228**	**777**	*< 10*	**14,477**
5	Mar-02	**8,700**	**3,900**	**220**	**6.2**	**450**	**191**	**867**	**200**	**13,667**
6	Jun-02	**9,300**	**3,500**	**210**	**6.3**	**380**	**155**	**751**	**18**	**13,569**
7	Sep-02	**9,600**	**3,900**	**180**	*< 0.5*	**380**	**160**	**720**	*< 2.0*	**14,220**
8	Dec-02	**9,600**	**3,700**	**110**	*< 0.5*	**400**	**189**	**699**	*< 2.0*	**13,999**
9	Mar-03	**10,000**	**3,600**	**210**	**12**	**360**	**143**	**725**	**45**	**14,370**
10	Jun-03	**9,300**	**4,200**	**190**	*< 10*	**250**	**130**	**570**	**200**	**14,270**
11	Sep-03	**10,000**	**3,300**	**150**	**11**	**300**	**136**	**597**	*< 2.0*	**13,897**
12	Dec-03	**9,140**	**1,100**	**62**	**45**	**295**	**184**	**586**	**89**	**10,915**
13	Mar-04	**8,170**	**600**	**104**	**41**	**306**	**129**	**580**	**84**	**9,434**
14	Jun-04	**9,200**	**2,700**	**150**	*< 0.5*	**290**	**91**	**531**	*< 2.0*	**12,431**
15	Sep-04	**9,700**	**3,400**	**98**	*< 0.5*	**300**	**125**	**523**	*< 2.0*	**13,623**
16	Dec-04	**8200**	**4,000**	**95**	*< 0.5*	**290**	**124**	**509**	*< 2.0*	**12,709**
17	Mar-05	**10,000**	**4,300**	**150**	*<0.5*	**370**	**71**	**591**	*<2.0*	**14,891**
18	Jun-05	**10,000**	**3,300**	**210**	*<1.0*	**410**	**56**	**676**	*<4.0*	**13,976**
19	Sep-05	**7,600**	**2,700**	**110**	*<1.0*	**310**	**54**	**474**	*<4.0*	**10,774**
20	Dec-05	**2,900**	**3,300**	**31**	*<1.0*	**140**	**41**	**212**	*<4.0*	**6,412**
21	Mar-06	**6,800**	**3,000**	**110**	*< 1.0*	**280**	**42**	**432**	**110**	**10,342**
22	Jun-06	**6,900**	**3,600**	**63**	*< 2.5*	**290**	**43**	**396**	*< 10*	**10,896**
23	Sep-06	**7,900**	**3,600**	**64**	*< 0.5*	**260**	**58**	**382**	49	**11,931**
24	Dec-06	**7,300**	**2,400**	**50**	*< 0.5*	**220**	**42**	**312**	*< 2.0*	**10,012**
25	Mar-07	**6,200**	**2,900**	**34**	*< 0.5*	**190**	**15**	**239**	*< 2.0*	**9,339**
26	Jun-07	**6,800**	**3,000**	**30**	*<1.0*	**160**	**27**	**217**	*<4.0*	**10,017**
27	Sep-07	**6,400**	**3,000**	*<0.5*	*<0.5*	**170**	**43**	**213**	*<2.0*	**9,613**
28	Dec-07	**4,800**	**2,800**	*<0.5*	*<0.5*	**100**	**26.5**	**126.5**	*2.7*	**7,729**
30	Mar-08	**5,400**	**5,900**	**21**	*<0.5*	**150**	**15**	**186**	**51**	**11,537**
31	Jun-08	**4,800**	**3,500**	**55**	*<0.5*	**140**	**7.03**	**202**	*<2.0*	**8,502**
32	Sep-08	**6,400**	**2,800**	**22**	*<0.5*	**100**	**9.30**	**131**	*<2.0*	**9,331**
33	Dec-08	**3,500**	**3,600**	**5**	*<0.5*	**100**	**9.10**	**114**	*<2.0*	**7,214**
34	Mar-09	**5,100**	**6,700**	**19**	*<0.5*	**140**	**12.30**	**171**	**51**	**12,022**

Well MW-8										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Jan-01	**14,000**	**1,800**	**430**	**17**	**360**	**1230**	**2,037**	**96**	**17,933**
2	Apr-01	**11,000**	**3,200**	**320**	**13**	**560**	**1,163**	**2,056**	**42**	**16,298**
3	Aug-01	**9,600**	**3,200**	**130**	**14**	**470**	**463**	**1,077**	**14**	**13,891**
4	Dec-01	**3,500**	**950**	**69**	**2.4**	**310**	**431**	**812**	*< 4.0*	**5,262**
5	Mar-02	**14,000**	**3,800**	**650**	**17**	**1,200**	**1,510**	**3,377**	**240**	**21,417**
6	Jun-02	**2,900**	**1,100**	**70**	**2.0**	**170**	**148**	**390**	**19**	**4,409**
7	Sep-02	**1,000**	**420**	**22**	*< 0.5*	**64**	**50**	**136**	*< 2.0*	**1,556**
8	Dec-02	**3,300**	**290**	**67**	*< 0.5*	**190**	**203**	**460**	*< 2.0*	**4,050**
9	Mar-03	**13,000**	**3,500**	**610**	**12**	**1,100**	**958**	**2,680**	*< 10*	**19,180**
10	Jun-03	**7,900**	**2,200**	**370**	**7.4**	**620**	**562**	**1,559**	*< 4.0*	**11,659**
11	Sep-03	**3,600**	**400**	**120**	**3.3**	**300**	**221**	**644**	*< 2.0*	**4,644**
12	Dec-03	**485**	**100**	**19**	**1.5**	**26**	**36**	**83**	*< 5.0*	**668**
13	Mar-04	**16,000**	**900**	**592**	**24**	**1,060**	**1,870**	**3,546**	**90**	**20,536**
14	Jun-04	**5,900**	**990**	**260**	**9.9**	**460**	**390**	**1,120**	*< 10*	**8,010**
15	Sep-04	**2,000**	**360**	**100**	*< 2.5*	**180**	**102**	**382**	*< 10*	**2,742**
16	Dec-04	**15,000**	**4,000**	**840**	**21**	**1,200**	**1,520**	**3,581**	*< 10*	**22,581**
17	Mar-05	**24,000**	**7,100**	**840**	**51**	**1,800**	**2,410**	**5,101**	*<10*	**36,201**
18	Jun-05	**33,000**	**5,700**	**930**	**39**	**2,500**	**3,860**	**7,329**	*<20*	**46,029**
19	Sep-05	**5,600**	**1,200**	**270**	**6.6**	**400**	**390**	**1,067**	*<20*	**7,867**
20	Dec-05	**3,700**	**1,300**	**110**	*< 5.0*	**320**	**356**	**786**	*<20*	**5,786**
21	Mar-06	**22,000**	**4,300**	**550**	**30**	**1,800**	**2,380**	**4,760**	*<20*	**31,060**
22	Jun-06	**19,000**	**5,000**	**500**	**28**	**1,800**	**1,897**	**4,225**	*<20*	**28,225**
23	Sep-06	**9,000**	**820**	**170**	**7.7**	**730**	**539**	**1,447**	*<10*	**11,267**
24	Dec-06	**4,400**	**800**	**75**	**4.2**	**320**	**246**	**645**	*< 2.0*	**5,845**
25	Mar-07	**15,000**	**4,500**	**340**	**19**	**1,300**	**1,275**	**2,934**	*< 20*	**22,434**
26	Jun-07	**10,000**	**3,500**	**220**	**11**	**670**	**675**	**1,576**	*<4.0*	**15,076**
27	Sep-07	**9,400**	**3,400**	**200**	**6.9**	**1,000**	**773**	**1,980**	*<8.0*	**14,780**
28	Dec-07	**1,200**	**500**	**15**	**0.88**	**95**	**57.7**	**168.58**	*<2.0*	**1,869**
30	Mar-08	**11,000**	**13,000**	**150**	**13**	**1,100**	**950.0**	**2,213**	**76**	**26,289**
31	Jun-08	**2,000**	**1,700**	**27**	**2.5**	**190**	**113.2**	**333**	*<2.0*	**4,033**
32	Sep-08	**5,500**	**4,400**	**89**	**3.9**	**630**	**194.4**	**917**	*<2.0*	**10,817**
33	Dec-08	**520**	**400**	**1.5**	*<0.5*	**20**	**4.4**	**26**	**4.5**	**950**
34	Mar-09	**4,600**	**7,300**	**55.0**	*<5.0*	**410**	**639.0**	**1,104**	*<20*	**13,004**

Well MW-9										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Aug-01	**11,000**	**170**	**340**	**13**	**720**	**616**	**1,689**	**48**	**12,907**
2	Dec-01	**9,400**	**2,700**	**250**	**5.1**	**520**	**317**	**1,092**	*< 10*	**13,192**
3	Mar-02	**1,700**	**300**	**53**	**4.2**	**120**	**67**	**244**	**20**	**2,264**
4	Jun-02	**11,000**	**2,500**	**200**	**16**	**600**	**509**	**1,325**	**85**	**14,910**
5	Sep-02	**3,600**	**2,800**	**440**	**11**	**260**	**39**	**750**	*< 4.0*	**7,150**
6	Dec-02	**7,000**	**3,500**	**380**	**9.5**	**730**	**147**	**1,266**	*< 10*	**11,766**
7	Mar-03	**4,400**	**1,400**	**320**	**6.9**	**400**	**93**	**820**	*< 2.0*	**6,620**
8	Jun-03	**7,600**	**1,600**	**490**	**10**	**620**	**167**	**1,287**	*< 4.0*	**10,487**
9	Sep-03	**8,300**	**2,900**	**420**	**14**	**870**	**200**	**1,504**	*< 10*	**12,704**
10	Dec-03	**7,080**	**700**	**287**	**31**	**901**	**255**	**1,474**	*< 10*	**9,254**
11	Mar-04	**3,550**	**600**	**122**	**15**	**313**	**84**	**534**	**35**	**4,719**
12	Jun-04	**6,800**	**1,700**	**350**	*< 2.5*	**620**	**99**	**1,069**	*< 10*	**9,569**
13	Sep-04	**7,100**	**1,900**	**160**	*8.1*	**600**	**406**	**1,174**	*< 10*	**10,174**
14	Dec-04	**4,700**	**2,800**	**160**	*< 2.5*	**470**	*< 0.5*	**630**	*< 10*	**8,130**
15	Mar-05	**4,200**	**1,600**	**97**	*<2.5*	**310**	**42**	**449**	*< 10*	**6,249**
16	Jun-05	**9,900**	**2,000**	**170**	*<2.5*	**590**	**359**	**1,119**	*< 10*	**13,019**
17	Sep-05	**3,600**	**1,200**	**250**	*<0.5*	**330**	**36**	**616**	*< 2.0*	**5,416**
18	Dec-05	**8,700**	**1,500**	**150**	**4**	**650**	**551**	**1,355**	*< 4.0*	**11,555**
19	Mar-06	**3,600**	**880**	**37**	*<1.0*	**210**	**165**	**412**	*< 4.0*	**4,892**
20	Jun-06	**3,200**	**1,300**	**39**	*<1.0*	**220**	**144**	**403**	**4.2**	**4,908**
21	Sep-06	**12,000**	**3,300**	**130**	**8**	**850**	**604**	**1,592**	*<1.0*	**16,892**
22	Dec-06	**12,000**	**2,800**	**140**	**9.4**	**880**	**634**	**1,663**	*< 10*	**16,463**
23	Mar-07	**9,600**	**2,900**	**120**	**8.7**	**780**	**453**	**1,362**	*< 10*	**13,862**
24	Jun-07	**7,100**	**2,200**	**75**	**5.2**	**480**	**298**	**858**	*<4.0*	**10,158**
25	Sep-07	**4,500**	**2,100**	**60**	**3.8**	**420**	**227**	**710**	*<4.0*	**7,310**
26	Dec-07	**6,200**	**2,000**	**51**	*<0.5*	**340**	**128.8**	**519.8**	*<2.0*	**8,720**
27	Mar-08	**6,400**	**3,500**	**67**	**5.2**	**480**	**177.6**	**724.6**	**38**	**10,668**
28	Jun-08	**10,000**	**3,400**	**89**	*<2.5*	**510**	**231.0**	**830.0**	*<10*	**14,230**
29	Sep-08	**4,800**	**2,700**	**53**	*<0.5*	**250**	**66.4**	**369.4**	*<2.0*	**7,869**
30	Dec-08	**4,300**	**2,300**	**45**	*<0.5*	**330**	**39.1**	**414.1**	*<2.0*	**7,014**
31	Mar-09	**4,000**	**2,200**	*<2.0*	*<0.5*	**160**	**34.9**	**194.9**	*<2.0*	**6,395**

Well MW-10										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Aug-01	**550**	**2,100**	**17**	*< 0.5*	**31**	**44**	**92**	**40**	**2,782**
2	Dec-01	*< 50*	**81**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**25**	**106**
3	Mar-02	*< 50*	*< 50*	**0.61**	*< 0.5*	*< 0.5*	*< 0.5*	**0.61**	**6.0**	**7**
4	Jun-02	*< 50*	*< 50*	**0.59**	*< 0.5*	**0.58**	*< 0.5*	**1.2**	**9.0**	**10**
5	Sep-02	**160**	**120**	**10**	*< 0.5*	**6.7**	**3.6**	**20**	**26**	**326**
6	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	**16**	**16**
7	Mar-03	**110**	*< 50*	**11**	*< 0.5*	**12**	**1.3**	**24**	**15**	**149**
8	Jun-03	**110**	*< 50*	**9.6**	*< 0.5*	**6.8**	*< 0.5*	**16**	**9.0**	**135**
9	Sep-03	*< 50*	*< 50*	**1.1**	*< 0.5*	**1.5**	*< 0.5*	**2.6**	**7.0**	**10**
10	Dec-03	**162**	*<100*	**6.9**	*<0.3*	**8.0**	*<0.6*	**15**	**9.9**	**187**
11	Mar-04	**94**	*<100*	**2.8**	*<0.3*	**5.7**	**7.0**	**16**	*<5.0*	**110**
12	Jun-04	**150**	**56**	**11**	*< 0.5*	**12**	*< 0.5*	**23**	**15**	**244**
13	Sep-04	*< 50*	*< 50*	**1.6**	*< 0.5*	**1.9**	*< 1.0*	**3.5**	**5.8**	**9**
14	Dec-04	**64**	*< 50*	**3.7**	*< 0.5*	**3.7**	**0.7**	**8.1**	**10**	**82**
15	Mar-05	**95**	**98**	**8.3**	*<0.5*	**7.7**	**0.77**	**17**	**13**	**223**
16	Jun-05	**150**	**57**	**14**	*<0.5*	**10**	**1.0**	**25**	*<2.0*	**232**
17	Sep-05	**87**	*< 50*	**5.0**	*<0.5*	**3.6**	*<1.0*	**8.6**	*<2.0*	**96**
18	Dec-05	*< 50*	*< 50*	**1.2**	*<0.5*	*<0.5*	*<1.0*	**1.2**	**7.8**	**9**
19	Mar-06	**58**	**71**	**3.2**	*<0.5*	**2.2**	*<1.0*	**5.4**	**8.8**	**143**
20	Jun-06	**73**	**140**	**4.9**	*<0.5*	**2.5**	*<1.0*	**7.4**	**5.3**	**226**
21	Sep-06	**88**	**51**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	**9.6**	**149**
22	Dec-06	*<50*	*<50*	**0.61**	*<0.5*	**0.55**	*<0.5*	**1.2**	**3.7**	**5**
23	Mar-07	**57**	*<50*	**3.6**	*<0.5*	**2.2**	*<0.5*	**5.8**	**3.1**	**66**
24	Jun-07	**60**	**65**	**2.4**	*<0.5*	**1.6**	*<0.5*	**4.0**	**4.0**	**133**
25	Sep-07	**84**	*<50*	**3.6**	*<0.5*	**2.3**	**0.52**	**6.4**	**3.6**	**94**
26	Dec-07	**130**	**67**	**0.77**	*<0.5*	**340**	**0.83**	**341.6**	*<2.0*	**539**
27	Mar-08	**78**	**170**	**1.7**	*<0.5*	**3.1**	**0.97**	**5.8**	**2.4**	**256**
28	Jun-08	**230**	**320**	**12**	*<0.5*	**9.9**	**3.50**	**25.4**	*<2.0*	**575**
29	Sep-08	**80**	*<50*	**1.6**	*<0.5*	**0.52**	*<0.5*	**2.1**	**3.0**	**85**
30	Dec-08	*<50*	**66**	**0.89**	*<0.5*	*<0.5*	*<0.5*	**0.9**	**2.1**	**69**
31	Mar-09	**76**	**230**	*<2.0*	*<0.5*	**1.4**	*<0.5*	**1.4**	*<2.0*	**307**

Well MW-11										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Aug-01	**17,000**	**7,800**	**390**	**17**	**820**	**344**	**1,571**	*< 10*	**26,371**
2	Dec-01	**5,800**	**2,800**	**280**	**7.8**	**500**	**213**	**1,001**	*< 10*	**9,601**
3	Mar-02	**100**	**94**	*< 0.5*	*< 0.5*	**0.64**	*< 0.5*	**0.64**	**2.4**	**197**
4	Jun-02	**8,200**	**2,600**	**570**	**13**	**560**	**170**	**1,313**	*< 4*	**12,113**
5	Sep-02	**12,000**	**4,400**	**330**	**13**	**880**	**654**	**1,877**	*< 10*	**18,277**
6	Dec-02	**18,000**	**4,500**	**420**	*< 2.5*	**1,100**	**912**	**2,432**	*< 10*	**24,932**
7	Mar-03	**7,800**	**2,600**	**170**	**4.7**	**530**	**337**	**1,042**	**53**	**11,495**
8	Jun-03	**14,000**	**3,800**	**250**	*< 2.5*	**870**	**693**	**1,813**	*< 10*	**19,613**
9	Sep-03	**10,000**	**3,000**	**250**	**9.9**	**700**	**527**	**1,487**	*< 4*	**14,487**
10	Dec-03	**15,000**	**1,100**	**314**	**60**	**1,070**	**802**	**2,246**	**173**	**18,519**
11	Mar-04	**4,900**	**400**	**72**	**17**	**342**	**233**	**664**	**61**	**6,025**
12	Jun-04	**10,000**	**2,300**	**210**	**2.8**	**690**	**514**	**1,417**	*< 10*	**13,717**
13	Sep-04	**7,200**	**2,300**	**340**	*< 2.5*	**840**	**75**	**1,255**	*< 10*	**10,755**
14	Dec-04	**11,000**	**3,900**	**180**	**5.1**	**780**	**695**	**1,660**	*< 10*	**16,560**
15	Mar-05	**4,600**	**1,900**	**69**	*<2.5*	**300**	**206**	**575**	*< 10*	**7,075**
16	Jun-05	**1,400**	**590**	**85**	*<0.5*	**110**	**8.2**	**203**	*< 2.0*	**2,193**
17	Sep-05	**12,000**	**3,100**	**220**	*< 1.0*	**840**	**762**	**1,822**	*< 4.0*	**16,922**
18	Dec-05	**2,500**	**2,100**	**120**	*< 2.5*	**260**	**16**	**396**	*< 10*	**4,996**
19	Mar-06	**2,200**	**1,300**	**27**	*<2.5*	**130**	**5.2**	**162**	*< 10*	**3,662**
20	Jun-06	**3,700**	**1,900**	**170**	*<1.0*	**230**	**14**	**414**	*< 4.0*	**6,014**
21	Sep-06	**3,600**	**2,100**	**80**	*<0.5*	**230**	**8.8**	**319**	*< 2.0*	**6,019**
22	Dec-06	**6,000**	**3,500**	**83**	*<1.0*	**260**	**16.4**	**359**	*< 4.0*	**9,859**
23	Mar-07	**4,500**	**1,900**	**110**	*< 0.5*	**170**	**7.9**	**288**	*< 2.0*	**6,688**
24	Jun-07	**4,300**	**2,200**	**120**	*<0.5*	**140**	**6.6**	**267**	*<4.0*	**6,767**
25	Sep-07	**5,500**	**2,700**	**86**	*<0.5*	**180**	**16.1**	**282**	*<2.0*	**8,482**
26	Dec-07	**7,100**	**4,000**	**68**	*<0.5*	**140**	**14**	**222**	**35**	**11,357**
27	Mar-08	**5,300**	**4,000**	**130**	*<0.5*	**120**	**13**	**263**	**8.8**	**9,572**
28	Jun-08	**3,600**	**4,200**	**190**	*<0.5*	**140**	**11**	**341**	*<2.0*	**8,141**
29	Sep-08	**7,300**	**4,600**	**130**	*<0.5*	**110**	**4.5**	**245**	*<2.0*	**12,145**
30	Dec-08	**2,800**	**1,600**	**93**	*<0.5*	**82**	**0.69**	**176**	*<2.0*	**4,576**
31	Mar-09	**4,100**	**4,600**	**18**	*<0.5*	**82**	**8**	**108**	**8.0**	**8,816**

Well MW-12										
Event	**Date**	**TVHg**	**TEHd**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Total BTEX**	**MTBE**	**Total Hydrocarbons**
1	Dec-05	**1,300**	**700**	*< 0.5*	*< 0.5*	**33**	**5.6**	**39**	*< 2.0*	**2,039**
2	Mar-06	**1,100**	**540**	*<0.5*	*<0.5*	**8.5**	**1.5**	**10**	**49**	**1,699**
3	Jun-06	**680**	**400**	*<0.5*	*<0.5*	**5.8**	**1.4**	**7.2**	*< 2.0*	**1,087**
4	Sep-06	**910**	**480**	*<0.5*	*<0.5*	**9.9**	**1.5**	**11.4**	**21**	**1,422**
5	Dec-06	**770**	**230**	*< 0.5*	*< 0.5*	**7.4**	**2.0**	**9.4**	*< 2.0*	**1,009**
6	Mar-07	**390**	**110**	*< 0.5*	*< 0.5*	**1.7**	**1.7**	**3.4**	*< 2.0*	**503**
7	Jun-07	**590**	**280**	*<0.5*	*<0.5*	**4.5**	**0.9**	**5.4**	*<2.0*	**875**
8	Sep-07	**390**	**180**	*<0.5*	*<0.5*	**2.4**	**2.4**	**4.8**	*<2.0*	**575**
9	Dec-07	**210**	**140**	*<0.5*	*<0.5*	**2.1**	**1.3**	**3.4**	*<2.0*	**353**
10	Mar-08	**720**	**500**	*<0.5*	**4.4**	**9.0**	**2.8**	**16.2**	*<2.0*	**1,236**
11	Jun-08	**220**	**50**	*<0.5*	*<0.5*	**2.0**	*<0.5*	**2.0**	*<2.0*	**272**
12	Sep-08	**370**	**95**	*<0.5*	*<0.5*	**2.8**	**0.98**	**3.8**	*<2.0*	**469**
13	Dec-08	**93**	**170**	*<0.5*	*<0.5*	**0.76**	*<0.5*	**0.8**	*<2.0*	**264**
14	Mar-09	**180**	**130**	*<0.5*	*<0.5*	**1.70**	*<0.5*	**1.7**	*<2.0*	**312**

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**	**Total Hydrocarbons**
1	Feb-94	**50**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	**50**
2	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
3	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
4	Aug-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
5	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
6	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
7	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
8	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
9	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*NA*	0
10	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	0
11	Apr-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	—	*< 2.0*	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**	**Total Hydrocarbons**
1	Feb-94	**130**	*< 50*	**1.9**	*< 0.5*	**4.4**	**3.2**	**9.5**	*NA*	**139.5**
2	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
3	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
4	May-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
5	Aug-96	**200**	*< 50*	**7.5**	*< 0.5*	**5.4**	*< 0.5*	**13**	*NA*	**212.9**
6	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
7	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
8	Aug-97	**350**	**130**	**13**	**0.89**	**19**	**11**	**44**	*NA*	**523.59**
9	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
10	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*NA*	*0*
11	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
12	Apr-99	**81**	*<50*	**2.0**	*< 0.5*	**2.5**	**1.3**	**5.8**	**2.3**	**89.1**
13	Dec-99	**1,300**	**250**	**10**	**1.0**	**47**	**27**	**85**	**2.2**	**1637.2**
14	Sep-00	**160**	**100**	**2.1**	*< 0.5*	**5.2**	**1.9**	**9.2**	**3.4**	**272.6**
15	Jan-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.53**	*< 0.5*	**0.5**	*< 2.0*	**0.53**
16	Apr-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
17	Sep-01	**440**	**200**	**2.1**	*< 0.5*	**17**	**1.3**	**20**	**10**	**670.4**
18	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
19	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
20	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
21	Sep-02	**220**	**590**	**10**	*< 0.5*	**13**	*< 0.5*	**23**	*< 2.0*	**833**
22	Dec-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
23	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	**0.56**	*< 0.5*	**0.56**	**2.8**	**3.36**
24	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*<0.5*	*< 2.0*	*0*
25	Sep-03	**190**	**92**	**2.1**	*< 0.5*	**4.2**	*< 0.5*	**6.3**	*< 2.0*	**288.3**
26	Dec-03	**86**	*< 100*	*< 0.3*	*< 0.3*	*< 0.3*	*< 0.6*	*<0.6*	*< 5.0*	**86**
27	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	**1.1**	*<0.6*	**1.1**	*< 5.0*	**1.1**
28	Jun-04	*<50*	*<50*	*<0.5*	*<0.5*	**0.83**	*<0.5*	**0.83**	*< 2.0*	**0.83**
29	Sep-04	**260**	**370**	**4.4**	*<0.5*	**6.3**	*< 1.0*	**11**	*< 2.0*	**640.7**
30	Dec-04	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*1.0*	*< 2.0*	*0*
31	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
32	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
33	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
34	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
35	Mar-06	*<50*	**62**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	**62**
36	Jun-06	*<50*	**110**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	**110**
37	Sep-06	**62**	**94**	*<0.5*	*<0.5*	**0.81**	*<0.5*	**0.8**	*< 2.0*	**156.81**
38	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
39	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
40	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*	*0*
41	Sep-07	*<50*	**77**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	<1.0	*<2.0*	**77**
42	Dec-07	**130**	**430**	*<0.5*	*<0.5*	**1.5**	*<0.5*	**1.5**	*<2.0*	**561.5**
43	Mar-08	*<50*	**130**	*<0.5*	*<0.5*	*<0.5*	**0.61**	**0.61**	*<2.0*	**130.61**
44	Jun-08	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*	*0*
45	Sep-08	**530**	**690**	*<0.5*	*<0.5*	**4.3**	*<0.5*	**4.3**	*<2.0*	**1224.3**
46	Dec-08	*<50*	**83**	*<5.0*	*<5.0*	*<5.0*	*<5.0*	*<0.5*	*<2.0*	**83**
47	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<1.0*	*<2.0*	*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**	**Total Hydrocarbons**
1	May-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
2	Aug-95	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
3	May-96	*< 50*	**74**	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	**74**
4	Aug-96	**69**	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	**69**
5	Dec-96	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
6	Feb-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
7	Aug-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
8	Dec-97	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
9	Feb-98	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*NA*	*0*
10	Sep-98	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
11	Apr-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
12	Dec-99	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
13	Sep-00	*NS*	*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*	*0*
15	Apr-01	*< 50*	*<50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
16	Sep-01	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*< 0.5*	*NS*	*0*
17	Dec-01	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
18	Mar-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
19	Jun-02	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	**2.4**	2.4
20	Sep-02	*NS*	*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*	*0*
22	Mar-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
23	Jun-03	*< 50*	*< 50*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 0.5*	*< 2.0*	*0*
24	Sep-03	*NS*	*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*	**60**
26	Mar-04	*<50*	*<100*	*<0.3*	*<0.3*	*<0.6*	*<0.6*	*<0.6*	*< 5.0*	*0*
27	Jun-04	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
28	Sep-04	*NS*	*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*	*0*
30	Mar-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
31	Jun-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
32	Sep-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
33	Dec-05	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
34	Mar-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
35	Jun-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	**120**
36	Sep-06	*<50*	**120**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	**7.8**	**127.8**
37	Dec-06	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	*< 2.0*	*0*
38	Mar-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*< 1.0*	*<1.0*	**3.3**	**3.3**
39	Jun-07	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*	*0*
40	Sep-07	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
41	Dec-07	*NS*	*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*	**200**
43	Jun-08	*<50*	**55**	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<2.0*	**55**
44	Sep-08	*NS*	*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*	**360**
46	Mar-09	*<50*	*<50*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*0.5*	*<2.0*	*0*

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